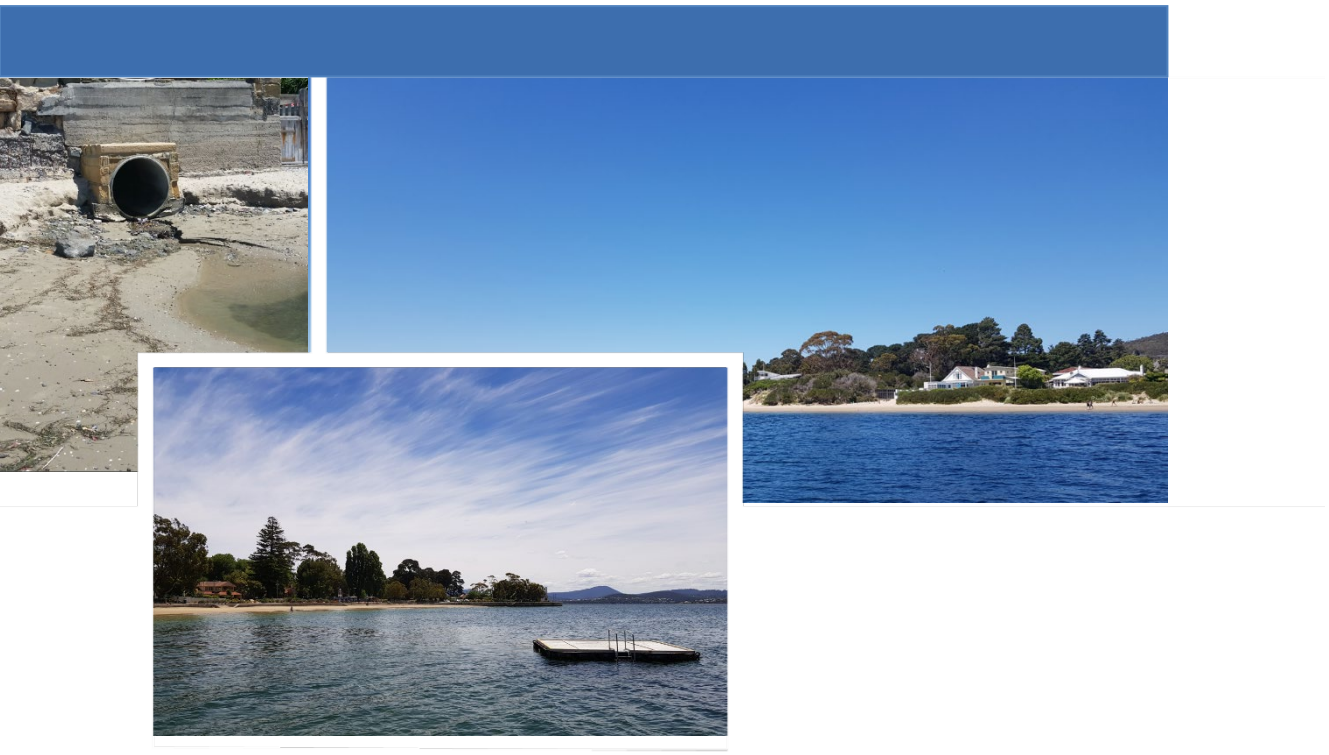
Derwent Estuary Recreational Water Quality Program

Annual Report 2024-25



Derwent Estuary Program

The Derwent Estuary Program pays respect to the traditional and original owners of this land and acknowledge today's Tasmanian Aboriginal people as the continuing custodians.

The Derwent Estuary Program (DEP) is a regional partnership between local governments, the Tasmanian State Government, businesses, scientists, and community-based groups to share science for the benefit of our estuary. The DEP was established in 1999 and has been nationally recognised for excellence in coordinating initiatives to reduce water pollution, conserve habitats and species, monitor river health and promote greater use and enjoyment of the foreshore.

Our major sponsors include Brighton, Clarence, Derwent Valley, Glenorchy, Hobart and Kingborough councils, the Tasmanian State Government, TasWater, Tasmanian Ports Corporation, Norske Skog Boyer, Nyrstar Hobart Smelter, Hydro Tasmania, EPA Tasmania, NRM South and the Institute for Marine and Antarctic Studies.

Contents

1 EXECUTIVE SUMMARY

This report presents results of the Derwent Estuary Recreational Water Quality Program (RWQ) 2024-25 season. The RWQ program is a collaborative initiative between six local councils, the State Government of Tasmania, Environmental Protection Authority Tasmania (EPA) and the Derwent Estuary Program (DEP). Water samples were collected weekly at 38 sites throughout the estuary between 1 December 2024 and 31 March 2025 and analysed for the faecal indicator bacteria, enterococci.

This summer, the number of enterococci results that exceed the prescribed trigger level of 140 MPN 100 mL-1 set by the Tasmanian Recreational Water Quality Guidelines 2007 (DoH, 2007) was significantly higher than last season. However, the long-term rating at all swimming sites was consistent with ratings from previous seasons. This season saw an increase of 30 exceedances (enterococci >140 MPN 100 mL^{-1}), compared with 16 last summer and 22 the previous season.

At the end of this season, ten swimming sites were graded as Good, seven sites graded as Fair, and two as Poor. Only Blackmans Bay North saw a rating change this season, going from Good to Fair (Figure 4-1). All other sites saw a slight increase on their previous years long term classification.

The water quality at the 19 environmental sites also declined from the previous season. On 43 occasions, enterococci result over 140 MPN 100 mL^{-1} were recorded, compared to 24 times last year. Ratings changed at both New Town Bay and Hobart Regatta Pavilion going from a Fair to Poor rating. The Mid-river Derwent sampling location continues to be the environmental site with the consistently best water quality, followed by Montagu Bay, Elwick Bay and now Old Beach and Sullivans Cove. Montagu Bay stands out here as it now has the lowest Hazen value of all sites in the Derwent

Forecasting returned to the RWQ program again in 2024-25 as a permanent component of the program. In many cities around the world, including Melbourne and Sydney, in addition to the weekly sampling results and general advice, the swimming public is provided with daily forecasts, a prediction of what kind of pollution level is to be expected at popular swimming sites. The forecasts provided were assessed as Appropriate advice 86.5% of the time, with 5.7% Missed alarms (7 sites had none) and 7.6% False alarms, which in all was comparable with our interstate counterparts. We have seen a slight reduction in accuracy from last season, with an increase in false alarms, suggesting results have been impacted by other sources of contaminants.

Overall, it was a dry summer for the state of Tasmania, with summer rainfall was down about 14% below the average (Bureau of Meteorology, 2025b). However, in Hobart (Ellerslie Road) rainfall was 119% of the long-term average, suggesting a slightly wetter summer in Hobart. As is often the case, rainfall varied greatly between the summer months in the estuary. December had three significant rainfall events with January having one. The remainder of the summer period saw low to no rain falling with all sites experiencing <10mm in the month of February and March. While rainfall is a common driver of pollution at our swimming sites, it is difficult to draw conclusions between rainfall and enterococci results. Many of this summer's swimming site failures appeared unrelated to rainfall events.

1.1 Season follow-ups

The following are issues which individual EHOs have raised with DEP during the season, which are worthwhile clarifying.

1.1.1 Beach Watch website changes to reflect current advice

Initial conversations have been had within the RWQ stakeholder group about how the Beachwatch website can be updated to reflect current advice in a clear and simple way. In response to stakeholder and public feedback the DEP elevated the Beach Watch page to the website main menu and made the differentiation of the beach and bay watch tabs more obvious. A discussion with RWQ members and communications experts about the hierarchy of daily, weekly and long-term ratings and how they are shared publicly is required.

Please do let the DEP team know if you have suggestions for website improvements.

2 INTRODUCTION

Water quality monitoring of beaches and bays in the Derwent Estuary is coordinated by the DEP in collaboration with Department of Health (DoH), EPA Tasmania and the six councils that border the estuary (Brighton, Clarence, Derwent Valley, Glenorchy, Hobart and Kingborough). The primary objectives of the program are to coordinate monitoring, support investigations and assist councils and the DoH in managing human health risks associated with poor water quality. The DEP's role in the program is to:

- Coordinate recreational water quality monitoring in the Derwent Estuary.
- Compile and analyse data, including classification of beaches and bays, annual reporting and analysis of long-term trends (using methods outlined Tasmanian Recreational Water Quality Guidelines 2007(DoH, 2007).
- Share water quality data, ratings and forecasts publicly on the DEP website.
- Support and encourage site specific investigations into poor or deteriorating water quality at targeted sites.

The water quality data is made publicly available via the DEP website and Facebook page on a weekly basis throughout the summer (December-March), to allow the community to make informed decisions as to where and when to swim. This data is also used to inform decision-making processes, by identifying stormwater and wastewater assets that require investigating.

2.1 Pathogens and health risks

Water contaminated by sewage and animal faeces may contain pathogenic micro-organisms (bacteria, viruses, protozoa), which pose a health hazard when the water is used for primary contact recreation, such as swimming. Infection may occur by swallowing, inhaling or by direct contact of contaminated water with ears, nasal passages, mucous membranes, and cuts in the skin, which allow the pathogens to enter the body (N.Z. Ministry for the Environment, 2002). The most common health conditions associated with primary contact recreation in contaminated water are gastrointestinal disorders, respiratory illnesses, eye, nose and throat infections and skin disorders.

