

# 2022/23 Recreational water quality monitoring



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## Disclaimer

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For the latest available results go to the [GW environmental data hub](#).



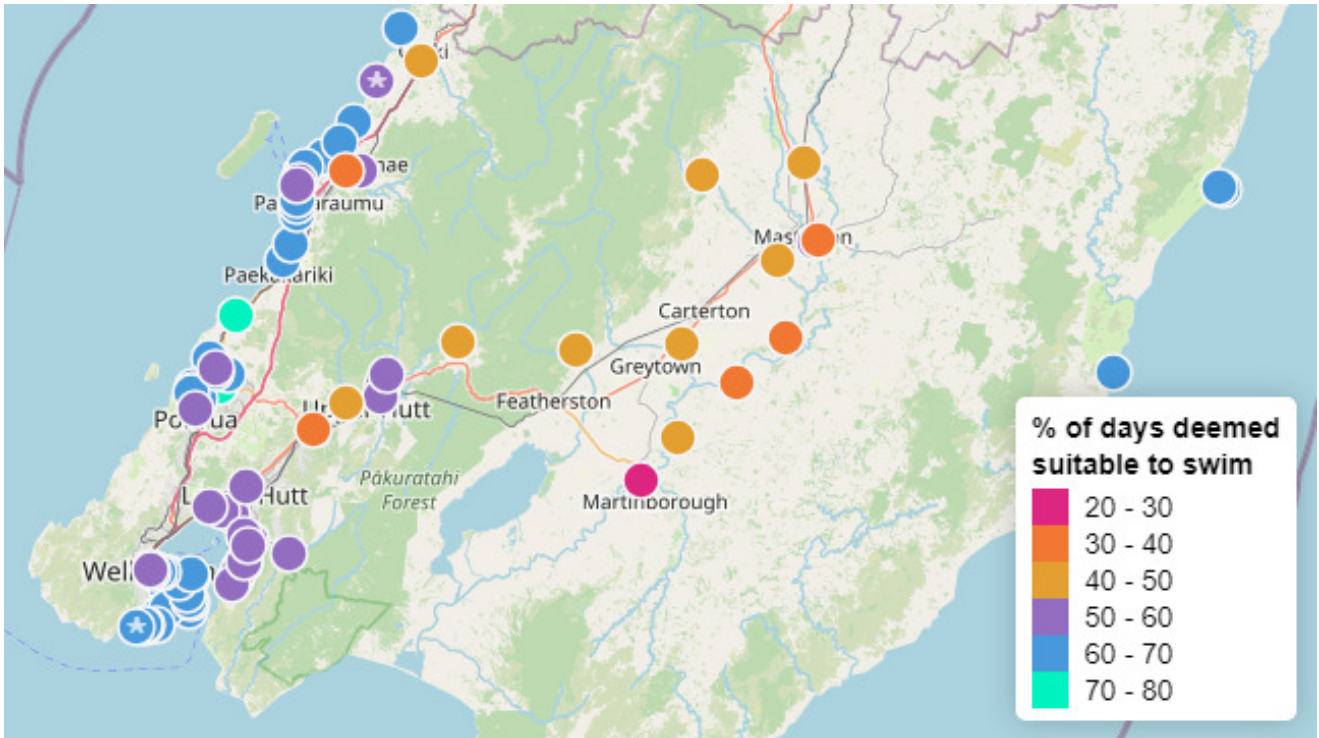


Figure 2: % of days deemed suitable to swim over the **summer** bathing period (start of November to the end of March).

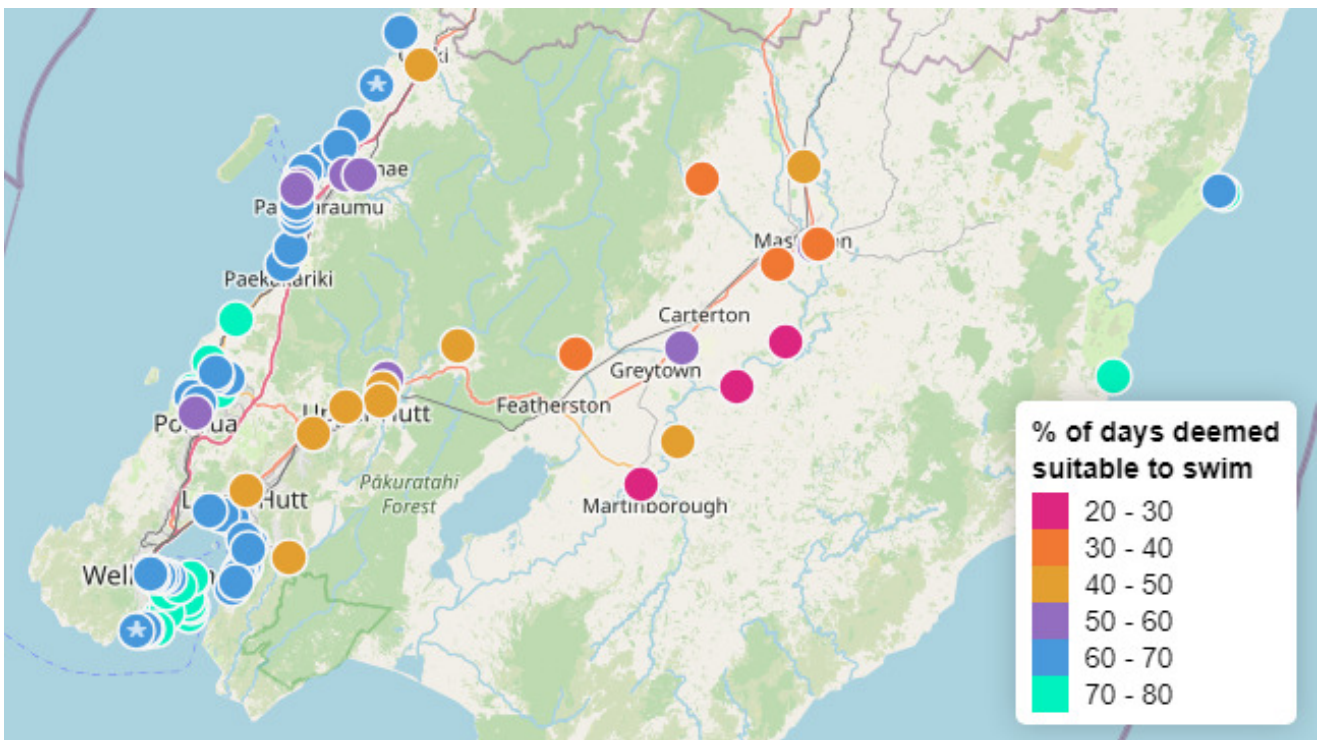


Figure 3: % of days deemed suitable to swim over the **winter** bathing period (April up to the end of October).

## Methods

### Sampling *E. coli*/Enterococci

To maintain quality control, monitoring occurs at selected sites in order to validate the assumptions of the model and to ensure that it remains fit for purpose.

In 2022/23, 22 freshwater sites and 62 coastal sites were sampled either weekly or fortnightly during the summer bathing season (November to March inclusive). 7 coastal sites were also monitored for their suitability for shellfish gathering over this time. 16 coastal sites were monitored fortnightly during the winter period (April to October), reflecting significant year-round use at these sites.

Water sampling is carried out in accordance with the [Ministry for the Environment \(MfE\)/Ministry of Health \(MoH\) \(2003\) microbiological water quality guidelines for marine and freshwater recreational areas](#). This involves the analysis of water samples for *E. coli* (fresh waters), enterococci (coastal waters) or faecal coliform (recreational shellfish waters) indicator bacteria.

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### Toxic algae sentinel site framework

A two-tier sentinel site monitoring framework (implemented December 2018) targets monitoring efforts at known 'sentinel' sites, allowing for flexibility to increase surveillance and responsiveness in responding to current health risks.

#### Tier-1 Sentinel Sites

Classed as sites where toxic algae has been known to historically and predictively bloom under optimal weather and river flow conditions.

Monitoring of Tier 1 sites occurs if there had been an accrual period of seven days. An accrual period is defined as the number of days between a freshwater flushing flow (i.e. 6x median flow). At this flushing flow, toxic algae mats are generally washed away and the potential health risk due to the algae is negligible.

#### Tier-2 Sentinel Sites

Known to bloom when coverages at Tier-1 Sites reaches a critical threshold level of (i.e. >15%, defined for the Wellington region only).

Monitoring of Tier 2 sites occurs if a toxic algae coverage greater than 15% is observed at a Tier-1 Sites. Tier-2 site monitoring is restricted to sites within the same Whaitua where a threshold exceedance was observed. This benchmark of 15% is regionally specific for Greater Wellington,



based on analysis of historical toxic algae coverage across sites in relation to the probability of heightened risk alerts.

### **Action guidelines for the Wellington Region**

Greater Wellington Regional Council has adopted a more conservative action level guideline of 20%, driven by the rapid growth rates of toxic algae experienced in the region and the subsequent need to manage risks to the public. This approach is consistent with the procedures set out in [Brasell and Conwell 2018](#).

In addition to the routine transect assessment as set out in the [Interim Guidelines](#), a bankside assessment was introduced to assess non-wadeable sections of a river site, and where the assessment from a transect method alone was insufficient to assess percentage toxic algae cover.

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Full details of methods and guideline comparisons are described in full in the 2017/18 annual technical report (see [Brasell and Conwell 2018](#)).

## Freshwater *E. coli* results

Key freshwater *E. coli* monitoring results are presented in the following sections and supplementary tables can be found in [Appendix 2](#).

### National Objectives Framework (NOF) states

Microbiological water quality states are reported as National Objectives Framework (NOF) states in accordance with the [2020 National Policy Statement for Freshwater Management](#).

Freshwater NOF states are based on routine sampling over five recreational bathing periods, which run from the start of November to the end of March, with a minimum of 50 samples required to assign a state. “A” can be seen as excellent bathing water quality, while “D” is poor quality with higher risk of *Campylobacter* infection, see these LAWA factsheets on [coastal and freshwater recreation monitoring](#) and [faecal indicator bacteria](#) for more information.

Arrows over the circles in the maps below indicate change in levels from the previous season – i.e. a single up arrow means that this season’s state is one level higher (worse) than last season’s state.

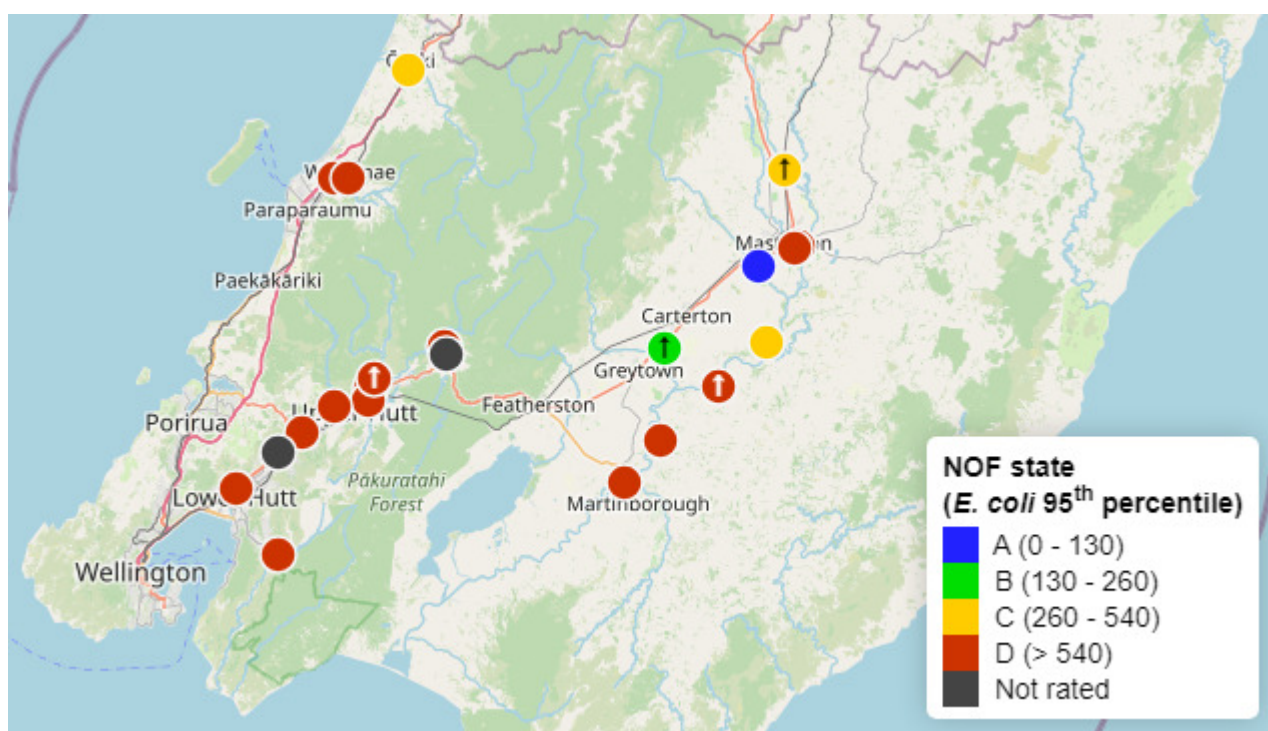


Figure 4: NOF states calculated for samples taken in **all** river flow conditions.



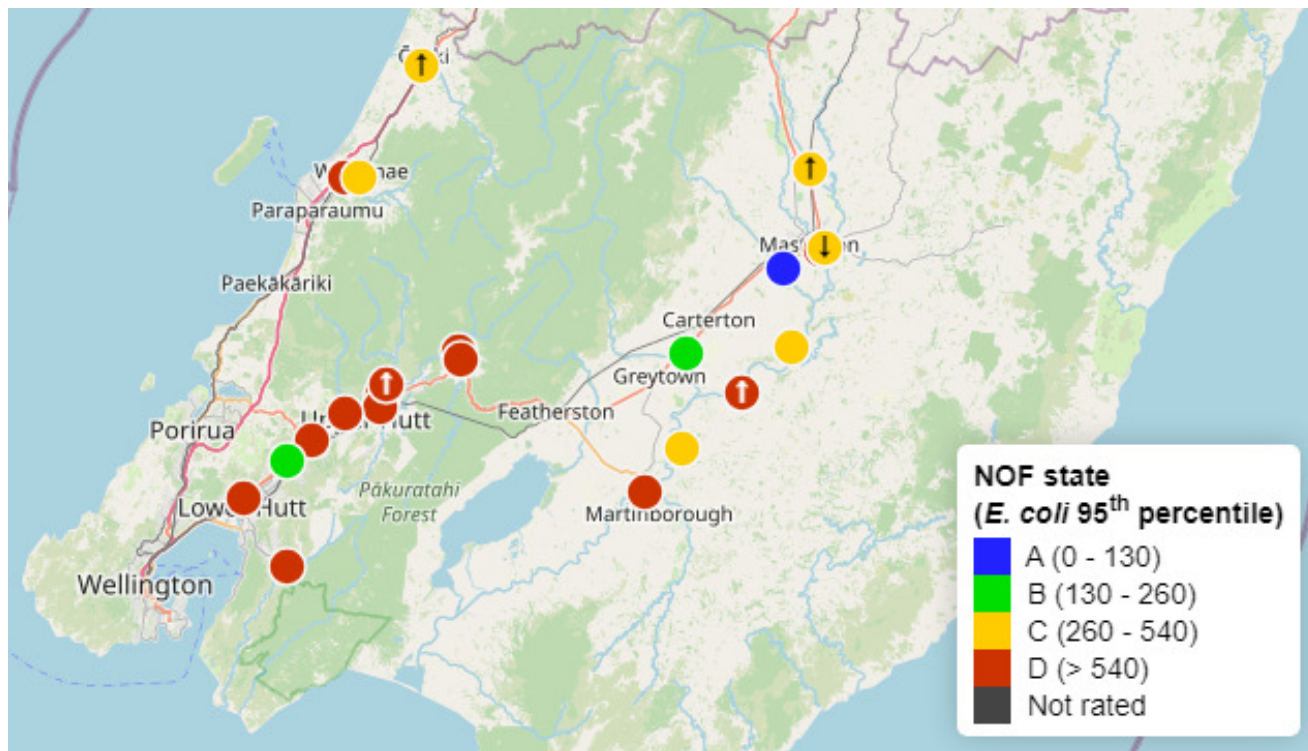


Figure 5: NOF states calculated for samples taken in **low flow** river flow conditions where river flow is less than three times the median of long-term flow. These states do not require the minimum 50 data points, see the appendix data tables for sample numbers when making comparisons.

## Summary of action guideline breaches for *E. coli*

Action guideline breaches for *E. coli* (>550 cfu/100mL) from routine surveillance monitoring.

Table 1: The total number of sites that breached guidelines broken down by those sites total number of breaches in the monitoring season.

Total breaches per site	Te Whanganui-a-			Total no. sites	% of sites
	Kāpiti	Tara	Ruamāhanga		
Zero (no breaches)	1	1	2	4	18.2
One	2	6	7	15	68.2
Two	0	3	0	3	13.6
<b>Total monitored sites:</b>	3	10	9	22	

Table 2: Preceding rainfall (mm) and the number of follow up samples required before compliance with the surveillance guideline was met for each action level breach. Alert level breaches (>260 cfu/100mL) are also included and suffixed an asterisk (\*) when they required follow-up samples to be taken. Whaitua abbreviations: **RMH**: Ruamāhanga, **TWT**: Te Whanganui-a-Tara, **KC**: Kāpiti Coast.

Whaitua	Date	Location	<i>E. coli</i> count (cfu/100mL)	Rainfall (mm)			Follow ups
				00-24h	25-48h	49-72h	
TWT	2022-11-28	Hutt River at Birchville	1,900	7.4	0.0	5.6	0
TWT	2022-11-28	Hutt River at Maoribank Corner	1,200	8.2	0.0	5.6	0
TWT	2022-11-28	Hutt River at Melling Bridge	1,100	10.6	0.0	5.6	0
TWT	2022-11-28	Hutt River at Poets Park	1,200	8.4	0.0	5.6	0
TWT	2022-11-28	Hutt River at Silverstream Bridge	1,100	9.6	0.0	5.6	0
RMH	2023-01-05	Ruamāhanga River at Double Bridges	600	0.0	2.4	4.4	0
RMH	2023-01-09	Ruamāhanga River at Kokotau	2,400	90.0	29.0	8.5	0
RMH	2023-01-09	Ruamāhanga River at Morrisons Bush	3,100	84.5	8.0	12.5	0
RMH	2023-01-09	Ruamāhanga River at Te Ore Ore	2,600	44.8	30.2	11.8	0
RMH	2023-01-09	Ruamāhanga River at The Cliffs	2,500	90.0	28.5	9.0	0
RMH	2023-01-09	Ruamāhanga River at Waihenga Bridge	2,400	90.5	30.0	9.5	0
RMH	2023-01-09	Waipoua River at Colombo Road	1,500	38.0	21.8	11.0	0
TWT	2023-03-06	Akatarawa River at Hutt Confluence	600	1.6	11.4	0.0	0
TWT	2023-03-06	Hutt River at Maoribank Corner	600	5.0	1.2	0.0	0
TWT	2023-03-06	Hutt River at Melling Bridge	1,900	1.6	4.6	0.0	0
TWT	2023-03-06	Hutt River at Poets Park	700	3.0	3.2	0.0	0
TWT	2023-03-06	Pakuratahi River at Hutt Forks	1,100	3.4	5.4	0.0	0
TWT	2023-03-06	Pakuratahi River at Kaitoke Campground	1,000	3.4	5.4	0.0	0
TWT	2023-03-06	Wainuiomata River at Richard Prouse Park	1,000	0.0	1.4	0.0	0
KC	2023-03-21	Ōtaki River at Old SH1	400*	0.0	0.0	79.5	1
KC	2023-03-21	Waikanae River at Jim Cooke Park	3,800	0.0	0.2	41.2	1
KC	2023-03-21	Waikanae River at Old SH1	1,900	0.0	0.2	41.0	1

# Freshwater toxic algae results

Summer toxic algae monitoring results are assessed in accordance with [New Zealand guidelines for cyanobacteria in recreational freshwaters: Interim guidelines \(2009\)](#) and presented in the following charts. The green (●) and blue (●) dots on the charts below show observed toxic algae cover by transect and bankside assessment methods with red circles (○) around them if detached toxic algae mats were present. River flow is shown by the continuous black line (—) and the orange (—) and red (—) dotted lines mark alert (>20%) and action (>50%) levels of toxic algae cover respectively.

Sites are grouped by Whaitua and their monitoring tier in the Sentinel Site Framework, see the [methods section](#) for more information on this framework. Other sites that are monitored for toxic algae but not assigned a tier are included for reference as well.

Note that the y-axes for flow (right side of plots) are on different scales across sites, this is to highlight the possible effect of relative flow events on toxic algae cover rather than comparing absolute rates.

## Te Whanganui-a-Tara Whaitua

### Tier 1 sentinel sites

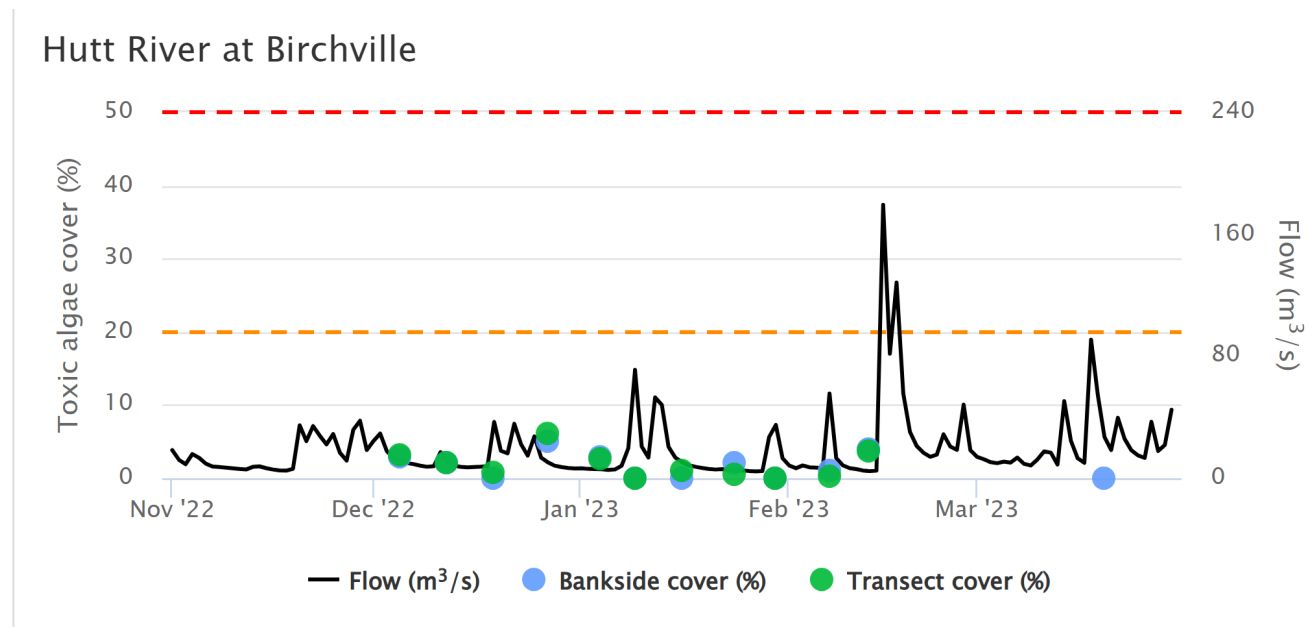


Figure 6: Toxic algae cover and flow for **Hutt River at Birchville**.

### Hutt River upstream of Silverstream Bridge

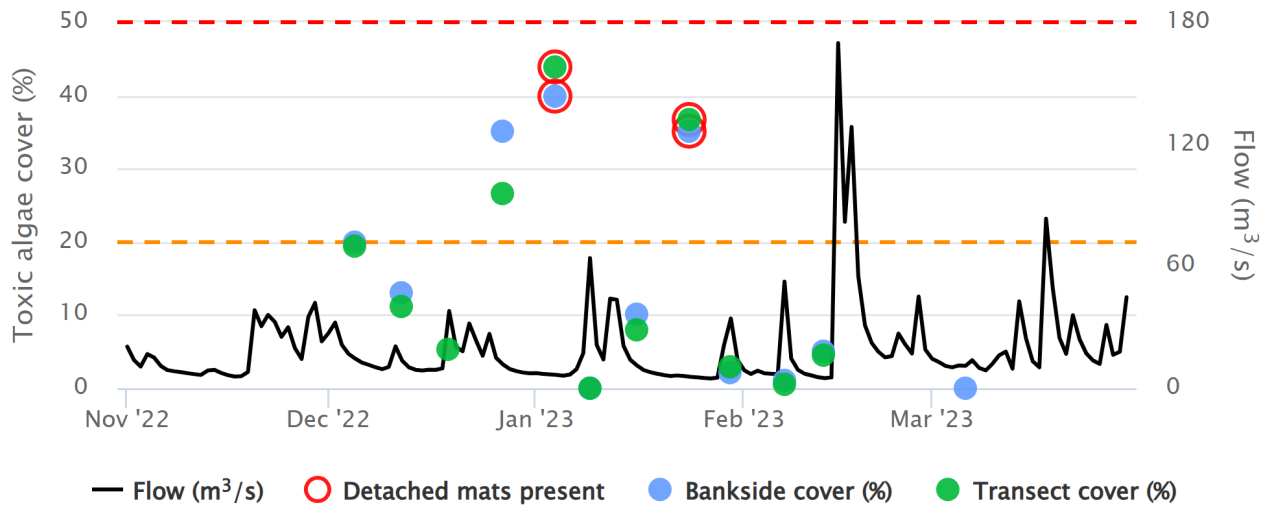


Figure 7: Toxic algae cover and flow for **Hutt River upstream of Silverstream Bridge**.