Direct detection of pathogens is not a feasible option for routine assessments since they occur intermittently and are difficult to recover from water. Thus, water samples are

analysed for the concentration of more easily detected microorganisms, which may indicate the presence of pathogens, referred to as faecal indicator bacteria (refer to (DEP, 2015 for more information). In the Derwent Estuary, enterococci are sampled as the key faecal indicator bacteria, as required by the Tasmanian Recreational Water Quality Guidelines 2007 (DoH, 2007).

2.2 **Sources of contamination**

Key sources of faecal contamination in coastal waters can include untreated sewage, or faecal contamination from a catchment transported via the stormwater system, animal faeces, or resuspension of contaminated sediments:

- Stormwater systems in urban areas can be contaminated with sewage. The source for this contamination can be caused by a failure in the wastewater (sewage) system, including infrastructure damage or blockages (tree roots, wet wipes etc) causing overflows, overflows during high rainfall events, or direct cross-connections, leakages, or animal faeces in low rainfall (or non-rainfall) events.
- Direct contamination can occur from animal faeces. High density animal aggregations, such as birds or dogs, on beaches can contribute to contamination.
- Resuspension of contaminated sediments by wind or wave action is also a possible source of contamination.

Differentiating between contaminant sources can be very difficult, however regular (and case-based) sanitary surveys, possibly combined with specialist laboratory techniques, such as sterols can help advance our understanding. Systematic investigation is critical to locate a pollution source. See the DEP Source Tracking Framework and Toolkit https://www.derwentestuary.org.au/assets/Source_Tracking_Framework_and_Toolkit_Mar2020.pdf.

2.3 **Recreational water quality guidelines**

Swimming and environmental sites in the Derwent Estuary are graded as Good, Fair or Poor. This is in accordance with the Recreational Water Quality Guidelines for Tasmania (DoH, 2007), which are largely based on the national Guidelines for Managing Risks in Recreational Water (NHMRC, 2008). The guidelines are based on aseptic grab sample analysis for the faecal indicator microbial group enterococci, and the Tasmanian guidelines adopt a three-tiered approach to classifying the long-term quality of a site based on five years of data. The tiers are:

- *Good*: rolling 5-year 95th Hazen percentile value of < 200 enterococci MPN (Most Probable Number) 100 mL^{-1}.
- *Fair*: rolling 5-year 95th Hazen percentile value of 200 - 500 enterococci MPN 100 mL^{-1}.
- *Poor*: rolling 5-year 95th Hazen percentile value of > 500 enterococci MPN 100 mL^{-1}. In this case, water at these sites is considered a threat to public health in the event of primary contact recreation and local councils are required to advise the general public and to erect warning signs.

In addition to long-term site classification, trigger levels have been set to manage public exposure to episodic or emerging water quality issues. If a sample exceeds 140 enterococci MPN 100 mL^{-1}, the council is required to resample as soon as possible, and if two consecutive samples return enterococci results above 280 MPN 100 mL^{-1}, the

public must be advised directly via signage on the beach in question. This signage can only be removed by Council's Authorised Officer in consultation with DoH.

3 RECREATIONAL WATER QUALITY PROGRAM

3.1 Swimming and Environmental sites

Aseptic grab samples are collected each Tuesday by Council and the EPA/DEP throughout the Derwent Estuary, during summer and early autumn each year (from 1 December to 31 March). Sites are categorised as either swimming sites or environmental sites, as described below, and locations are shown in Figure 3-1.

- The 19 swimming sites monitored this season are in locations where a significant number of people swim or conduct other primary contact recreation. Primary contact refers to where recreational water is used for whole-body contact, i.e., where there is a risk of swallowing water (NHMRC, 2008). These sites are sampled by councils.

- The 19 environmental sites monitored this season, sampled by either councils or EPA/DEP were selected using the following rationale:
  - Bays and coves that are frequently used for secondary contact recreation and/or have foreshore parks. Secondary contact refers to incidental contact, i.e., activities where only the limbs are regularly wet and in which greater contact (including swallowing water) is unusual, such as boating and fishing (NHMRC, 2008).
  - Areas with potential sources of faecal contamination.
  - Sites with relatively low risk of contamination, sampled to contextualise swimming site results.
  - Sites associated with major swimming events, such as the Trans-Derwent Swim.

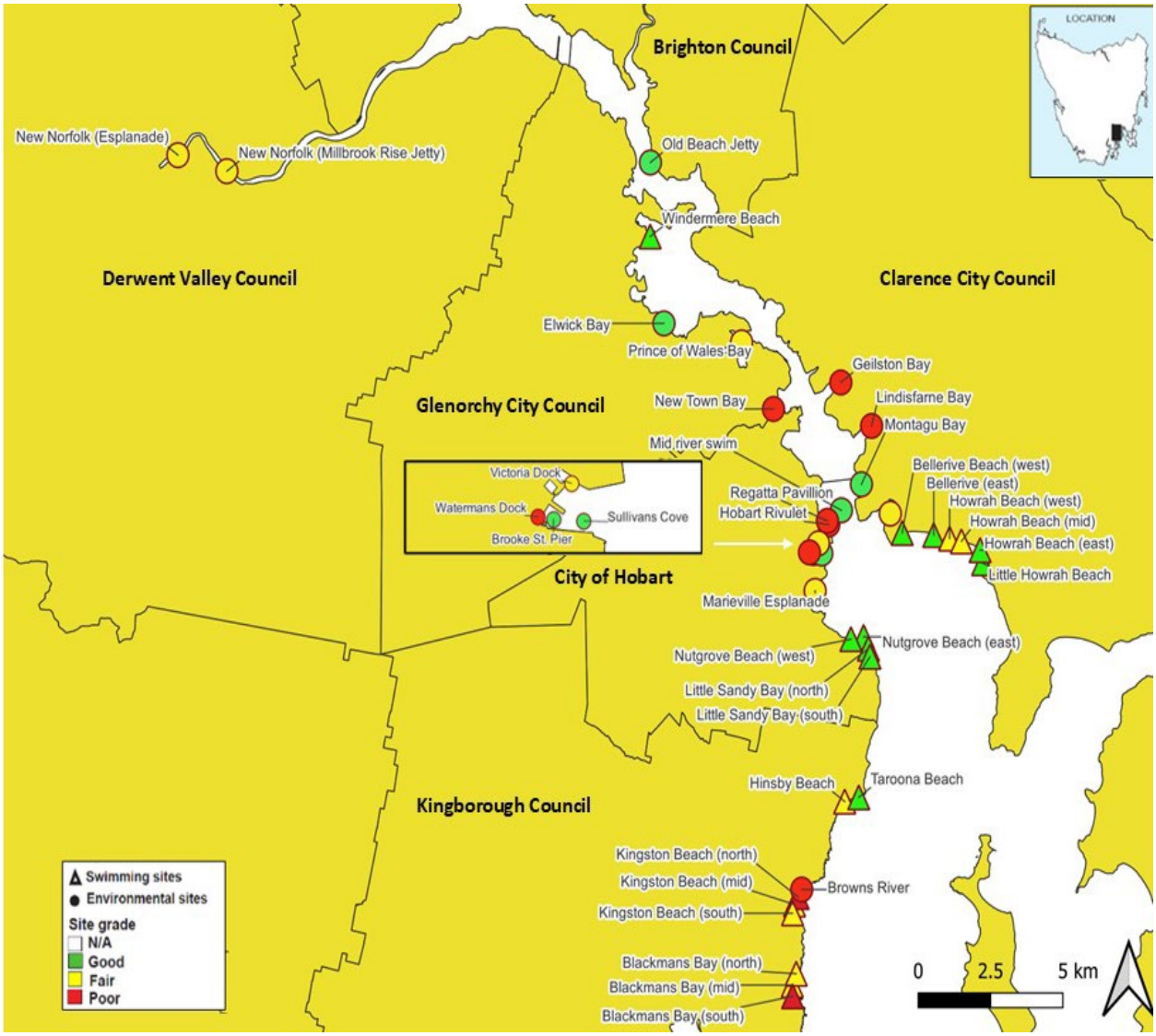


Figure 3-1. Recreational Water Quality sampling sites (swimming and environmental sites) with their current water quality classification based on data collected in the summer months between December 2020 and March 2025.

3.2 **Inter-calibration exercise**

An inter-calibration exercise is organised by the DEP at the start of each season to ensure that all sampling officers are using the same protocols, thus minimising sampler bias. The sampling method is demonstrated, associated protocols are reviewed, and participants simultaneously sample from a designated location. Results are compared to identify any sampler bias and are also useful to better understand the degree of variability between water samples collected from a given site and/or between sites.

The exercise is also a good opportunity to talk about any concerns and finer details of sampling both by new and more experienced samplers, and good questions are always brought up for discussion. For a full report on this season's inter-calibration exercise, see Appendix A.

The next inter-calibration exercise will be conducted in November 2025.

4 2024-25 RWQ SEASON RESULTS

4.1 Long-term site classification

After each RWQ season, a new long-term rating is calculated for all swimming and environmental sites. This calculation is based on the immediate previous five seasons of sampling data for each site. Table 1 below shows the updated rating after the 2024-25 season. The colours refer to Tasmanian *Recreational Water Quality Guidelines* (DoH, 2007), calculating a rolling 5-year 95th Hazen percentile for enterococci, where green denotes Good (< 200 MPN 100 mL^{-1}), yellow denotes Fair (200 - 500 MPN 100 mL^{-1}), and red denotes Poor (> 500 MPN 100 mL^{-1}). The number of samples with enterococci results between 140 and 280 MPN 100 mL^{-1}, > 280 MPN 100 mL^{-1}, > 140 and total number of samples, for the same 5-year period are also shown.

Table 1. Updated long-term ratings for all swimming and environmental sites as calculated after the 2024-25 RWQ season.