### Pakuratahi River at Kaitoke Campground

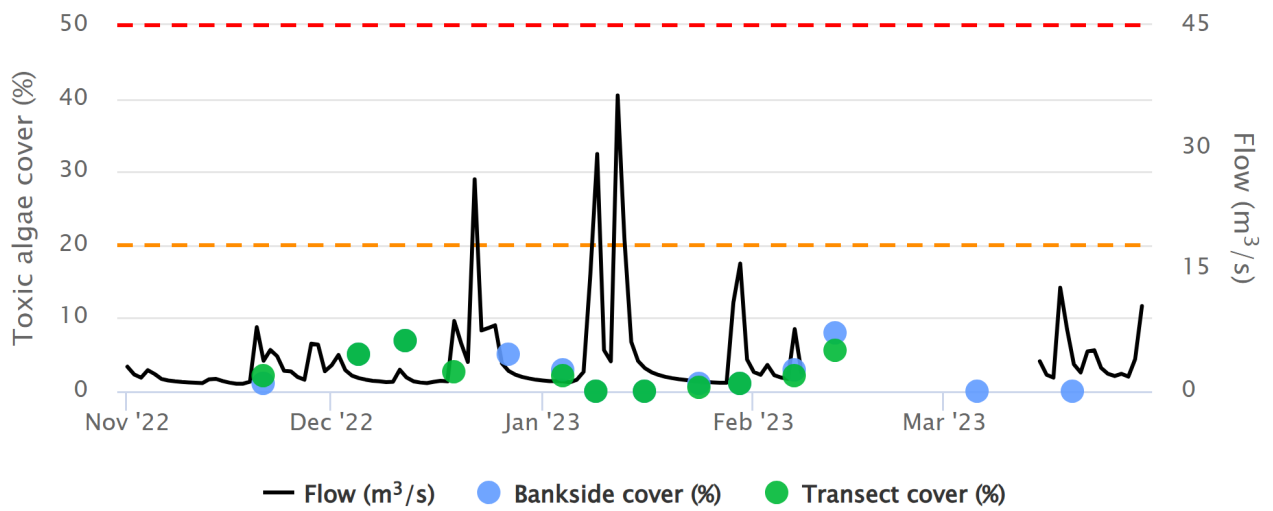


Figure 8: Toxic algae cover and flow for **Pakuratahi River at Kaitoke Campground**.

## Tier 2 sentinel sites

### Hutt River at Melling Bridge

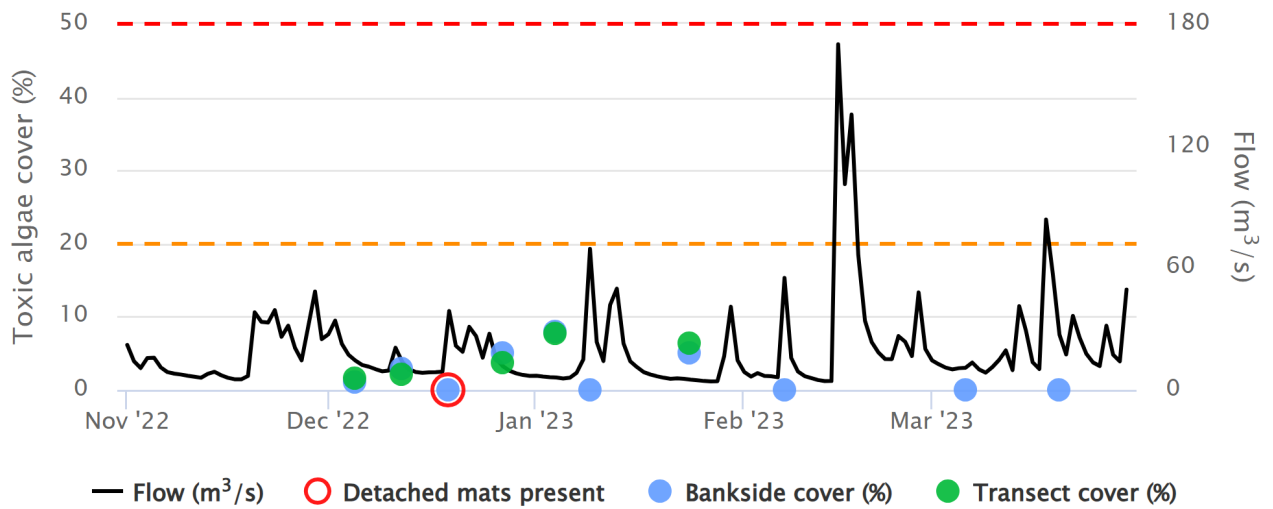


Figure 9: Toxic algae cover and flow for **Hutt River at Melling Bridge**.

### Hutt River at Poets Park

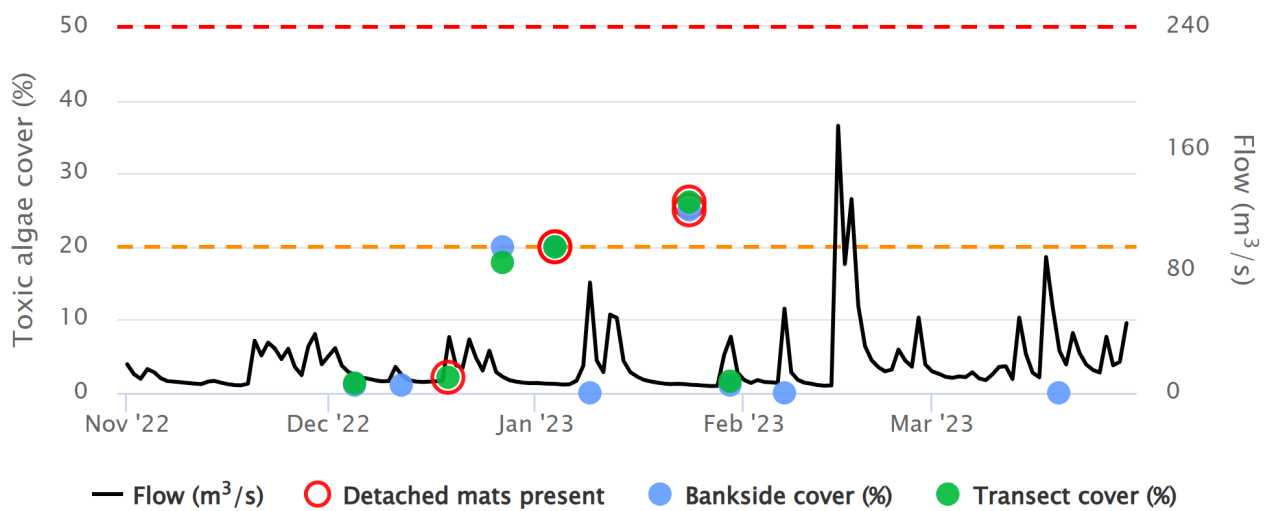


Figure 10: Toxic algae cover and flow for **Hutt River at Poets Park**.

## Other sites

### Akatarawa River at Hutt Confluence

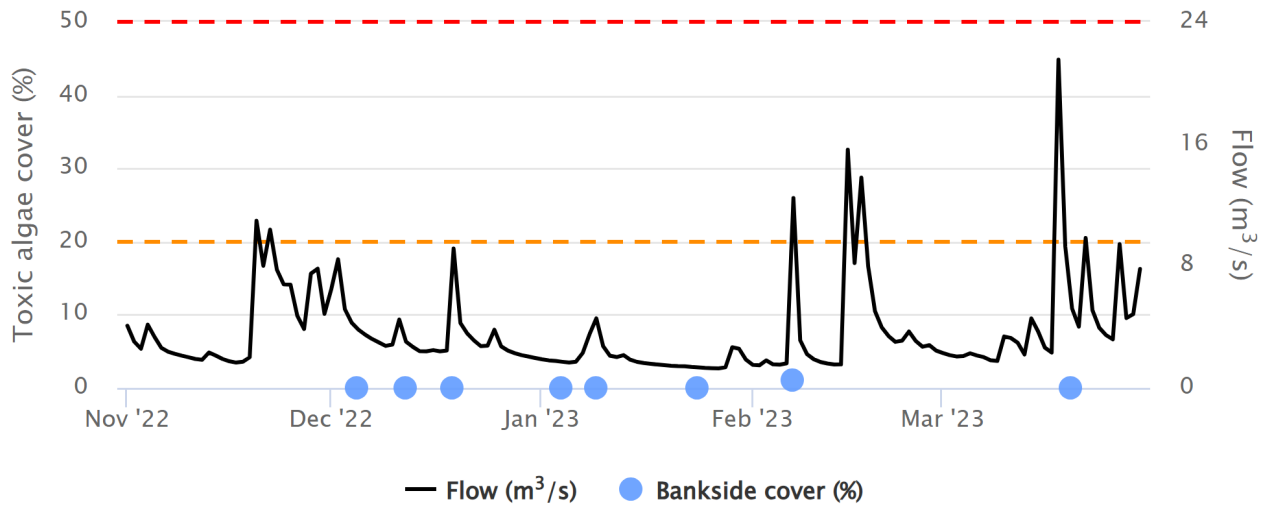


Figure 11: Toxic algae cover and flow for **Akatarawa River at Hutt Confluence**.

### Hutt River at Maoribank Corner

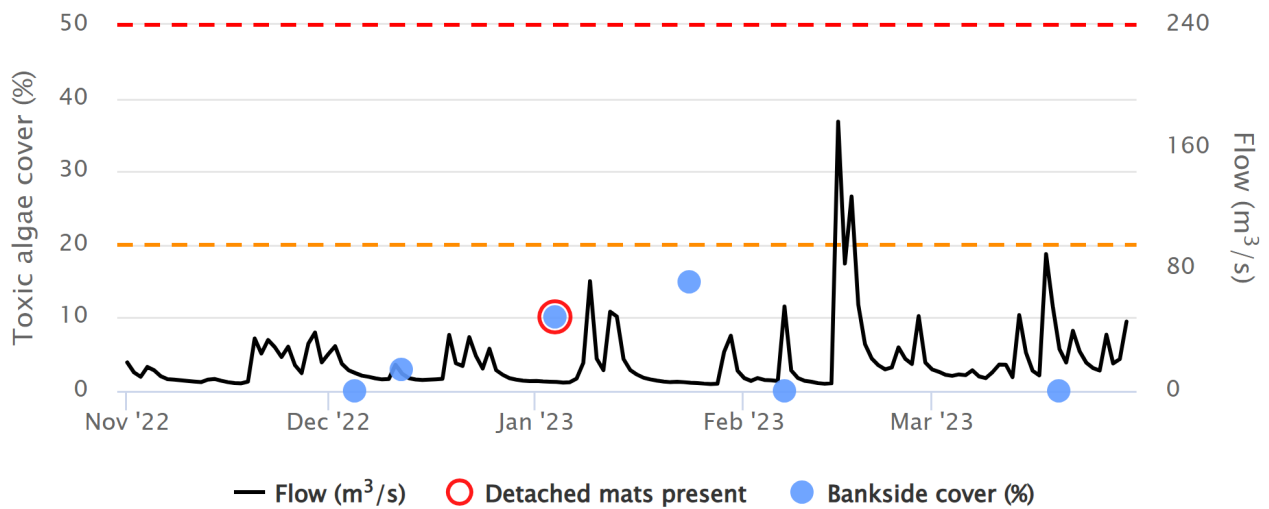


Figure 12: Toxic algae cover and flow for **Hutt River at Maoribank Corner**.



### Hutt River at Silverstream Bridge

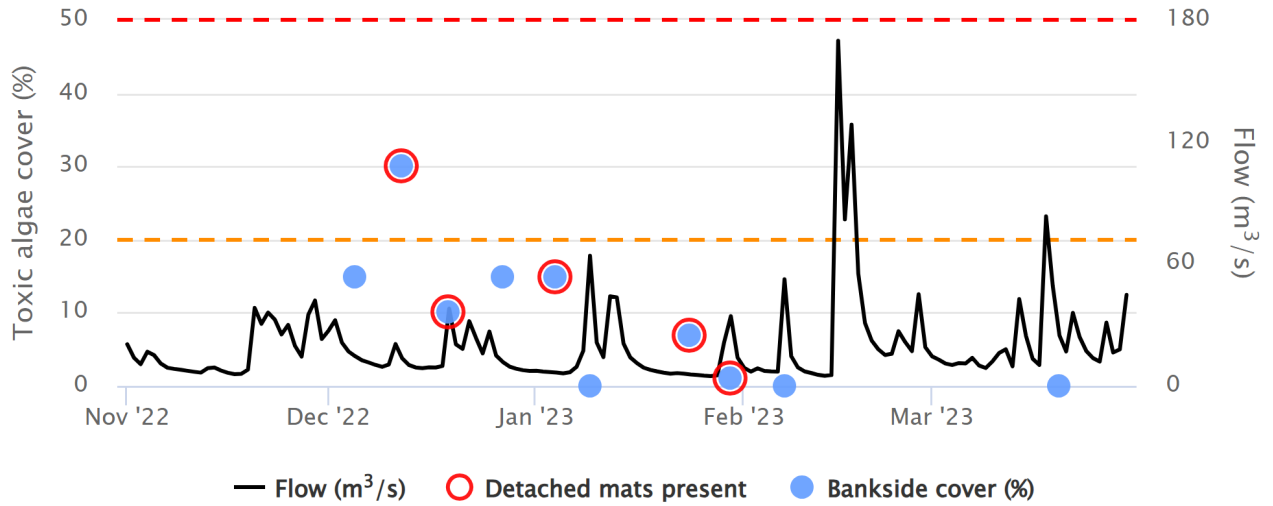


Figure 13: Toxic algae cover and flow for **Hutt River at Silverstream Bridge**.