		Updated long-term rating	5-year 95th Hazen percentile	Total number of samples
Swimming sites	Bellerive Beach (east)	*Good*	*110*	*83*
	Bellerive Beach (west)	*Good*	125	83
	Blackmans Bay Beach (mid)	*Fair*	406	83
	Blackmans Bay Beach (north)	*Fair*	*204*	*84*
	Blackmans Bay Beach (south)	*Poor*	*1106*	*84*
	Hinsby Beach	*Fair*	222	84
	Howrah Beach (east)	*Good*	198	83
	Howrah Beach (mid)	*Fair*	367	83
	Howrah Beach (west)	*Fair*	259	83
	Kingston Beach (mid)	*Fair*	360	84
	Kingston Beach (north)	*Poor*	747	84
	Kingston Beach (south)	*Fair*	*265*	*84*
	Little Howrah Beach	*Good*	198	83
	Little Sandy Bay Beach (north)	*Good*	105	84
	Little Sandy Bay Beach (south)	*Good*	98	85
	Nutgrove Beach (east)	*Good*	60	83
	Nutgrove Beach (west)	*Good*	*187*	*85*
	Taroona Beach	*Good*	163	84
	Windermere Beach	*Good*	187	80
Environmental sites	Brooke Street Pier	*Good*	146	69
	Browns River	*Poor*	3879	84
	Elwick Bay	*Good*	109	79
	Geilston Bay	*Poor*	1008	69
	Hobart Rivulet	*Poor*	1242	69
	Kangaroo Bay	*Fair*	242	69
	Lindisfarne Bay	*Poor*	1950	69
	Marieville Esplanade	*Fair*	340	85
	Mid-river swim	*Good*	92	68
	Montagu Bay	*Good*	88	68
	New Norfolk (Esplanade)	*Fair*	276	73
	New Norfolk (Millbrook Rise Jetty)	*Fair*	255	*73*
	New Town Bay	*Poor*	524	69
	Old Beach Jetty	*Good*	149	67
	Prince of Wales Bay	*Fair*	283	69
	Regatta Pavilion	*Poor*	529	70
	Sullivans Cove	*Good*	134	69
	Victoria Dock	*Fair*	261	69
	Watermans Dock	*Poor*	852	69

4.2 **Site results**

4.2.1 **Swimming Sites**

This season again saw no new swimming sites added to the sampling regime. All sites now have at least 5 years of data and have all been assigned a long-term rating. A new long-term rating was determined for Blackmans Bay North.

The water quality at the swimming sites declined compared with the previous two seasons. This season saw 30 exceedances (enterococci >140 MPN 100 mL^{-1}), compared with 16 last summer and 22 the previous season (Table 2). See the full list of enterococci results and exceedances for all swimming sites in the 2024-25 season in Appendix C.

Table 2. List of the number of swimming sites from the last eight RWQ seasons triggering a retest under the Tasmanian Recreational Water Quality Guidelines by exceeding enterococci >140 MPN 100 mL^{-1} (DoH, 2007).

RWQ season	Number of exceedances
2024-25	30
2023-24	16
2022-23	22
2021-22	49
2020-21	28
2019-20	5
2018-19	52
2017-18	23

At the end of this season, ten sites were graded as Good, seven sites graded as Fair, and two as Poor. One site saw a rating change with Blackmans Bay North moving from Good to Fair.

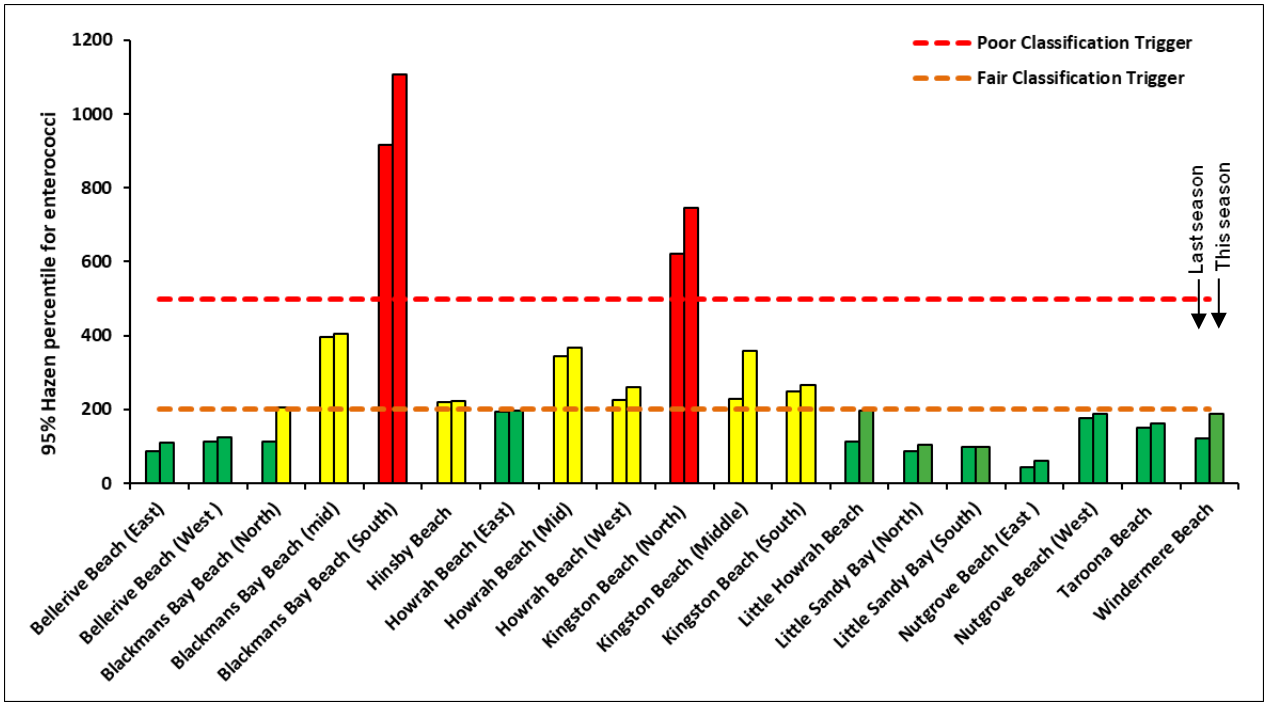


Figure 4-1: Comparison of rolling 5-year Hazen percentile enterococci result for swimming sites. Each site is presented as a pair of results, where the left bar represents 2023-24 RWQ season results, while the right bar represents 2024-25 season results. Green denotes Good (< 200 MPN 100 mL^{-1}), yellow denotes Fair (200 - 500 MPN 100 mL^{-1}), red denotes Poor (> 500 MPN 100 mL^{-1}), and the classification trigger lines are indicated with dotted lines.

Long term results typically declined this season due to an increased number of high results. The two swimming sampling sites with the consistently best water quality in the RWQ program is yet again the two Little Sandy Bay Beach sites (south + north). The two swimming sites currently with a Poor rating are Kingston Beach (north), located near the Poor environmental sampling location at the Browns River mouth and Blackmans Bay Beach (south). Blackmans Bay Beach south continues to have persistent water quality issues this season, which Kingborough Council are doing their best to resolve. Read about specific site investigations in Section 5.

Figure 4-2 highlights the proportion of Good, Fair and Poor swimming sites over the last nine RWQ seasons, showing a slight decrease in Good sites over last season. This is likely due to the increased number of exceedances seen this season.

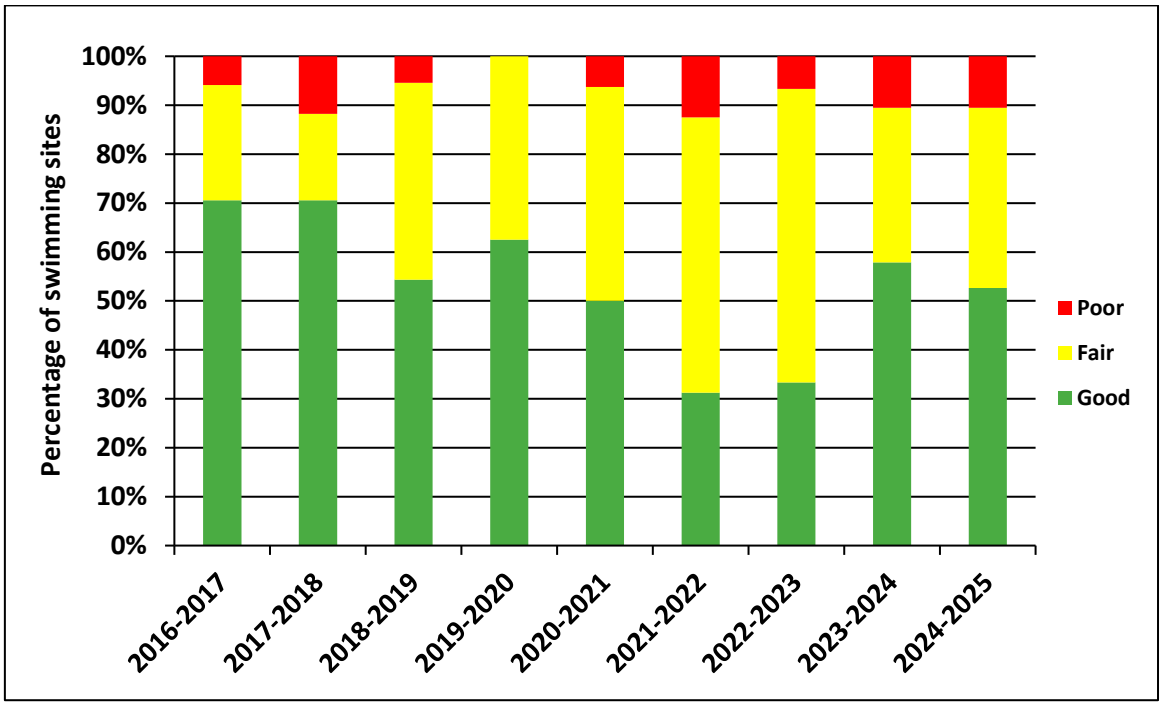


Figure 4-2 Proportion of swimming sites graded as Good, Fair, and Poor in the last nine RWQ seasons.

4.2.2 **Environmental Sites**

There were no new sites added to the sampling program this summer.

The enterococci result from the 19 environmental sites showed 43 exceedances (enterococci >140 MPN 100 mL^{-1}), compared to 24 during the last summer and 56 the previous season (Appendix 0).This shows a marked increase on the previous season suggesting increased challenges on water quality.

After updating the long-term ratings at the end of the 2024-25 season, there are now six sites graded as Good, six as Fair, and seven as Poor. Two sites dropped from Fair to Poor (New Town Bay & Regatta Pavilion). No sites saw improvements on last season

with a number of long-term ratings declining within their current category, with Browns River of particular interest as its Hazen has significantly increased on last season to 3879. Figure 4-4 shows the proportion of Good, Fair and Poor swimming sites over the last nine RWQ seasons, highlighting the change over the years to a situation where majority of sites in the estuary fall into either the Fair or Poor category.

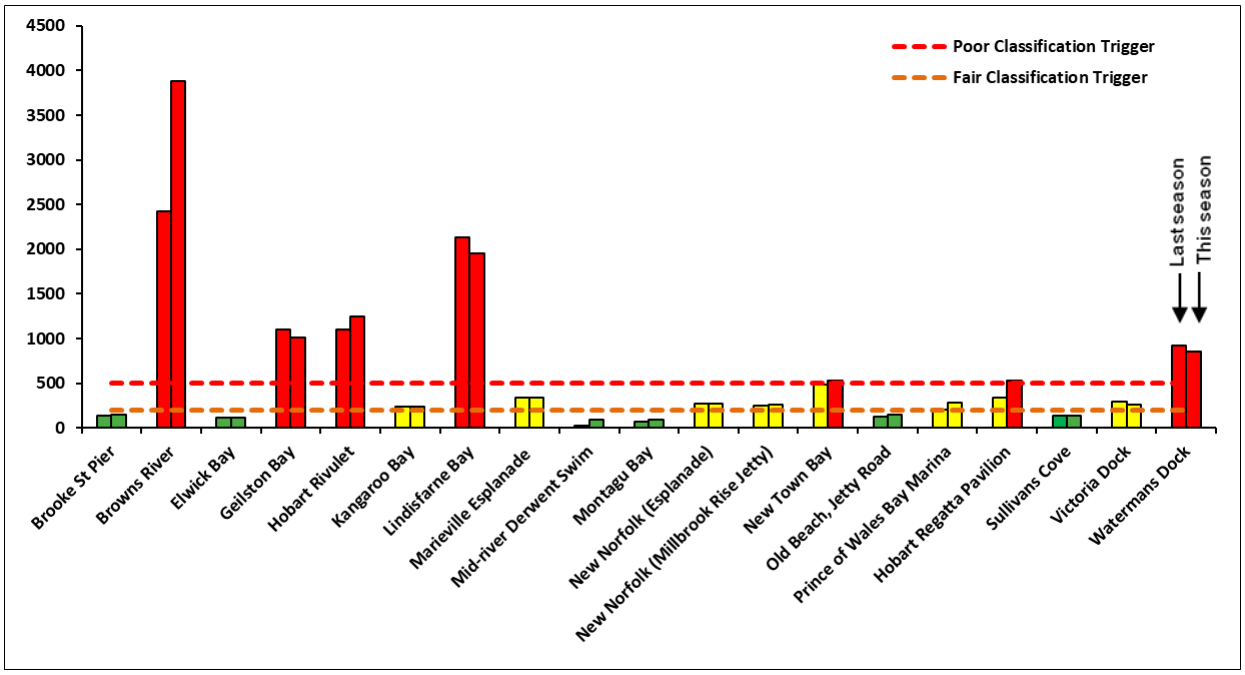


Figure 4-3 Comparison of rolling 5-year Hazen percentile enterococci result for the environmental sites. Each site is presented as a pair of results, where the left bar represents 2023-24 RWQ season results, while the right bar represents 2024-25 season result. Green denotes Good (< 200 MPN 100 mL^{-1}), yellow denotes Fair (200 - 500 MPN 100 mL-1), red denotes Poor (> 500 MPN 100 mL^{-1}), and the classification trigger lines are indicated with dotted lines.

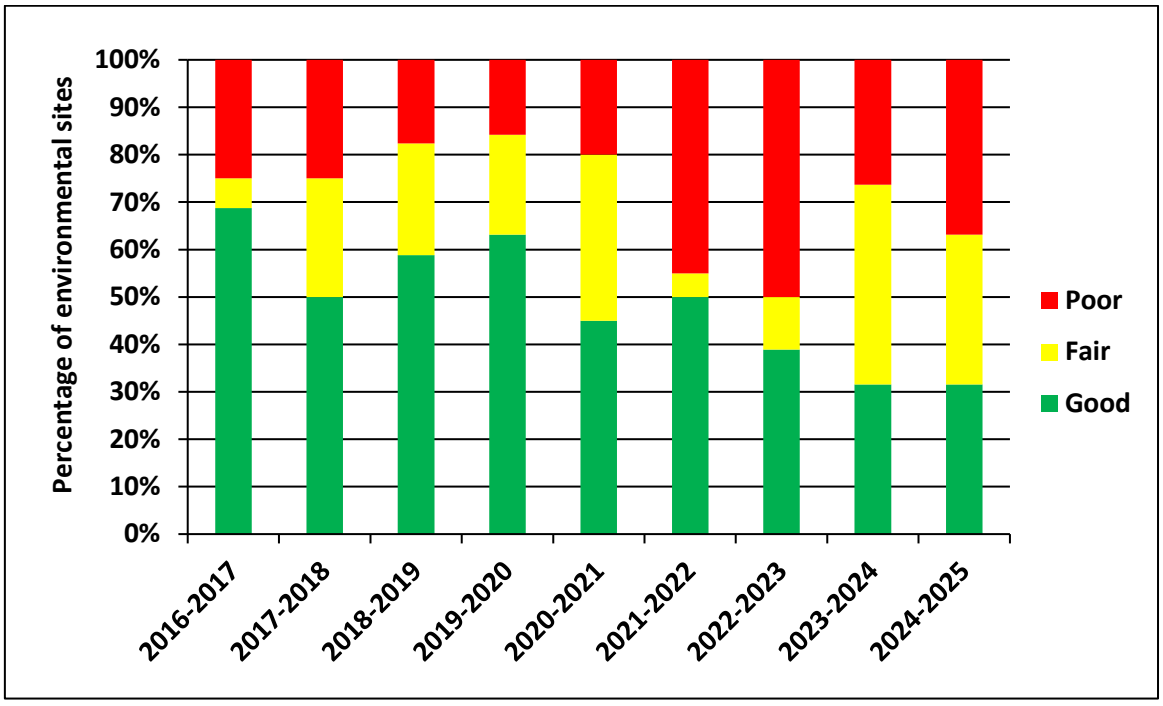


Figure 4-4 Proportion of Environmental Sites graded as Good, Fair, and Poor in the last nine RWQ seasons.

After this season, Montagu Bay has become the best environmental site with a long-term rating of 88 MPN/100ml followed by other historically good sites in the Mid-River Derwent Swim and Elwick Bay sites. Both Browns River and Hobart Rivulet experienced particularly poor seasons with a sharp increase in failed results. Browns River saw 13 elevated results from 15 monitoring events whilst Hobart Rivulet saw 9 elevated results from 17 samples. Most other sites experienced at least one failed result of this season further contributing to this season increase in exceedances. Only 3 environmental sites recorded no exceedances this season.

See this season's complete list of enterococci results for all environmental sites in Appendix C.

4.3 Water Quality Forecasting

In many countries, and in some Australian mainland cities, in addition to the weekly results and general advice, the swimming public is provided with a daily forecast, a prediction of what kind of pollution level can be expected at popular swimming sites. These forecasts are usually provided to the public via websites, QR codes, alerts via text messages, signs, or apps.

So why would we embark on daily water quality forecasting here in the Derwent Estuary? Some of the main drivers include:

- *To overcome the issue of the time lag between water sampling (on Tuesdays) and when most people swim (i.e. weekends) by providing timely communication. Much can happen to influence water quality during this period.*
- *To assist with management of beaches with Poor long-term ratings. Rather than only having a blanket no swim advisory attached to them, with daily up-to-date information, people will be able to confidently swim at these sites - sometimes. This would be of great benefit to local councils, with more positive communication options available to them.*
- *To implement a communication system where swimmers can quickly be notified about sewage spills and other sudden changes to the water quality at their local beach.*
- *To empower the public to make informed decisions about swimming site suitability prior to undertaking recreational activities.*
- *To enable large scale events (e.g. Derwent Swim) to have access to current water quality information.*

Forecasting has now become an integral part of the Derwent Recreational Water Quality program, following a number of successful trials within the estuary. Forecasts were updated daily prior to 9 am, allowing swimmers to access up to date information for their favourite swimming beach (even on the weekends).