### Hutt River at Taita Rock

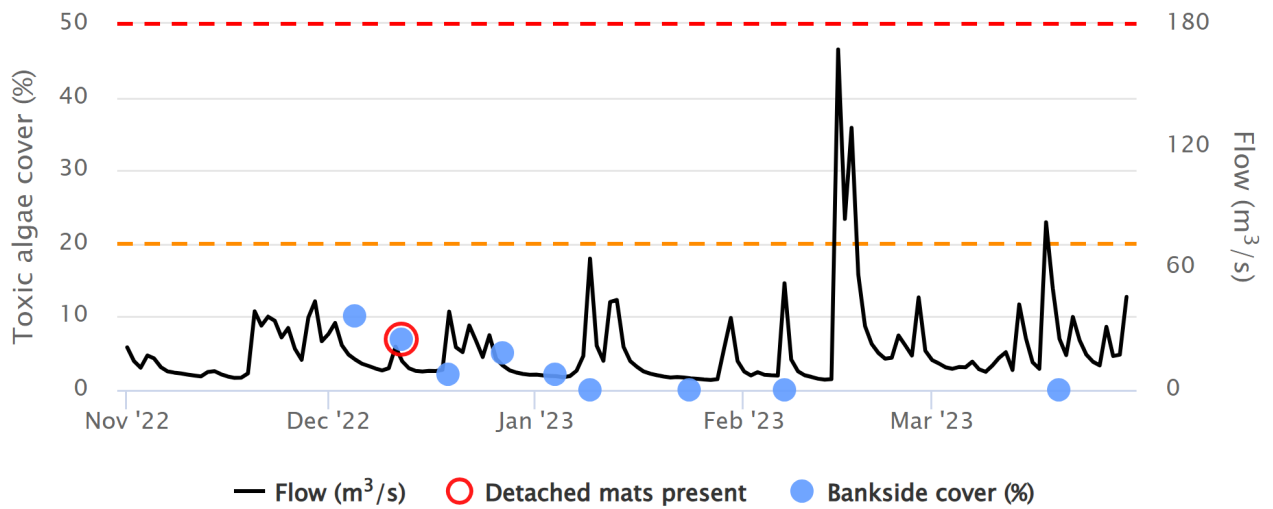


Figure 14: Toxic algae cover and flow for **Hutt River at Taita Rock**.

### Pakuratahi River at Hutt Forks

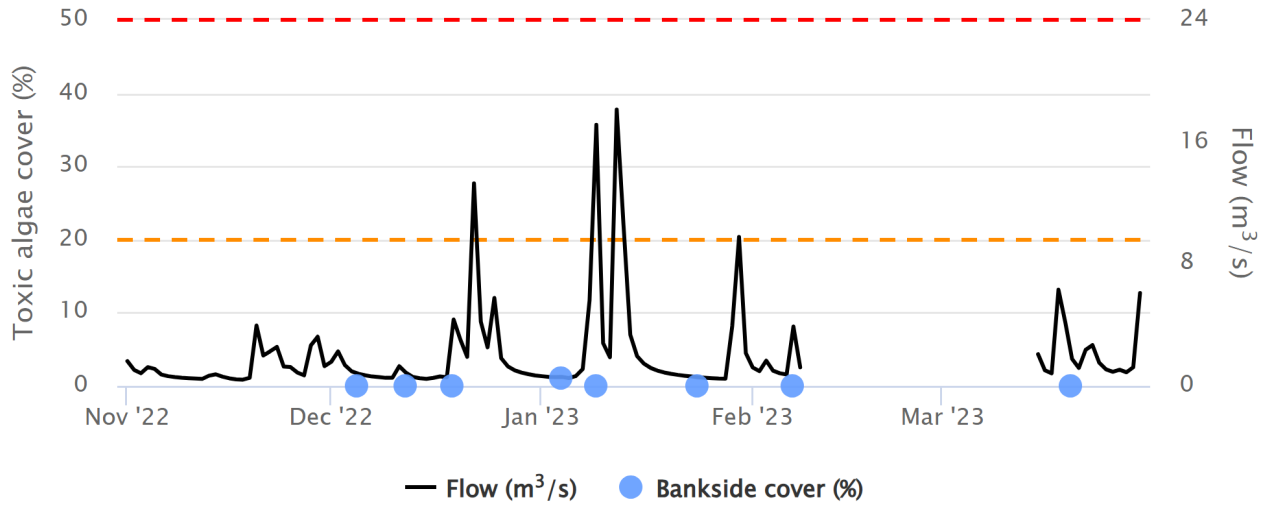


Figure 15: Toxic algae cover and flow for **Pakuratahi River at Hutt Forks**.

### Wainuiomata River at Richard Prouse Park

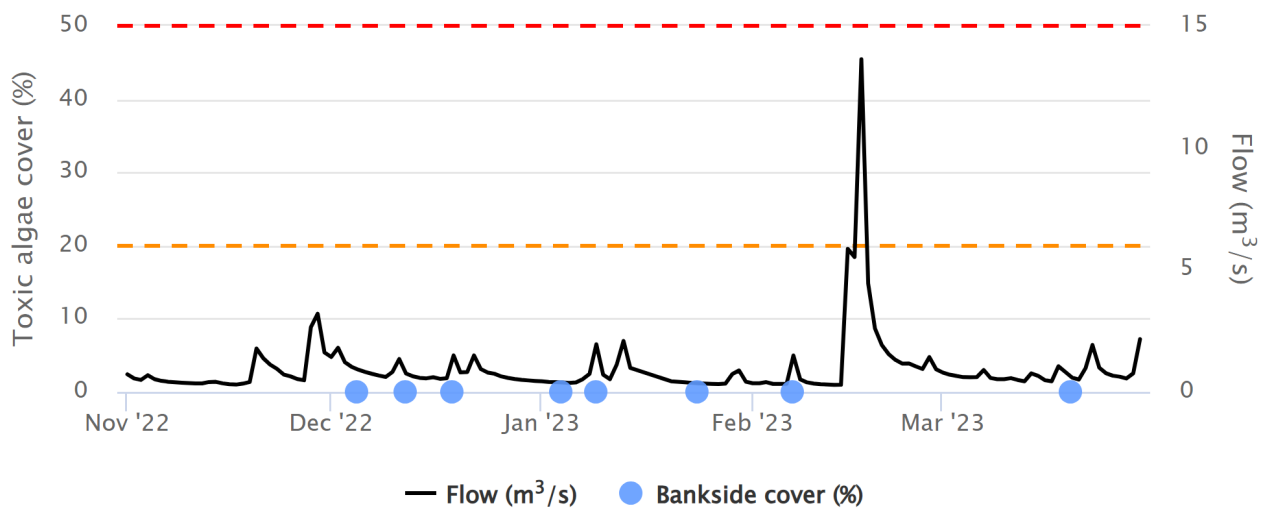


Figure 16: Toxic algae cover and flow for **Wainuiomata River at Richard Prouse Park**.

# Ruamāhanga Whaitua

## Tier 1 sentinel sites

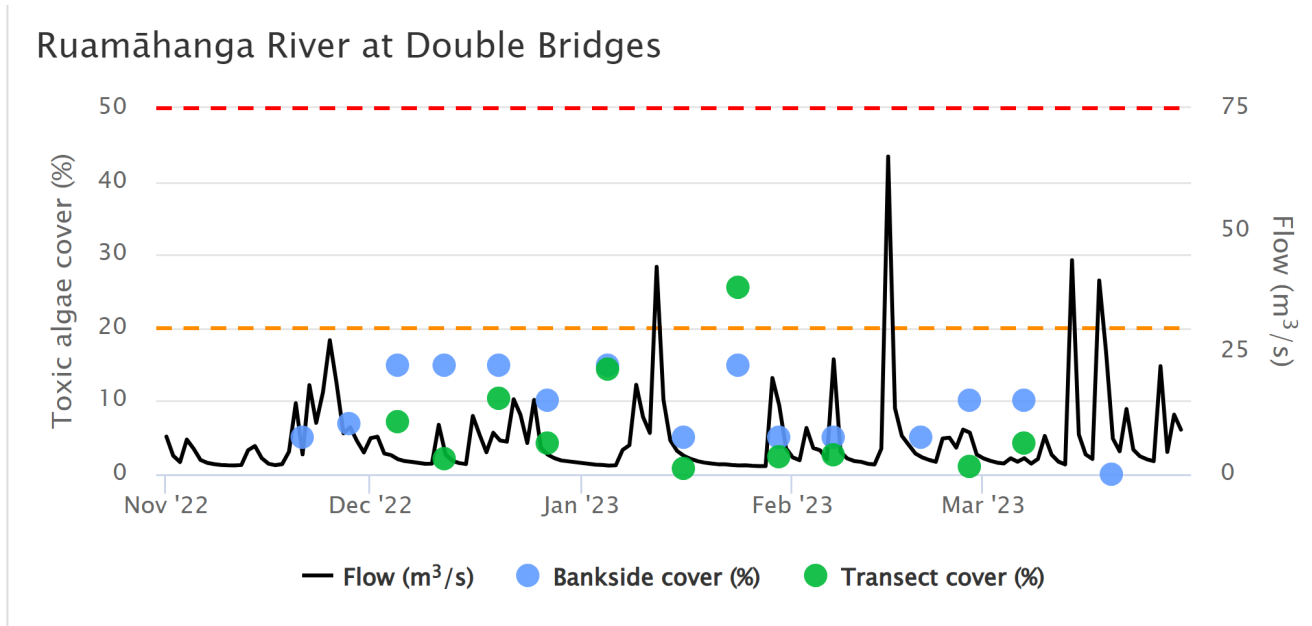


Figure 17: Toxic algae cover and flow for **Ruamāhanga River at Double Bridges**.

## Waingawa River at South Road

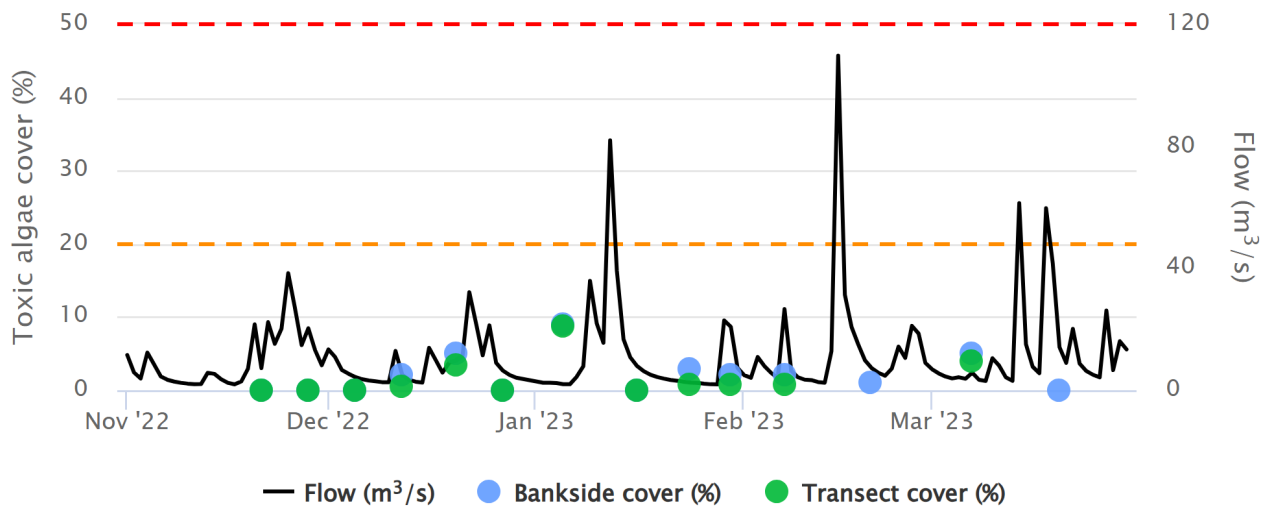


Figure 18: Toxic algae cover and flow for **Waingawa River at South Road**.

### Waipoua River at Colombo Road

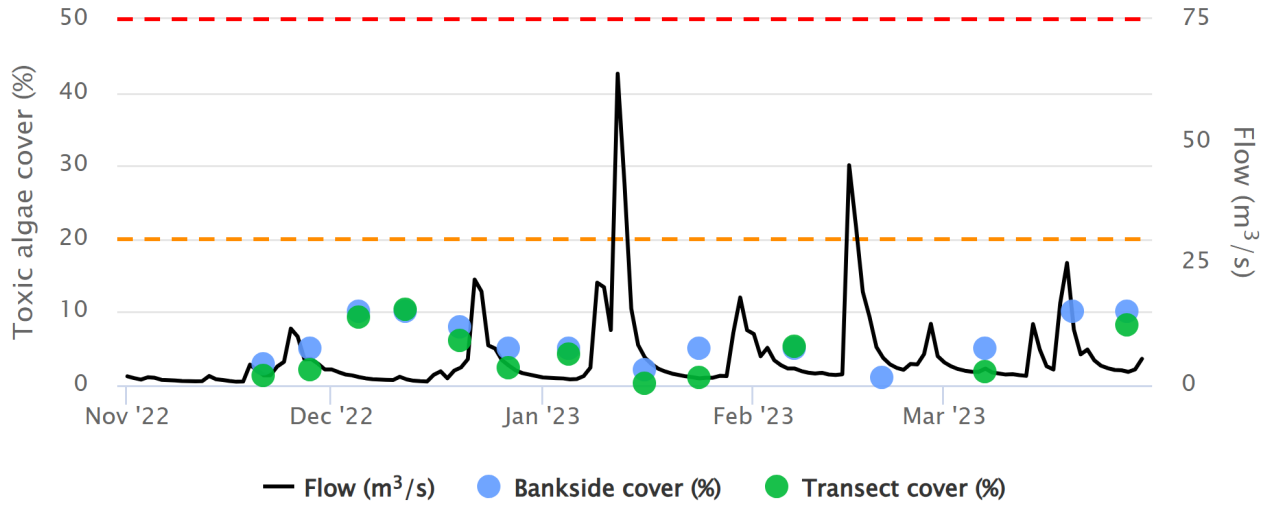


Figure 19: Toxic algae cover and flow for **Waipoua River at Colombo Road**.