2261 daily forecasts were produced during the trial. To assess their accuracy, we compared the Tuesday forecast results with the enterococci results sampled on the same days. **Error! Reference source not found.** details how the forecasts were assessed.

Table 3. Metrics of how the forecasts are assessed, based on the same methods as used in NSW and VIC.

Metric	Result
Appropriate advice	If microbial water quality is good (< 140 MPN), and our report forecasted Unlikely or Possible, **OR** If microbial water quality was elevated (>140 MPN) and our report forecasted Possible or Likely.
False alarm (type 1 error)	When we forecast Likely, and water quality is good (<140 MPN).
Missed alarm (type 2 error)	When we forecast Unlikely, and the pollution level is elevated (>140 MPN).

The comparison gave us 328 events to analyse, with Appropriate advice provided 86.5% of the time. Overall, we had 5.7% Missed alarms (7 sites had none) and 7.6 % False alarms. Two sites had 100% accuracy and all other sites except one had greater than 85% accuracy of forecasts matching enterococci results (**Error! Reference source not found.**).

Table 4. Total breakdown of accuracy of advice for all 320 confirmed forecast values.

Accuracy of advice	Count	Percent %
Appropriate advice	284	86.5
False Alarm	25	7.6
Missed Alarm	19	5.7
Total	328	

These results are comparable with our interstate counterparts, with NSW Beachwatch reporting 93% appropriate advice following the 2022-2023 season. In VIC, the Beach Report for 2021-22 stated that Appropriate advice was provided for 96% of all forecasts, whereas their Yarra Watch 2021-22 program provided Appropriate advice in 57% of all forecasts. The Derwent forecasting from last season had results of 92.8 % accuracy and a missed alarm total of 2.8% showing consensus with expected errors.

Forecasting also enabled us to provide up to date advice to the community when we received information outside the norm, including confirmed sewer spills and directions received from the Department of Health. During this season there were 6 instances where these changes were made.

4.4 **Rainfall**

Rainfall is a driver of pollution at beaches and other recreational swimming areas, as it generates potentially contaminated stormwater runoff and can trigger discharges and overflows from the wastewater (sewerage) system. The water quality of urban beaches and bays can therefore be strongly influenced by rainfall (NHMRC, 2008). We also know that our beaches can respond very differently to rainfall depending on the proximity of sampling sites to stormwater outlets, activities in, and topography of, the catchment.

Rainfall varies considerably across the Derwent Estuary, with rainfall data collected and reported by the Bureau of Meteorology (BoM). Observations of daily rainfall are nominally made at 9 am and record the total rainfall for the previous 24 hours. RWQ Tuesday sampling mostly occur between 9 and 10.30 am, but can be later in the day, especially DEP/EPA boat sampling, which means that at times the rainfall records for the following day are relevant when investigating why particular enterococci results are high.

Five weather stations in the Derwent Estuary catchments, Ellerslie Road (Hobart), Greenhill Drive (Kingston), Mount Rumney, Dennes Point and New Norfolk west, have been selected as relevant when considering rain impact on the RWQ sampling sites. Mount Rumney is only useful post-season, and not daily, as its records are only updated monthly (Bureau of Meteorology, 2025a). The gauge at Dennes Point was included this season, as it is used in the forecasting program for Kingborough Council sites.

Long-term rainfall averages for the program months range between 140.70 mm at New Norfolk and 201.30 mm at Kingston, the latter generally experiencing more rain than the other sites. During the 2023-24 RWQ season, total rainfall was the driest observed season from the last 10 years of results Figure 4-5.

The complete 2024-25 summer rainfall data for the five BoM weather stations that cover the Derwent Estuary are listed in Appendix B.

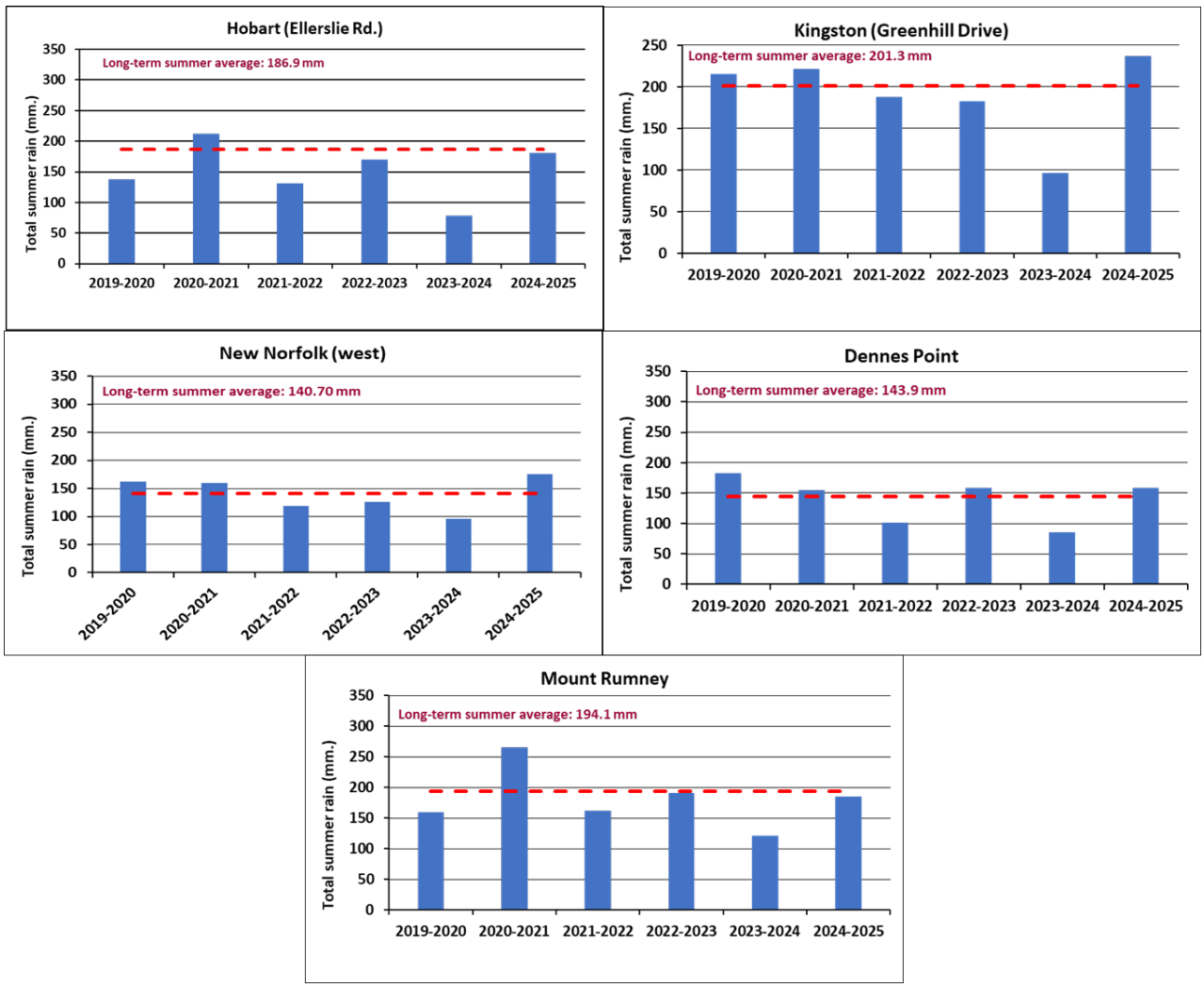


Figure 4-5 Total rainfall (in mm) at five weather stations in the Derwent Estuary catchments during the last ten RWQ program seasons (between December and March), as recorded by the Bureau of Meteorology (2025). The long-term average rainfall is indicated in red text and by a dotted line.

Overall, it was a dry summer for Tasmania, with summer rainfall was down about 14% below the average (Bureau of Meteorology, 2025b). For Hobart (Ellerslie Road) rainfall was 119% of the long-term average, suggesting a slightly wetter summer in Hobart compared to other parts of Tasmania. As is often the case, rainfall varied greatly

between the summer months in the estuary. December had three significant rainfall events with January having one. The remainder of the summer period saw low to no rain falling with all sites experiencing <10mm in the month of February and March (Appendix B section 0).

4.4.1 **Rainfall vs enterococci**

A limited assessment of the relationship between enterococci results and recorded rainfall data has been conducted. The assessment includes all enterococci samples collected across the swimming sites this season, a total of 293 samples. Results are separated into two groups:

- **Group 1**. Enterococci results < 140 MPN 100 ml $^{-1}$: 263 samples.
- **Group 2**. Enterococci results > 140 MPN 100 ml $^{-1}$: 30 samples.

These two groups were separately assessed for a possible response to rainfall (Figure 4-6). Rainfall data was used from the two local BoM stations covering the swimming sites, with records for the 24 hours prior to 9 am on the day of sampling. Rainfall after 9 am on the day of sampling was not included in this assessment, and neither was rainfall from the previous days, which both could potentially have a significant impact on beach water quality.

Group 1 (enterococci < 140 MPN):
- 263 samples.
- 49 % of the enterococci results (< 140 MPN 100 ml $^{-1}$) occurred when no rain fell in the preceding 24 hours.
- 43 % of results occurred on days when the total rainfall in the preceding 24 hours was > 0 and < 5 mm.
- 6 % of results occurred on days when the total rainfall in the preceding 24 hours was between 5.1 and 10 mm.
- 2 % of results occurred on days when the total rainfall in the preceding 24 hours was greater than 20mm.

Group 2 (enterococci > 140 MPN):
- 30 samples.
- 13 % of high enterococci values (> 140 MPN 100 ml $^{-1}$) occurred when no rain fell in the preceding 24 hours.
- 70 % of high enterococci values occurred on days when the total rainfall in the preceding 24 hours was > 0 and < 5 mm.
- 10 % of high enterococci values occurred on days when the total rainfall in the preceding 24 hours was between 5.1 and 10 mm.

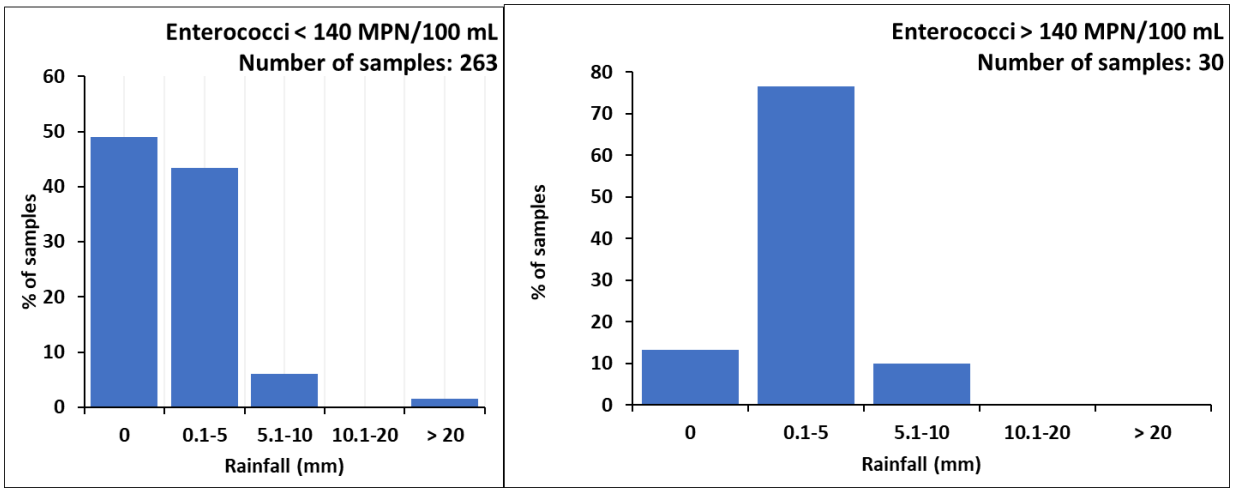


Figure 4-6 Proportion of enterococci sample results < 140 MPN 100 ml $^{-1}$ (a) and > 140 MPN 100 ml $^{-1}$ (b), matched with rainfall data recorded on sampling day, from two BoM stations across the estuary. Graphs include all samples collected at swimming sites during the 2024-25 RWQ season.

As Figure 4-6 shows, of the 293 swimming site samples collected this summer, 90 % of enterococci results were < 140 MPN 100 ml $^{-1}$ (263 samples). For the 2024-2025 RWQ season there was no significant rain recorded in the estuary on the sampling Tuesdays (Appendix B). This summer's enterococci results suggests that lower rainfall can lead to better results. However, it should be noted that the dry weather exceedances are likely to come from another external source. There can be numerous reasons for dry weather fails, including sewage cross-connection, sewage spill, sewer leak, residential or business discharge, as well as swell and high winds resuspending sediments.

5 SPECIFIC INVESTIGATIONS

Water quality investigations are occurring at various estuary sites as discussed below. The DEP recommends that councils view a new Fair site classification as a forewarning that problems with poor water quality may be escalating and therefore warrants investigation. Ideally, councils employ dedicated stormwater investigation officers for such work.

Link to the DEP 2020 Source Tracking Framework and Toolkit, which outlines a standard process for identifying sources of faecal pollution in the Derwent Estuary: https://www.derwentestuary.org.au/assets/Source_Tracking_Framework_and_Toolkit_Mar2020.pdf

The following site-specific information has been provided by individual councils.

5.1 Kingborough Council

Blackmans Bay Beach

Water quality at the Blackmans Bay Beach South site remains a key priority for Kingborough Council. The importance of our recreational sites is well recognised, as they provide valuable spaces for community connection, relaxation, and enjoyment of the natural marine environment.

Council continues to undertake active investigations into factors affecting water quality at Blackmans Bay Beach, with a particular focus on the southern end of the beach. Over

the past 12 months, extensive sampling and assessments have been carried out within the Blackmans Bay catchment to identify potential sources of pollution.

Council is working collaboratively with key stakeholders, including TasWater, to address any pollution sources as they are identified. This partnership has resulted in significant resource investment and infrastructure upgrades within the catchment area.

Ongoing visual inspections and targeted testing of the stormwater network are being conducted to help identify potential contamination pathways that may be impacting the marine environment and contributing to water quality variability.

To support these efforts, Kingborough Council has engaged a consultant to undertake a more detailed and robust investigation into the causes of poor recreational water quality at the southern end of Blackmans Bay Beach. This work will assess the influence of stormwater quality on this section of the beach, examine how the three stormwater outlets and their respective catchments may be contributing to water quality issues, and explore how water movement and dispersion occurs in the southern end of the bay.

5.2 Clarence beaches

The City of Clarence completed its stormwater investigations in 2023, following detailed assessments of the Howrah and Bellerive catchment areas. As a result, targeted repairs were made to stormwater infrastructure where needed.

Now in 2025, these efforts have proven effective, particularly in the Howrah catchment, with noticeable improvements in water quality at previously degraded recreational water quality (RWC) sites. Pleasingly, all long-term RWC site gradings will remain unchanged for the upcoming season – a strong indicator of ongoing water quality stability.

In addition, monthly sampling at several popular non-recreational beaches – including Opossum Bay, Seven Mile Beach and South Lauderdale –showed consecutively good results, with no exceedances recorded.

Further to The City of Clarence's strategy developed in June 2021 to investigate poor water quality at Howrah Beach, public education was identified as a key factor in improving water quality at our estuarine beaches and the River Derwent.

In January 2025, we developed an educational video which helped to explain common behaviours that impact water quality and the role the community can play in improving these outcomes.

The purpose of the video was to build general awareness about water quality and its impacts, but also to communicate the reasons why beach closures occur, and what we as a community can do to minimise these instances. The video is available on City of Clarence YouTube and website.

In February 2025, our Environmental Health Officer's engaged Marine Biology students at Rosny College to explore the history of water quality in the River Derwent. The sessions inspired positive discussion about its current state and how we can improve these outcomes into the future. A live demonstration was held on the day at Kangaroo Bay giving students an authentic experience on what's involved in the sampling and testing process. This led to conversations about community proactivity and engagement that helps shape the future of our waterways.

Our 2025-24 focus included targeted intervention projects aimed at reducing pollutants and materials in the River Derwent. These included the installation of a new high performance Gross Pollutant Trap (GPT) in Howrah, rectification work for two GPT's in

Bellerive, design and install of a new GPT at Pass Road Mornington to treat runoff generated from Glebe-Hill shopping centre, and funding boost for a more frequent cleaning schedule for all GPT's across Clarence.

Our efforts in this space will continue to grow and expand as part of our long-term commitments to improve the stormwater network and minimise the environmental and public health impact they have on our waterways.

With the continued positive results at Howrah and Bellerive Beaches, we are now better prepared to respond to future pollution events and mitigate any future risks to public health.

6 SPECIAL STUDIES

As As part of each RWQ season, the DEP, usually conducts an additional special-interest project that supplements a particular current focus.

This summer, we had the opportunity to partner with ZiP Diagnostics on a field validation exercise of the Bacteroides dorei field test. Bacteroides dorei has high specifically human faecal indicator bacteria (FIB), differentiating it from the presence of FIB from other animals (e.g livestock, dogs, etc). A selection of Beach Watch sites from Kingborough City Council were used as part of the validation exercise, which compared results with standard Enterococci and E. coli tests. Testing was also used to assess possible sewer and septic tank contamination events. Positive test results were typically detected in less than 20 minutes.

It is hoped that the technology may be used to help decision-makers rapidly identify sources of human faecal contamination affecting recreational water quality.

7 COMMUNICATIONS

There was occasional TV, radio, and newspaper media about the RWQ program throughout the summer. But more and more people obtain general information and news via social media rather than traditional sources, including websites, which is also apparent for the RWQ program. As can be seen below, the DEP Facebook posts have significantly more reach than the Beach Watch website. Both website and Facebook reach is possibly higher than reported, as some people hide or clear their browsing history. Both outreach methods have increased compared with last year.

7.1 **Website**

Weekly RWQ results were reported via the DEP website on the *Beach Watch* page (for swimming sites) https://www.derwentestuary.org.au/beach-watch/ and the associated *Bay Watch* page (for environmental sites). These pages allow the public to locate a weekly sampling result and long-term rating for a particular beach or bay by clicking on an interactive map or looking at a table. For this season the decision was made to elevate the Beach Watch page to the top level on the website, making it easier for the public to find it.

The Beach Watch page had a significant increase in page views over the course of the 2024–25 RWQ season to around 16,000, which is up 8,424 views from last season. 20th of December was the most visited day with approximately 2000 people visiting, coinciding with the increased media presence and public health advisory after a major sewerage spill.

A further review to the Beach Watch website will be conducted with any changes to be made before the start of the next season.

7.2 **Facebook**

Weekly RWQ results are shared on the DEP Facebook page www.facebook.com/derwentestuary and Instagram https://www.instagram.com/derwentestuaryprogram/. This season again saw an increase in Facebook reach from previous summers, with an average post reach of around 2000 (up from around 1500). The greatest reach was from a post in mid-December following the public health directive about a major sewerage spill. Again, it really helps when our partners and friends share our posts (Figure 7).