## Tier 2 sentinel sites

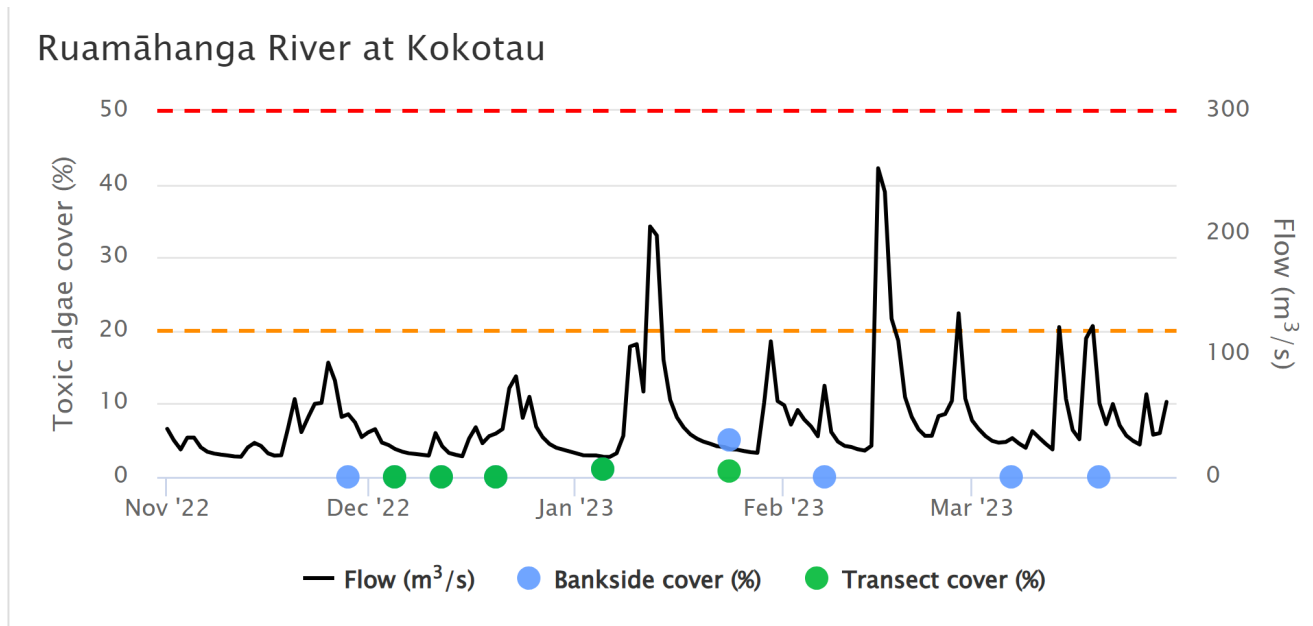


Figure 20: Toxic algae cover and flow for **Ruamāhanga River at Kokotau**.

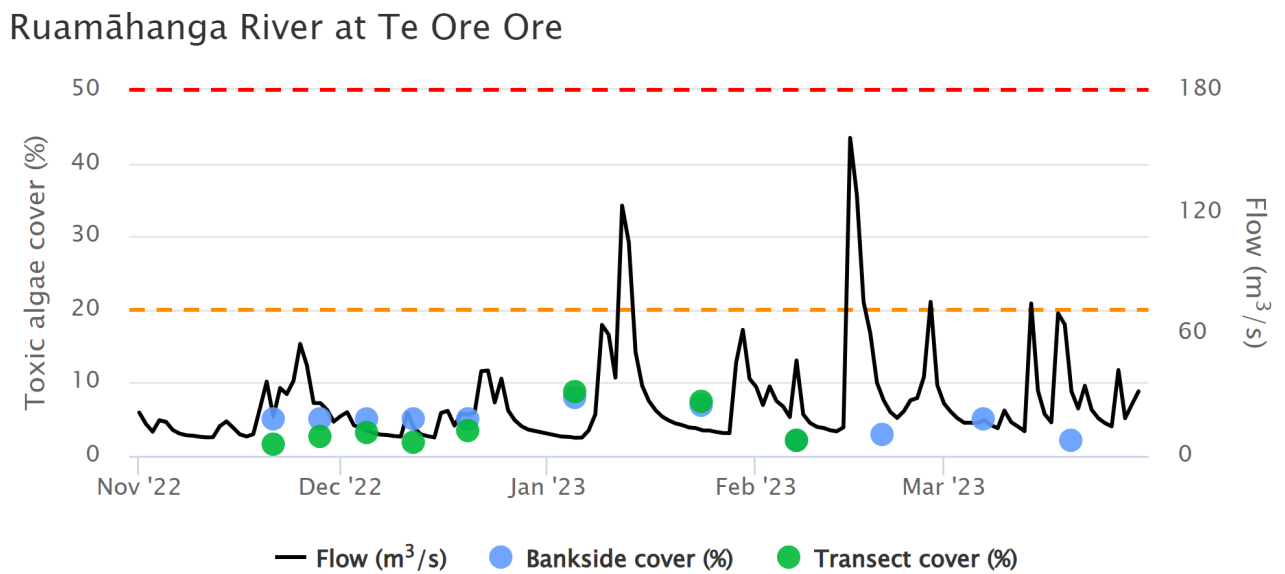


Figure 21: Toxic algae cover and flow for **Ruamāhanga River at Te Ore Ore**.

### Ruamāhanga River at The Cliffs

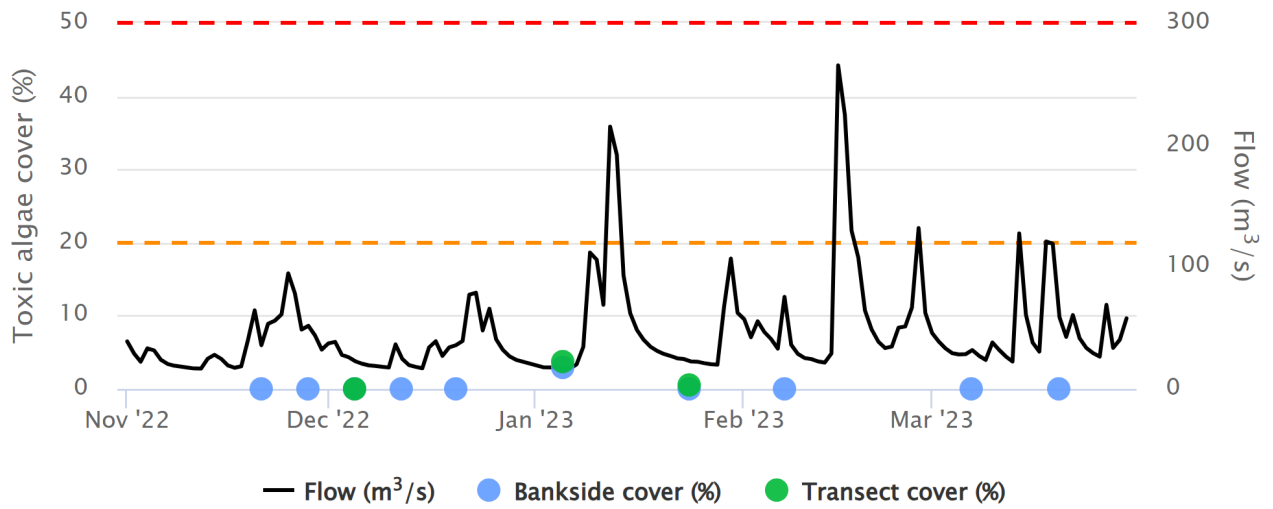


Figure 22: Toxic algae cover and flow for **Ruamāhanga River at The Cliffs**.



## Other sites

### Ruamāhanga River at Morrisons Bush

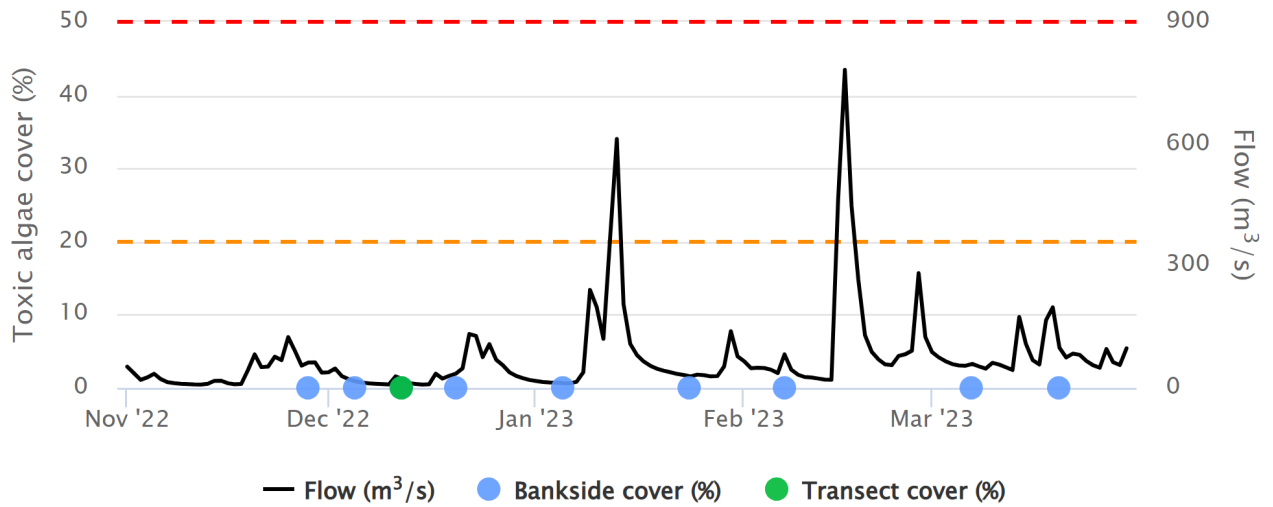


Figure 23: Toxic algae cover and flow for **Ruamāhanga River at Morrisons Bush**.

### Ruamāhanga River at Waihenga Bridge

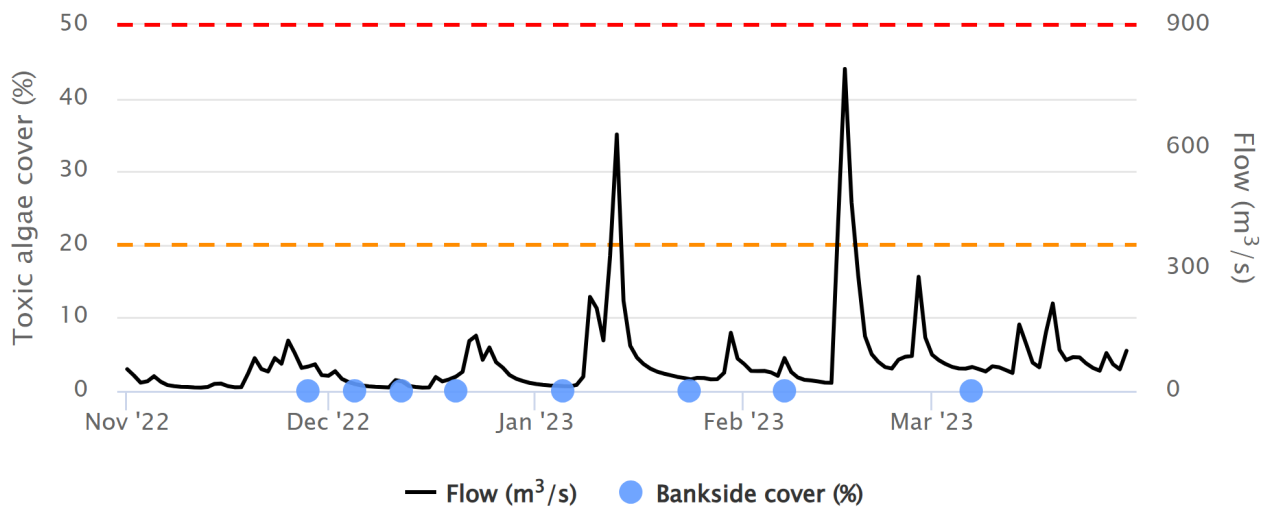


Figure 24: Toxic algae cover and flow for **Ruamāhanga River at Waihenga Bridge**.

### Waiohine River at SH2

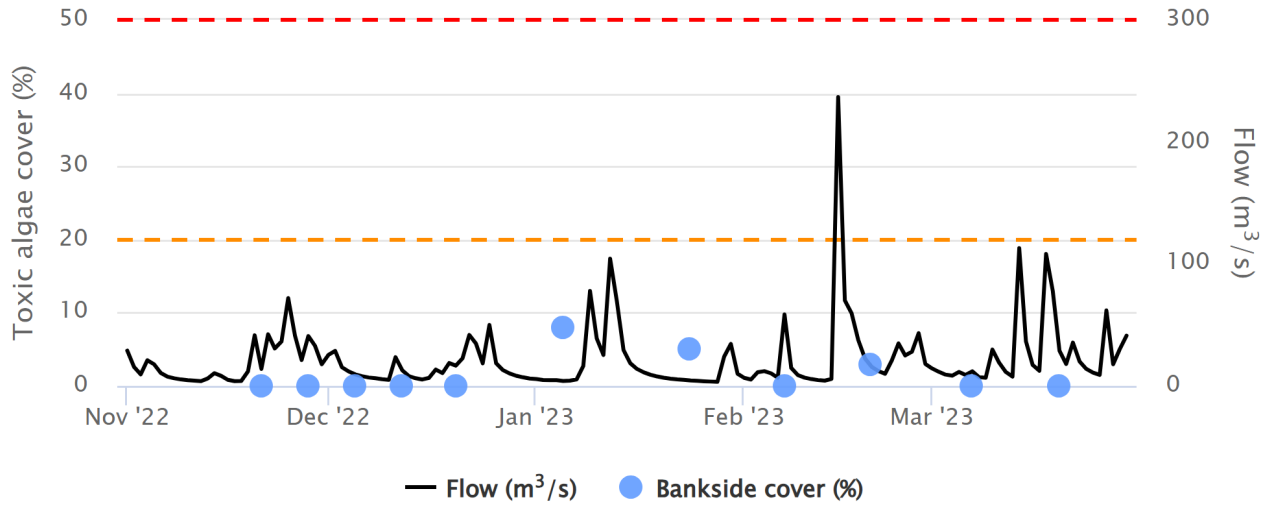


Figure 25: Toxic algae cover and flow for **Waiohine River at SH2**.

# Kāpiti Coast Whaitua

## Tier 1 sentinel sites

### Ōtaki River at Old SH1

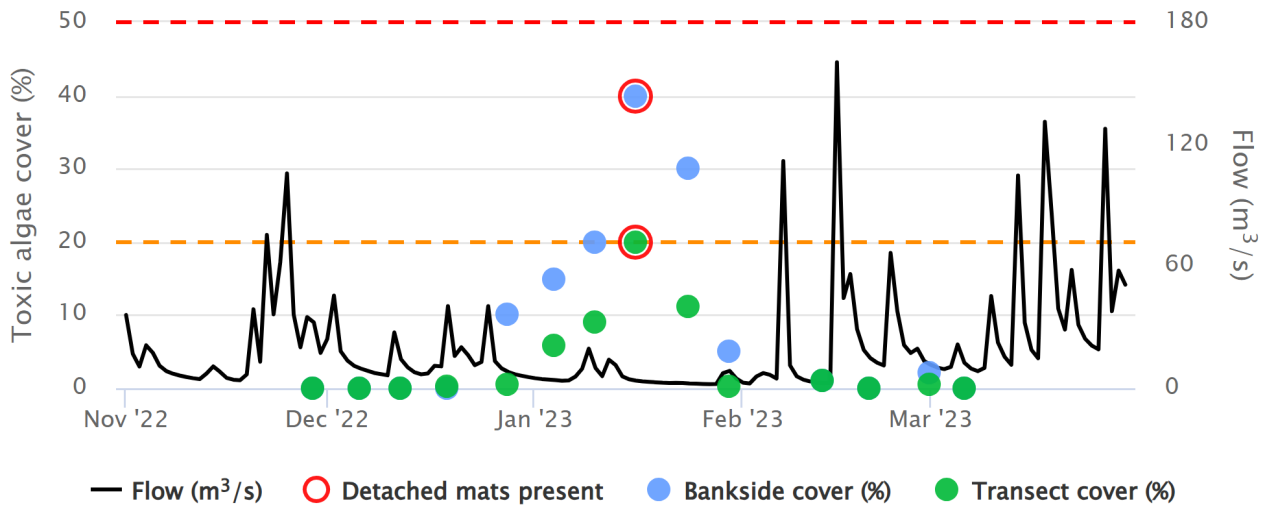


Figure 26: Toxic algae cover and flow for **Ōtaki River at Old SH1**.

### Waikanae River at Jim Cooke Park

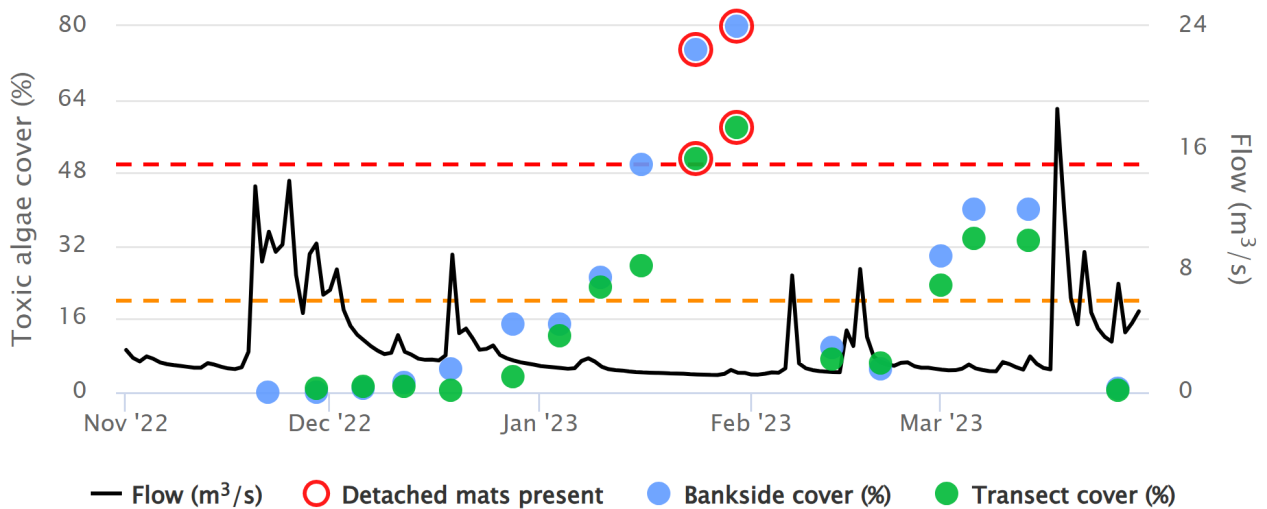


Figure 27: Toxic algae cover and flow for **Waikanae River at Jim Cooke Park**.

### Waikanae River at Old SH1

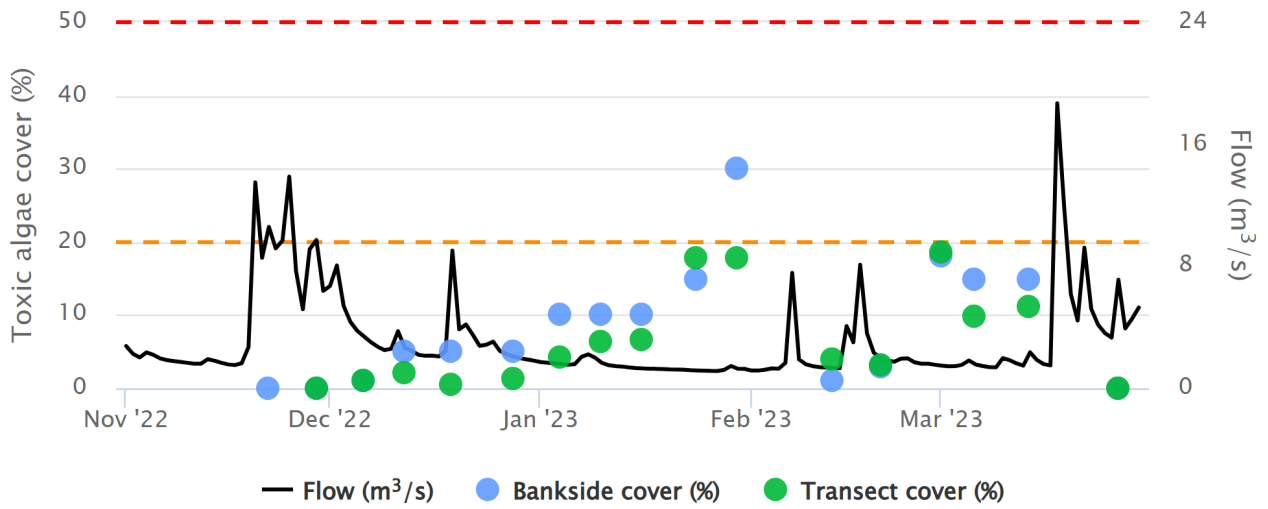


Figure 28: Toxic algae cover and flow for **Waikanae River at Old SH1**.

## Coastal Enterococci results

Key coastal enterococci monitoring results are presented in the following sections and supplementary tables can be found in [Appendix 2](#).

### Microbiological Assessment Categories (MACs)

Microbiological water quality grades are reported as long term Microbiological Assessment Category (MAC) grades in accordance with [The Ministry for the Environment & Ministry of Health 2003 Microbiological water quality guidelines for marine and freshwater recreational areas](#).

Coastal MAC grades are based on routine sampling over five recreational bathing periods, which run from the start of November to the end of March, and also for some sites during the winter period where there is significant year-round use. A minimum of 50 samples are required to assign a grade. “A” can be seen as excellent bathing water quality, while “D” is poor quality and potentially harmful, see these LAWA factsheets on [coastal and freshwater recreation monitoring](#) and [faecal indicator bacteria](#) for more information.

Arrows over the circles in the maps below indicate change in levels from the previous season – i.e. a single up arrow means that this season’s grade is one level higher (worse) than last season’s grade.

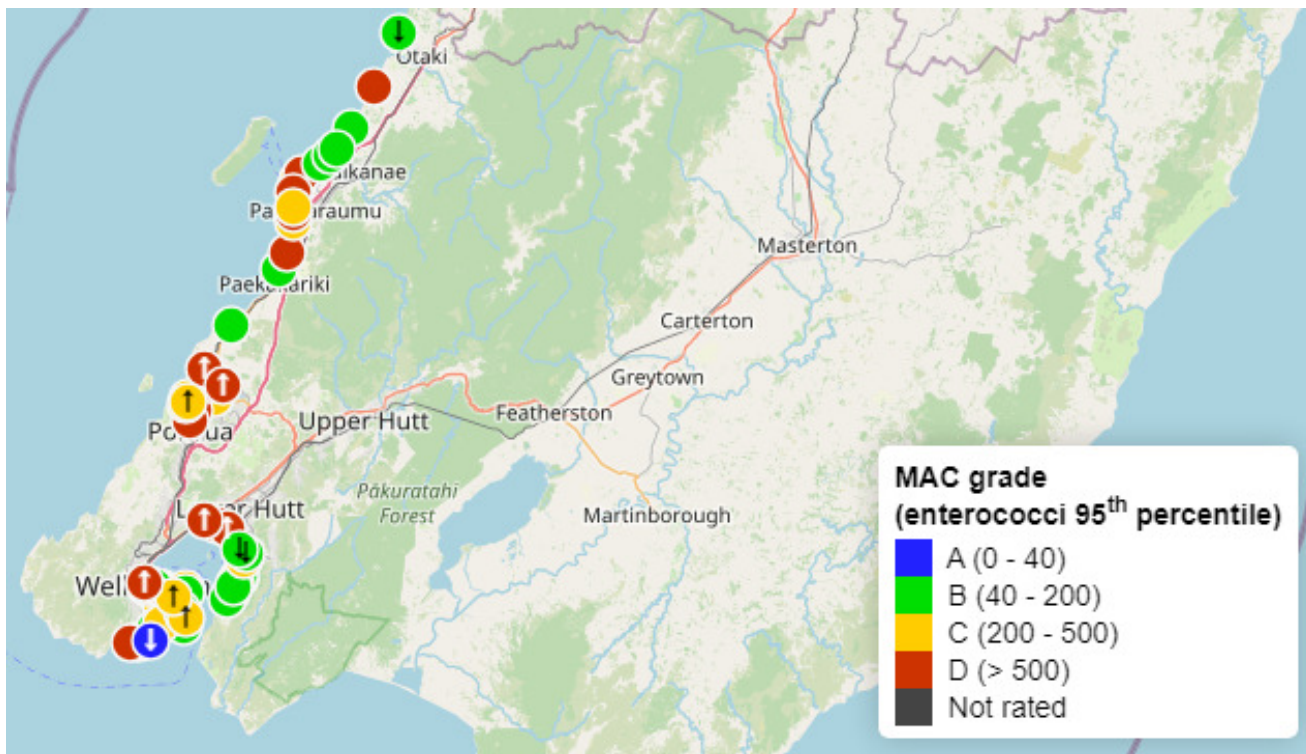


Figure 29: MAC grades calculated for samples taken over the **summer** bathing season (start of November to the end of March).