Figure 7. DEP Facebook post on 20 December 2024.

7.3 **Signage**

The signs installed at Derwent Estuary swimming sites are a useful source of information for beach users. The DEP recommends that local councils conduct an annual review of signage in their municipality to ensure that all signs are located in the most appropriate locations (i.e. visible to most visitors), are in good condition (e.g. free of graffiti and not obstructed by vegetation), and that they are replaced with new signs as required (i.e. when the water quality category changes).

After updating the long-term ratings following the 2024-25 season, the following beach sign changes are recommended:

- Blackmans Bay North – from Good to Fair

Councils are not required to put up signs to indicate the water quality for environmental sites but may choose to do so in well-visited locations.

8 ACKNOWLEDGEMENTS

As always, the DEP would like to sincerely thank all council environmental health officers and other council staff and management who have supported the annual RWQ season, as well as EPA staff who have assisted with boating requirements. Many thanks also to the staff at the Public Health Laboratory and the Department of Health for their ongoing participation and support, and our industry partners, including TasWater staff, who were invaluable in their support of the daily forecasting program.

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APPENDIX A - Intercalibration report, RWQ season 2024-25

Summary and conclusions

Recreational Water Quality (RWQ) monitoring in the Derwent Estuary is conducted and reported on in accordance with the Recreational Water Quality Guidelines 2007 (DoH, 2007). The latest annual program report (from season 2023-24) can be viewed here. To

guarantee correct and consistent water sampling technique, to assess the degree of variability between samples, samplers and various nearby locations, and importantly, to ensure trust in the data gathered, the Derwent Estuary Program (DEP) coordinates an annual inter-calibration exercise with local councils prior to the start of each RWQ season.

On a warm and clear afternoon on 26 November 2024, environmental health officers from four estuary councils collected water samples at two sites at Windermere Beach, the first being the regular RWQ program sampling site (Windermere Beach). Results we consistent across all samplers, with all samples passing, as per the Tasmanian RWQ guidelines (enterococci <140).

The good results observed at both sampling sites were expected, as historically Windermere Beach has Good water quality. Water off the beach was clear and samplers were easily able to wade out to the desired sampling height (Figure 1). Swell and wind were also minimal during sampling. A number of dogs were present on the beach during sampling. The results demonstrated homogeneous water quality conditions, with consistency between samplers.

All samplers adopted good aseptic grab sampling technique, removing bottle lids at the last moment before collecting a sample, protecting the bottle and lid from contamination, labelling bottles correctly and storing samples in a chilled esky for subsequent transport to the laboratory.

Figure 8. Clear water observed flowing directly at the beach at time of sampling.

Introduction

The RWQ monitoring is conducted and reported in accordance with the Recreational Water Quality Guidelines 2007 (*Public Health Act 1997*). The guidelines recommend

classifying primary contact recreation beaches using 5-year 95th Hazen percentile values for the faecal indicator bacteria enterococci:

- Good (surveillance mode) = < 200 MPN/100 mL.
- Fair (alert mode) = 200 - 500 MPN/100 mL.
- Poor (action mode) = > 500 MPN/100 mL.

The long-term beach classification guidelines do not take into account the possible influence of variability in the data due to differences in sampling techniques between samplers, or possible heterogeneity of the sampled water body. The RWQ program uses data provided by a number of different council environmental health officers, which increases the risk of variability due to sampling technique. Thus, the primary objective of the annual inter-calibration exercise is to review and practice sampling methods at the start of each season, in order to improve consistency of results. A secondary objective is to gain a better understanding of water quality at a particular site.

Methodology

Participants

The DEP (Phillip Pennisi) coordinated the participation of the following:

- Kingborough Council (Kris Ethell)
- Clarence City Council (Jayde Blizzard, Jock Robertson)
- Glenorchy City Council (Simone Clifford, Amanda Wieland)
- Derwent Valley Council (Melissa Collins)

Location

Sample 1 was taken at the regular Windermere Beach RWQ sampling site. Sample 2 was obtained approx. 100 m. north of the first sample (Figure 2).

Windermere Beach is one of the RWQ program's swimming sites, with a history of good water quality across the seasons.

Figure 2. Location of the two sites sampled for the RWQ inter-calibration exercise on 26 November 2024 at Windermere Beach.

Safety

Wader safety was discussed, including how valuable wader safety courses are. Wearing waders can be highly hazardous if water gets inside them, e.g., from boat wake or when bending to take a water sample. The DEP recommends that everybody complete a Wader Safety course. In the meantime, watch this very useful short video on wader safety https://www.mast.tas.gov.au/guides/wader-safety/. Furthermore, as part of wader safety, it is important to wear a tight belt, and ideally also wear a personal flotation device (PFD) (Figure 3).

For added security, it is also recommended that no one samples on beaches on their own. Always be aware of the surroundings and only conduct sampling if it is safe to do so. Always use common sense and don't take risks - personal safety is more important than sampling.

DEP also recommends consulting the **Water Sampling Guide** produced by Surf Life Saving Tasmania, which goes into detail explaining rips, waves, sun safety, life jackets, cold water emersion and marine creatures we might come across.

Figure 3. Jock and Jayde from Clarence City Council are well prepared for recreational water sampling. Note sea safety with waders, belt and sun protection.

Method

Filling in the laboratory submission form was discussed, including entering wind speed, rain, wind direction, date and time of sampling. It can be useful to look up climate data just prior to sampling. This becomes important if results are high and we need to look back at conditions at sampling time. Participants were also encouraged to note other observations, such as discolouration, odour, construction activity, boat presence, density of wildlife, evidence of faeces, proximity to stormwater outfalls, or any other matters which might influence results. Participants can take a photo or make a copy of the lab submission form to file for their own records.

All bottles should be pre-sterilised and provided by PHL. They are dated by the lab, so ensure that you are not using old bottles. Just before sampling, bottles were labelled with the site, time, and the samplers' names. Always worth having a spare bottle, should one become compromised (e.g., by touching the inside of the lid by mistake when sampling).

Samplers waded out to about 1 m depth, and concurrently collected a single sample at each site from an approximate water depth of 0.3 m. Bottles were only opened immediately prior to collecting the sample. Once the bottle cap had been removed, care

was taken to ensure that this was not contaminated by fingers or by contact with surfaces. The bottle was quickly plunged to the required sampling depth, then it was tilted upward with the mouth pointed upward. The sample was brought to the surface and a portion of the sample tipped out so that the level in the sample container was at the bottle collar. The sample lid was screwed tightly shut before removing it from the sample pole, and the sample was placed upright in a chilled esky ready for transport to the laboratory. Samples should be delivered to the laboratory ASAP after sampling (24 hr max.), and on this day they were delivered approx. 1 hour after sampling.

Results

The enterococci result from Site 1 and 2 all passed (as per Tasmanian RWQ guidelines), varying between <10 and 41 MPN/100mL.

Table 5. Summary of enterococci concentration results (MPN/100 mL) sampled on 26 November 2024.

Sampler	Sample 1 Windermere Beach RWQ Site	Sample 2 – 100m north of Sample 1
Jayde (CCC)	31	<10
Jock (CCC)	41	<10
Mel (DVC)	10	10
Amanda (GCC)	41	20
Simone (GCC)	10	20
Kris (KC)	31	20

Rain, wind, tide conditions

According to the Hobart Ellerslie Road gauge, there was 0.2 mm of rain in the 24 hours prior to 9am on sampling day, and 0 mm of rain the previous day (BoM, 2024).
At Hobart Ellerslie Road, at 2pm on the day of sampling, it was warm (21 degrees), clear, the wind was east, south easterly with wind speeds ~ 20 km/hr (BoM, 2024) and the tide incoming around 0.8 m (WillyWeather, 2024).

Acknowledgements

Thank you very much to the new EHOs and cadets who participated in this session with great enthusiasm and willingness to learn, share and contribute to group discussion, and to all our councils for valuing and prioritising the RWQ program.

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APPENDIX B – Rainfall data across the Derwent Estuary

Table 6. Daily Rainfall (up to 9am on sample dates) between December and March at five BOM weather stations across the Derwent Estuary: Hobart's Ellerslie Rd (HE); Mount Rumney (MR); Kingston's Greenhill Drive (KG); New Norfolk West (NN); Dennes Point (DP). RWQ sampling days are highlighted in yellow.