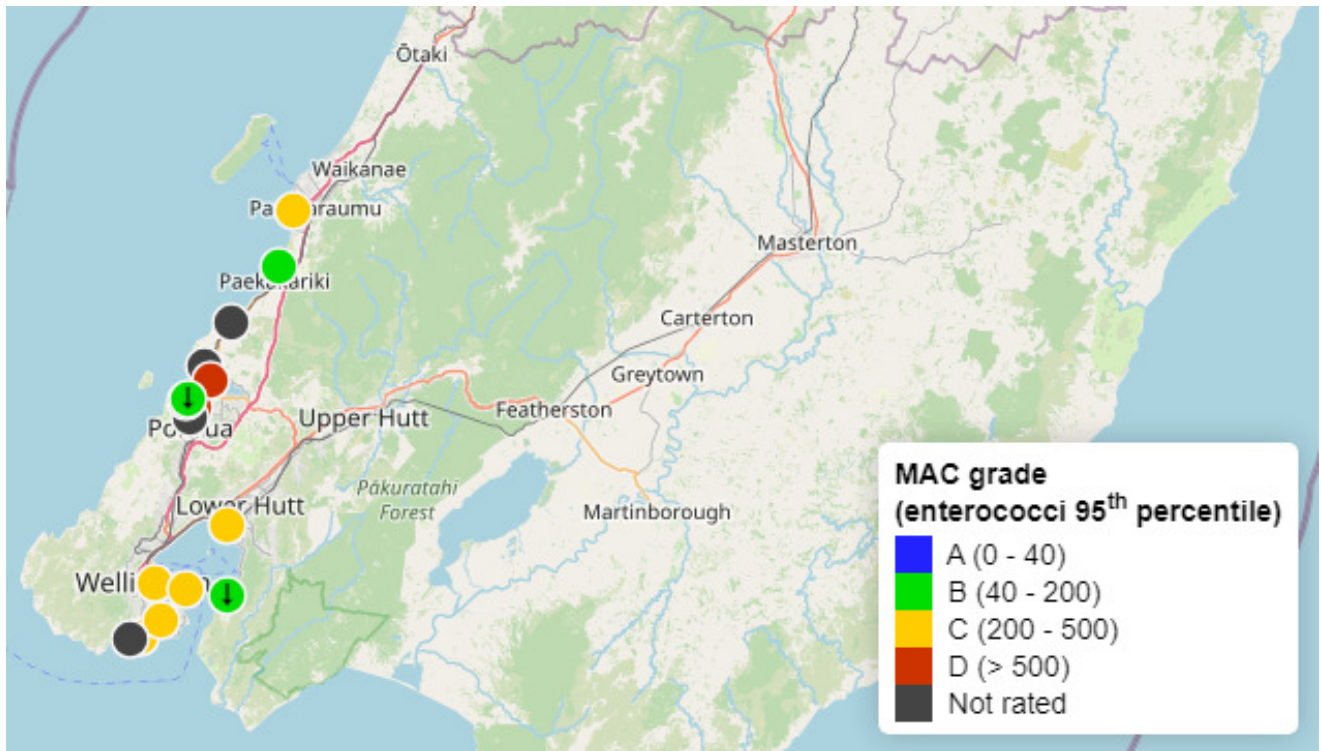


Figure 30: MAC grades calculated for samples taken over the **winter** bathing season (April up to the end of October).



## Summary of action guideline breaches for Enterococci

Action guideline breaches for Enterococci (>280 cfu/100mL) from routine surveillance monitoring.

Table 3: The total number of sites that breached guidelines during the **summer** bathing season (start of November to the end of March) broken down by those sites total number of breaches in the summer season.

Total breaches per site	Kāpiti	Te Awarua-o-Porirua	Te Whanganui-a-Tara	Total no. sites	% of sites
Zero (no breaches)	6	3	15	24	38.7
One	7	5	13	25	40.3
Two	2	2	3	7	11.3
Three	0	1	3	4	6.5
Four	0	0	2	2	3.2
<b>Total monitored sites:</b>	15	11	36	62	

Table 4: The total number of sites that breached guidelines during the **winter** bathing season (April up to the end of October) broken down by those sites total number of breaches in the winter season.

Total breaches per site	Kāpiti	Te Awarua-o-Porirua	Te Whanganui-a-Tara	Total no. sites	% of sites
Zero (no breaches)	2	2	4	8	50.0
One	0	2	0	2	12.5
Two	0	2	1	3	18.8
Three	0	1	1	2	12.5
Four	0	0	1	1	6.3
<b>Total monitored sites:</b>	2	7	7	16	

Table 5: Preceding rainfall (mm) and the number of follow up samples required before compliance with the surveillance guideline was met for each breach. Alert level breaches (>140 cfu/100mL) are also included and suffixed an asterisk (\*) when they required follow-up samples to be taken.

Whaitua abbreviations: **TAoP**: Te Awarua-o-Porirua, **TWT**: Te Whanganui-a-Tara, **KC**: Kāpiti Coast.

Whaitua	Date	Location	Enterococci count (cfu/100mL)	Rainfall (mm)			Follow ups
				00-24h	25-48h	49-72h	
TWT	2022-07-06	Ōwhiro Bay	430	0.2	0.0	0.2	0
TWT	2022-07-06	Scorching Bay	360	0.0	0.0	0.0	0
TWT	2022-07-20	Island Bay at Surf Club	1,200	0.0	0.8	0.4	0
TWT	2022-07-20	Ōwhiro Bay	1,200	0.0	0.8	0.4	0
TAoP	2022-09-28	South Beach at Plimmerton	500	0.0	0.0	1.2	0
TAoP	2022-09-28	Tītahi Bay at South Beach Access Road	900	0.0	0.0	1.2	0
TWT	2022-11-07	Petone Beach at Sydney Street	320	0.0	0.0	0.0	1
KC	2022-11-21	Paekākāriki Beach at Whareroa Road	560	0.0	0.0	0.0	1
KC	2022-11-21	Paraparaumu Beach at Maclean Park	340	10.2	43.6	7.2	1
KC	2022-11-21	Paraparaumu Beach at Nathan Avenue	340	0.0	0.0	0.0	1
KC	2022-11-21	Paraparaumu Beach at Ngapotiki Street	550	0.0	0.0	0.0	1
KC	2022-11-21	Paraparaumu Beach at Toru Road	182*	10.2	43.6	7.2	1
KC	2022-11-21	Raumati Beach at Aotea Road	360	0.0	0.0	0.0	1
KC	2022-11-21	Raumati Beach at Marine Gardens	820	0.0	0.0	0.0	1
KC	2022-11-21	Raumati Beach at Tainui Street	148*	0.0	0.0	0.0	1
TAoP	2022-11-23	Karehana Bay at Cluny Road	500	2.0	11.2	8.8	0
TAoP	2022-11-23	South Beach at Plimmerton	600	2.2	11.0	8.8	0
TWT	2022-11-23	Seatoun Beach at Inglis Street	300	0.6	0.2	6.4	0
TWT	2022-11-23	Wellington City Waterfront at Shed 6	600	1.2	0.0	5.6	0
TWT	2022-11-23	Whairepo Lagoon	1,200	1.2	0.0	5.6	0
TWT	2022-11-28	Petone Beach at Kiosk	2,000	56.0	0.0	0.2	0
TWT	2022-11-28	Petone Beach at Sydney Street	2,600	56.2	0.0	0.2	0
TWT	2022-11-28	Petone Beach at Water Ski Club	2,200	56.4	0.0	0.2	0
TAoP	2022-11-29	Porirua Harbour at Wi Neera Drive Boat Ramp	600	14.4	70.0	0.0	0
TWT	2022-11-30	Wellington Harbour at Taranaki St Dive Platform	500	0.0	21.6	10.8	0
TWT	2022-11-30	Whairepo Lagoon	800	0.0	21.8	10.6	0
TWT	2022-12-07	Wellington City Waterfront at Shed 6	1,500	0.0	0.0	0.0	0
TWT	2022-12-14	Whairepo Lagoon	440	0.0	0.0	0.4	0
TWT	2022-12-19	Petone Beach at Kiosk	290	30.6	1.0	0.2	0
TWT	2022-12-19	Petone Beach at Sydney Street	330	30.6	1.0	0.2	0
TWT	2022-12-19	Petone Beach at Water Ski Club	520	30.6	1.0	0.2	0
TWT	2022-12-19	Rona Bay at N end of Cliff Bishop Park	630	30.6	1.0	0.2	0
TWT	2022-12-19	Rona Bay at Wharf	490	30.6	1.0	0.2	0
TAoP	2022-12-20	Porirua Harbour at Rowing Club	960	0.0	26.0	0.4	0
TAoP	2022-12-20	Tītahi Bay at South Beach Access Road	480	0.0	30.8	1.6	0
TWT	2022-12-21	Island Bay at Reef St Recreation Ground	700	0.0	0.0	24.6	0

Whaitua	Date	Location	Enterococci count (cfu/100mL)	Rainfall (mm)			Follow ups
				00-24h	25-48h	49-72h	
TWT	2022-12-21	Lyall Bay at Tirangi Road	800	0.0	0.0	0.0	0
TWT	2022-12-21	Ōwhiro Bay	700	0.0	0.0	24.6	0
TWT	2022-12-21	Wellington City Waterfront at Shed 6	400	0.0	0.4	21.4	0
TWT	2022-12-28	Ōwhiro Bay	600	0.0	0.0	0.0	0
TAoP	2023-01-05	Porirua Harbour at Wi Neera Drive Boat Ramp	300	0.0	0.0	0.0	0
TAoP	2023-01-05	Titahi Bay at Toms Road	300	0.0	0.0	0.0	0
TAoP	2023-01-17	Titahi Bay at South Beach Access Road	1,100	0.0	0.0	0.0	0
KC	2023-02-08	Paraparaumu Beach at Maclean Park	210*	0.0	31.8	0.0	1
KC	2023-02-08	Paraparaumu Beach at Toru Road	360	0.0	31.8	0.0	1
KC	2023-02-08	Raumati Beach at Marine Gardens	390	0.0	0.0	0.0	1
TWT	2023-02-13	Petone Beach at Kiosk	470	0.0	0.0	0.0	0
TWT	2023-02-13	Petone Beach at Sydney Street	800	0.0	0.0	0.0	0
TAoP	2023-02-14	Pāuatahanui Inlet at Water Ski Club	2,200	0.0	0.0	0.0	0
TAoP	2023-02-14	Plimmerton Beach at Bath Street	300	0.0	0.0	0.0	0
TAoP	2023-02-14	Porirua Harbour at Rowing Club	1,500	0.0	0.0	0.0	0
TAoP	2023-02-14	Porirua Harbour at Wi Neera Drive Boat Ramp	5,500	0.0	0.0	0.0	0
TWT	2023-02-15	Balaena Bay	1,200	23.4	0.0	0.0	0
TWT	2023-02-15	Hataitai Beach	500	24.2	0.0	0.0	0
TWT	2023-02-15	Island Bay at Derwent Street	1,200	37.2	0.0	0.0	0
TWT	2023-02-15	Island Bay at Reef St Recreation Ground	1,000	37.2	0.0	0.0	0
TWT	2023-02-15	Island Bay at Surf Club	1,500	37.2	0.0	0.0	0
TWT	2023-02-15	Mahanga Bay	900	27.0	0.0	0.0	0
TWT	2023-02-15	Oriental Bay at Band Rotunda	6,000	25.4	0.0	0.0	0
TWT	2023-02-15	Oriental Bay at Wishing Well	2,300	25.4	0.0	0.0	0
TWT	2023-02-15	Ōwhiro Bay	2,700	37.4	0.0	0.0	0
TWT	2023-02-15	Shark Bay	300	28.4	0.0	0.0	0
TWT	2023-02-15	Wellington City Waterfront at Shed 6	2,400	22.2	0.0	0.0	0
TWT	2023-02-15	Wellington Harbour at Taranaki St Dive Platform	1,000	31.4	0.0	0.0	0
TWT	2023-02-15	Worser Bay	2,200	27.0	0.0	0.0	0
KC	2023-02-21	Paraparaumu Beach at Toru Road	144*	0.0	0.2	0.2	1
KC	2023-03-07	Paekākāriki Beach at Whareroa Road	156*	0.0	0.0	0.0	2
KC	2023-03-07	Paraparaumu Beach at Maclean Park	750	4.8	0.0	1.6	1
KC	2023-03-21	Peka Peka Beach at Road End	560	0.0	0.2	47.4	1
KC	2023-03-21	Te Horo Beach at Sea Road	3,000	0.0	0.2	40.8	1
KC	2023-03-21	Waikanae Beach at William Street	225*	0.0	0.2	46.0	1
TAoP	2023-04-05	Titahi Bay at South Beach Access Road	530	0.8	0.6	2.4	0
TWT	2023-04-19	Island Bay at Surf Club	2,600	0.0	0.0	0.0	0
TWT	2023-04-19	Ōwhiro Bay	6,000	0.0	0.0	0.0	0
TWT	2023-04-19	Scorching Bay	620	0.0	0.0	0.0	0
TAoP	2023-05-02	Porirua Harbour at Wi Neera Drive Boat Ramp	500	0.0	0.0	0.0	0
TAoP	2023-05-16	Porirua Harbour at Rowing Club	4,400	0.0	0.0	0.0	0
TAoP	2023-05-30	Karehana Bay at Cluny Road	600	0.0	0.4	6.4	0

Whaitua	Date	Location	Enterococci count (cfu/100mL)	Rainfall (mm)			Follow ups
				00- 24h	25- 48h	49- 72h	
TAoP	2023-05-30	Porirua Harbour at Wi Neera Drive Boat Ramp	3,000	0.6	0.2	26.4	0
TAoP	2023-05-30	South Beach at Plimmerton	400	0.0	0.4	6.4	0
TWT	2023-06-14	Island Bay at Surf Club	1,200	0.0	0.0	0.2	0
TWT	2023-06-14	Ōwhiro Bay	1,200	0.0	0.0	0.2	0
TAoP	2023-06-27	Porirua Harbour at Wi Neera Drive Boat Ramp	300	0.0	0.0	0.0	0

## Shellfish gathering water quality results

Faecal coliform counts from routine summer monitoring (start of November to the end of March) are benchmarked against the following recreational shellfish-gathering water quality criteria:

- Median faecal coliform content of samples taken over a shellfish-gathering season shall not exceed a Most Probable Number (MPN) of 14 cfu/100 mL, and
- Not more than 10% of samples should exceed an MPN of 43 cfu/100 mL (using a five-tube decimal dilution test)

Both of these criteria must be exceeded (values in **red**) to fail guidelines. See [water quality criteria \(MfE/MoH 2003\)](#) for more information.