December 2024					
Date	HE	MR	KG	NN	DP
1st	32.6	24	56	20.4	32.8
2nd	0	0.4	0	0	0
3rd	1.6	1.4	0.4	1.8	0.6
4th	1.8	2.4	5	3.2	0.6
5th	0	0	0	0	0
6th	0	0	0	0	0
7th	30.8	31.2	29	32.4	22.6
8th	17.4	19.8	18	13.6	15
9th	0	0	0	0.2	0
10th	0.4	0.2	1.4	1.4	0
11th	0.4	0.4	0	0.2	0
12th	0	0	0	0.2	0
13th	0.6	0.6	2.4	0.6	3.8
14th	0	0.4	0.6	1.2	0.4
15th	0	0	0	0	0
16th	0	0	0	0	0
17th	9	10.4	10	13.4	8.4
18th	0	0	0	0.4	0
19th	0	0	0	0	0
20th	0	0	0	0	0
21st	2.4	0.8	0.2	0.2	0
22nd	0	0	0	0	0
23rd	26.4	26	19	34.6	23.6
24th	0	0.8	1.2	0.6	1.2
25th	0	0	0	0	0
26th	0	0	0	0	0
27th	2.8	2.6	6	3.4	2
28th	0	0	0	0	0
29th	0.2	0	1.6	0.2	0
30th	0	0.6	0	0	0
31st	0	0.2	0.2	0	0.2

January 2025					
Date	HE	MR	KG	NN	DP
1st	0	0	0	0	0
2nd	0.6	0	1.2	0.2	0
3rd	0	0.2	0	0	0
4th	0	0	0	0	0
5th	0	0	0	0	0
6th	7	9.2	2.6	8.8	2.2
7th	0	0	0	0	0
8th	0.0	0	0	0	0
9th	0	0	0	0	0
10th	0	0	0	0	0
11th	0	0	0	0	0
12th	0	0	0	0	0
13th	3.2	4.6	9	7.4	6
14th	0.8	1.6	0.6	0.2	0
15th	0	0.4	0	0	0
16th	14.6	2	11	10.2	8
17th	0.2	0	0	0	0.4
18th	0	0	0.0	0	0
19th	0	0	0	0	0
20th	0	0.4	0.2	0	0
21st	0	0.4	0.2	0	0.4
22nd	1	0	0.4	0	0.2
23rd	0	0	0	0	0
24th	0	0	0	0.2	0
25th	0	0	0	0	0
26th	0.8	3	0.4	0	0.6
27th	0.2	0	0.2	0	0
28th	0	0.2	0	0.6	0
29th	0	0	0	0	0
30th	0	0	0	0	0
31st	0	0	0	0	0

February 2025					
Date	HE	MR	KG	NN	DP
1st	0	0	0	0	0
2nd	0	0	0	0	0
3rd	0	0	0	0	0
4th	0	0	0	0	0
5th	0	0	0	0	0
6th	0	0	0	0	0
7th	0	0	0	0	0
8th	0.2	0	0.4	0	0
9th	0	0	0	0	0
10th	0	0	0	0	0
11th	0	0.6	1	0	2.2
12th	0.2	0.2	0.4	0	0
13th	0	0	0	0	0
14th	0	0	0.2	0.8	0
15th	6	11.2	19	0.6	4.4
16th	2.8	1.6	3.4	0.2	4.4
17th	1.2	0	1	0	0.8
18th	0	0	0	0	0
19th	0	0.4	0	0.2	0.4
20th	0	1.2	0	0	0
21st	0	0	0	0	0
22nd	0	0	0	0	0
23rd	4.2	7	2.8	6.8	1.4
24th	0	0	1	0	0
25th	0	0	0	0	0
26th	0	0	0	0	0
27th	0	0	0	0	0
28th	0	0.2	0	0	0

March 2025					
Date	HE	MR	KG	NN	DP
1st	0	0	0	0	0
2nd	0	0.6	0.4	0	0.4
3rd	0	0	0	0	0
4th	0	0	0	0	0
5th	0	0	0	0	0
6th	0	1.2	2.6	0	1.6
7th	0	0	0	0	0
8th	0	0	0	0	0
9th	0	0	0	0	0
10th	0	0	0	0	0
11th	0	0	0	0	0
12th	0	0	0	0	0
13th	4.8	6	7	7.2	3.4
14th	0	0	0.2	0	0
15th	0	0.2	0	0	0
16th	4.6	3.2	5	3.4	6.8
17th	0.4	1.8	3.2	1	1.6
18th	0	0	1	0	0
19th	0	0	0.5	0	0
20th	0	0	0	0	0
21st	0.4	0.4	2.4	0	0.6
22nd	0	0	0	0	0
23rd	0	0	0.5	0	0
24th	0	0	0.4	0	0
25th	0	0	0	0	0
26th	0.6	1.8	4	0	0.2
27th	0	0	0	0	0
28th	0	0	0.5	0	0
29th	0	0	0	0	0
30th	0	0.4	1	0	0.4
31st	0.2	2.4	1.4	0	1.2

RWQ sampling days
Rainfall (mm)
5 - 10
>10 - 20
> 20

APPENDIX C – 2023-24 enterococci results

Swimming sites

Date	CoH				CCC						KC								GCC	
	Little Sandy Bay Beach (south)	Little Sandy Bay Beach (north)	Nutgrove Beach (east)	Nutgrove Beach (west)	Bellerive Beach (east)	Bellerive Beach (west)	Howrah Beach (east)	Howrah Beach (mid)	Howrah Beach (west)	Little Howrah Beach	Blackmans Bay Beach (north)	Blackmans Bay Beach (mid)	Blackmans Bay Beach (south)	Hinsby Beach	Taroona Beach	Kingston Beach (north)	Kingston Beach (mid)	Kingston Beach (south)	Windermere Bay Beach	No.excedences over 140 MPN
03-Dec-24	41	122	10	187	20	175	160	63	52	332	256	86	1314	10	63	135	41	173	62	7
10-Dec-24	10	20	30	10	216	10	10	10	10	31	10	10	10	10	20	10	10	10	145	2
17-Dec-24	10	10	75	109	20	10	31	10	10	223	63	31	404	10	122	86	41	20	213	3
23-Dec-23	10	10	10	31	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	0
02-Jan-25	75	20	10	20	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	0
07-Jan-25	10	10	10	10	10	10	10	10	10	10	10	10	20	10	10	41	20	10	10	0
14-Jan-25	110	135	10	10	31	10	20	135	256	10	1008	410	1017	20	160	1354	1274	75	1234	8
21-Jan-25	20	20	10	10	10	10	10	10	20	31	10	52	10	10	10	20	75	10	10	0
28-Jan-25	20	20	20	20	52	10	10	10	10	20	146	10	10	10	10	10	10	41	10	1
04-Feb-25	20	10	10	20	10	20	20	145	10	10	20	30	31	10	10	52	30	20	20	1
11-Feb-25	10	10	10	10	10	10	20	10	10	10	52	266	420	20	10	86	10	63	10	2
18-Feb-25	10	10	10	10	20	10	10	10	10	10	10	41	10	10	10	10	10	20	10	0
25-Feb-25	10	10	10	10	10	10	10	10	10	10	10	41	63	10	10	41	10	31	10	0
04-Mar-25	10	10	20	10	10	10	10	10	10	10	10	31	10	10	10	41	10	10	10	0
11-Mar-25	30	10	10	135	10	10	20	10	10	10	108	313	98	10	10	97	31	63	75	1
18-Mar-25	20	63	20	10	41	10	10	10	30	86	10	41	410	10	10	10	20	10	20	1
25-Mar-25	20	10	10	10	86	20	10	110	10	10	75	63	1354	10	74	404	602	855	20	4
																				30

Figure 9-9 2024-25 RWQ season swimming site results listed under each local council. Results are enterococci MPN per 100 mL. The last column lists the number of enterococci result exceedances above 140 MPN per 100 mL., which are also highlighted in red.

Environmental sites

Date	CoH							GCC			KC	CCC				BC	DVC			
	Brooke St Pier	Hobart Rivulet	Marieville Esplanade	Regatta Pavilion	Sullivans Cove	Victoria Dock	Watermans Dock	*New Town Bay	Elwick Bay	Prince of Wales Bay Marina	Browns River	Geilston Bay	Kangaroo Bay	Lindisfarne Bay	Montagu Bay	Old Beach, Jetty Road	New Norfolk (Esplanade)	New Norfolk (Millbrook Rise Jetty)	Mid-river Derwent Swim	No.excedences over 140 MPN
03-Dec-24	10	529	241	529	10	10	384	754	30	738	2489	10	10	243	10		183	216	10	10
10-Dec-24	31	441	41	51	10	20	20	52	75	74	1153	187	20	73	41	305	120	85	20	4
17-Dec-24	10	1058	10	74	10	10	41	52	20	10	4884	10	10	20	10	30	135	108	145	3
23-Dec-23	NA	NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
02-Jan-25	NA	NA	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
07-Jan-25	148	1607	20	426	86	31	41	10	20	10	272	146	10	30	10	41	20	41	10	5
14-Jan-25	10	624	52	63	31	10	20	350	10	85	1421	131	20	1017	122	10	20	75	420	5
21-Jan-25	10	833	10	10	10	10	10	20	20	10	52	10	10	10	10	63	31	10	10	1
28-Jan-25	10	108	30	10	63	10	10	10	10	10	530	85	10	10	10	10	NA	NA	10	1
04-Feb-25	10	10	10	10	10	10	31	10	10	1246	613	20	10	10	10	384	63	31	10	3
11-Feb-25	10	52	10	10	10	10	20	52	20	10	135	75	10	41	10	10	NA	NA	10	0
18-Feb-25	10	63	10	41	10	10	20	24	10	10	706	10	10	31	10	20	10	20	10	1
25-Feb-25	10	203	20	10	10	10	246	52	10	10	75	10	41	10	20	85	20	20	10	2
04-Mar-25	20	41	10	10	10	10	10	10	10	10	171	20	10	10	259	10	41	10	10	2
11-Mar-25	20	98	10	10	10	10	20	20	52	20	148	122	10	63	10	20	NA	NA	10	1
18-Mar-25	10	158	10	52	10	74	31	41	10	20	1553	10	20	52	10	NA	75	75	10	2
25-Mar-25	10	1223	20	20	10	10	20	161	63	10	789	110	31	20	10	NA	20	10	10	3
																				43

Figure 9-10 2024-25 RWQ season environmental site results listed under each relevant local council. Results are enterococci MPN per 100 mL. The last column lists the number of enterococci result exceedances above 140 MPN per 100 mL, which are also highlighted in red.

* New Town Bay is located between Hobart and Glenorchy municipalities.