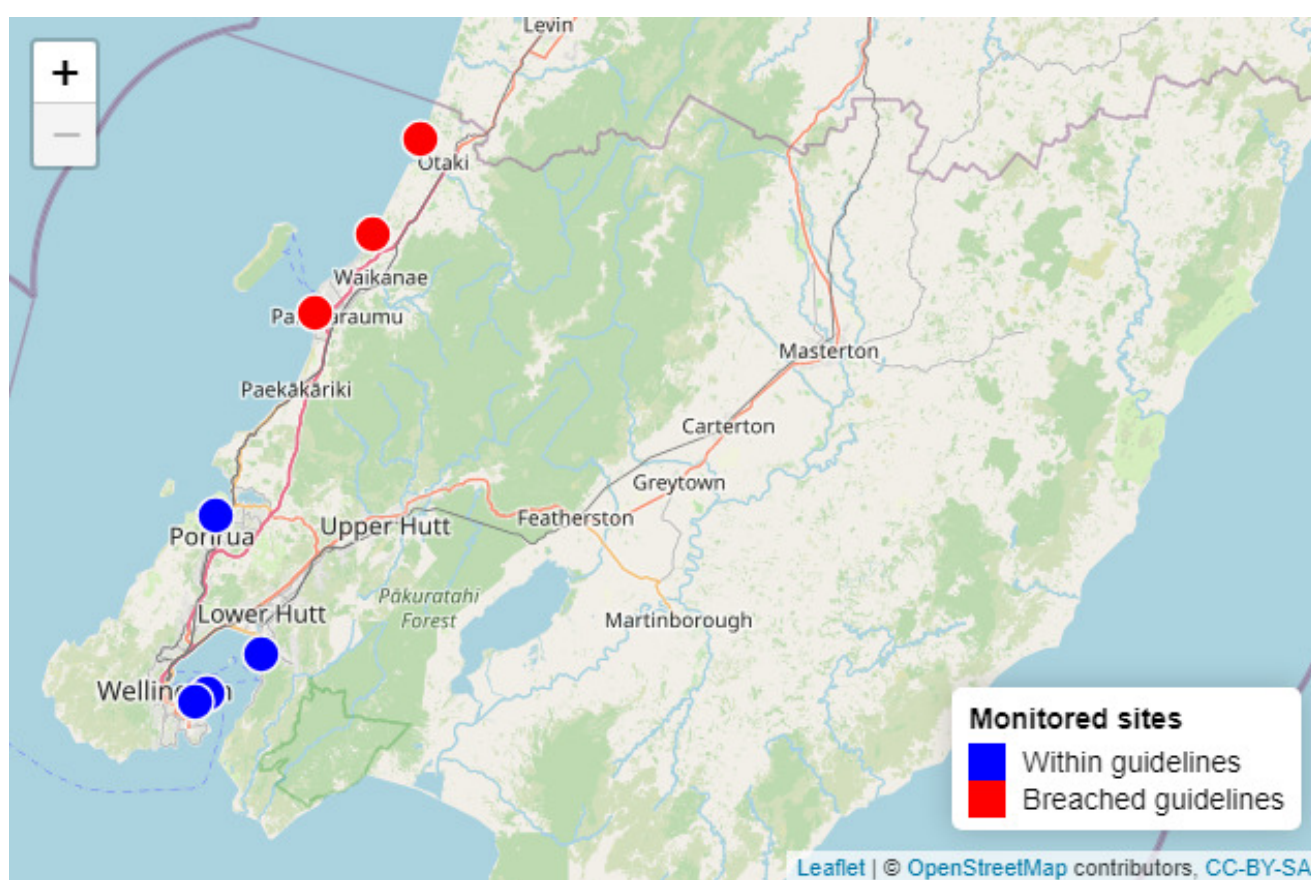


Figure 31: Shellfish gathering water quality monitoring sites coloured by whether they met MfE/MoH 2003 guidelines.

Table 6: Faecal coliform results for the 2022/23 summer season. Bold red cells indicate breaches of water quality criteria.

Whaitua	Site	MfE/MoH guidelines	Median (cfu/100mL)	Maximum (cfu/100mL)	No. (and %) of results >43 cfu/100mL	Total no. of samples
Kāpiti	Ōtaki Beach at Surf Club	<b>Exceeded</b>	<b>32</b>	640	5 ( <b>45%</b> )	11
Kāpiti	Peka Peka Beach at Road End	<b>Exceeded</b>	<b>81</b>	2,070	6 ( <b>50%</b> )	12
Kāpiti	Raumati Beach at Tainui Street	<b>Exceeded</b>	<b>47</b>	630	6 ( <b>50%</b> )	12
Te Awarua-o-Porirua	Porirua Harbour at Rowing Club	Within	14	1,100	6 ( <b>38%</b> )	16
Te Whanganui-a-Tara	Mahanga Bay	Within	2	140	1 (6%)	16
Te Whanganui-a-Tara	Shark Bay	Within	5	150	3 ( <b>19%</b> )	16
Te Whanganui-a-Tara	Sorrento Bay	Within	12	160	3 ( <b>20%</b> )	15

# Resources

## **Greater Wellington Regional Council**

[Is it safe to swim- Recreational water quality in the Wellington Region](#)

[Water quality and monitoring FAQs](#)

## **Land, Air, Water Aotearoa (LAWA)**

[LAWA summary of the microbiological water quality guidelines](#)

[LAWA Factsheet: what are faecal indicator bacteria?](#)

[LAWA factsheet: potentially toxic algae](#)

## **NIWA**

[Recreational water quality monitoring and reporting in New Zealand. A discussion paper for Regional and Unitary Councils](#)

## Appendix 1 - Monitoring details

Table A1.1: Monitoring site information. Whaitua abbreviations: **TAoP**: Te Awarua-o-Porirua, **RMH**: Ruamāhanga, **TWT**: Te Whanganui-a-Tara, **KC**: Kāpiti Coast, **EW** Eastern Wairarapa. Tier refers to toxic algae tier in the Sentinel Site Framework, see the [methods section](#) for more information on this framework.

Whaitua	Site	Rainfall station	Type	Tier	Winter
TWT	Akatarawa River at Hutt Confluence	Akatarawa River at Cemetery	freshwater	other	
TWT	Balaena Bay	Hataitai at Old Post Office	marine		
TWT	Breaker Bay	Miramar at Miramar Bowling Club	marine		
EW	Castlepoint Beach at Castlepoint Stream		marine		
EW	Castlepoint Beach at Smelly Creek		marine		
TWT	Days Bay at Moana Road	Hutt River at Shandon Golf Club	marine		
TWT	Days Bay at Wellesley College	Hutt River at Shandon Golf Club	marine		
TWT	Days Bay at Wharf	Hutt River at Shandon Golf Club	marine		
TWT	Hataitai Beach	Hataitai at Old Post Office	marine		
TWT	Hutt River at Birchville	Hutt River at Te Marua	freshwater	1	
TWT	Hutt River at Maoribank Corner	Hutt River at Te Marua	freshwater	other	
TWT	Hutt River at Melling Bridge	Hutt River at Te Marua	freshwater	2	
TWT	Hutt River at Poets Park	Hutt River at Te Marua	freshwater	2	
TWT	Hutt River at Silverstream Bridge	Hutt River at Te Marua	freshwater	other	
TWT	Hutt River at Taita Rock	Hutt River at Te Marua	freshwater	other	
TWT	Hutt River upstream of Silverstream Bridge	Hutt River at Te Marua	freshwater	1	
TWT	Island Bay at Derwent Street	Berhampore at Nursery	marine		
TWT	Island Bay at Reef St Recreation Ground	Berhampore at Nursery	marine		
TWT	Island Bay at Surf Club	Berhampore at Nursery	marine		Y
TAoP	Karehana Bay at Cluny Road	Taupo Stream at Whenua Tapu	marine		Y
TWT	Lowry Bay at Cheviot Road	Hutt River at Shandon Golf Club	marine		
TWT	Lyall Bay at Onepu Road	Newtown at Mansfield Street	marine		
TWT	Lyall Bay at Queens Drive	Newtown at Mansfield Street	marine		
TWT	Lyall Bay at Tirangi Road	Newtown at Mansfield Street	marine		Y
TWT	Mahanga Bay	Miramar at Miramar Bowling Club	marine		
TWT	Oriental Bay at Band Rotunda	Wellington at Te Papa	marine		
TWT	Oriental Bay at Freyberg Beach	Wellington at Te Papa	marine		
TWT	Oriental Bay at Wishing Well	Wellington at Te Papa	marine		Y
KC	Ōtaki Beach at Surf Club	Ōtaki River at Depot	marine		
KC	Ōtaki River at Old SH1	Waitatapia Stream at Taungata	freshwater	1	
TWT	Ōwhiro Bay	Berhampore at Nursery	marine		Y
KC	Paekākāriki Beach at Surf Club	Whareroa Stream at Mackays Crossing	marine		Y
KC	Paekākāriki Beach at Whareroa Road	Whareroa Stream at Mackays Crossing	marine		
TWT	Pakuratahi River at Kaitoke Campground	Pakuratahi River at Centre Ridge	freshwater	1	
TWT	Pakuratahi River at Hutt Forks	Pakuratahi River at Centre Ridge	freshwater	other	
KC	Paraparaumu Beach at Maclean Park	Waikanae River at Water Treatment Plant	marine		
KC	Paraparaumu Beach at Nathan Avenue	Whareroa Stream at Mackays Crossing	marine		
KC	Paraparaumu Beach at Ngapotiki Street	Whareroa Stream at Mackays Crossing	marine		
KC	Paraparaumu Beach at Toru Road	Waikanae River at Water Treatment Plant	marine		



Whaitua	Site	Rainfall station	Type	Tier	Winter
TAoP	Pāuatahanui Inlet at Paremata Bridge	Porirua Stream at Tawa Pool	marine		
TAoP	Pāuatahanui Inlet at Water Ski Club	Taupo Stream at Whenua Tapu	marine		
KC	Peka Peka Beach at Road End	Waikanae River at Water Treatment Plant	marine		
TWT	Petone Beach at Kiosk	Hutt River at Shandon Golf Club	marine		Y
TWT	Petone Beach at Sydney Street	Hutt River at Shandon Golf Club	marine		
TWT	Petone Beach at Water Ski Club	Hutt River at Shandon Golf Club	marine		
TAoP	Plimmerton Beach at Bath Street	Taupo Stream at Whenua Tapu	marine		
TAoP	Porirua Harbour at Rowing Club	Porirua Stream at Tawa Pool	marine		Y
TAoP	Porirua Harbour at Wi Neera Drive Boat Ramp	Porirua Stream at Tawa Pool	marine		Y
TWT	Princess Bay	Newtown at Mansfield Street	marine		
TAoP	Pukerua Bay	Taupo Stream at Whenua Tapu	marine		Y
KC	Raumati Beach at Aotea Road	Whareroa Stream at Mackays Crossing	marine		
KC	Raumati Beach at Marine Gardens	Whareroa Stream at Mackays Crossing	marine		Y
KC	Raumati Beach at Tainui Street	Whareroa Stream at Mackays Crossing	marine		
EW	Riversdale Beach Between the Flags		marine		
TWT	Robinson Bay at HW Shortt Rec Ground	Hutt River at Shandon Golf Club	marine		
TWT	Robinson Bay at Nikau Street	Hutt River at Shandon Golf Club	marine		Y
TWT	Rona Bay at N end of Cliff Bishop Park	Hutt River at Shandon Golf Club	marine		
TWT	Rona Bay at Wharf	Hutt River at Shandon Golf Club	marine		
RMH	Ruamāhanga River at Double Bridges	Ruamāhanga River at Mt Bruce	freshwater	1	
RMH	Ruamāhanga River at Kokotau	Waingawa River at Angle Knob	freshwater	2	
RMH	Ruamāhanga River at Morrisons Bush	Waiohine River at Gorge	freshwater		
RMH	Ruamāhanga River at Te Ore Ore	Ruamāhanga River at Mt Bruce	freshwater	2	
RMH	Ruamāhanga River at The Cliffs	Waingawa River at Angle Knob	freshwater	2	
RMH	Ruamāhanga River at Waihenga Bridge	Waingawa River at Angle Knob	freshwater		
TWT	Scorching Bay	Miramar at Miramar Bowling Club	marine		Y
TWT	Seatoun Beach at Inglis Street	Miramar at Miramar Bowling Club	marine		
TWT	Seatoun Beach at Wharf	Miramar at Miramar Bowling Club	marine		
TWT	Shark Bay	Hataitai at Old Post Office	marine		
TWT	Sorrento Bay	Hutt River at Shandon Golf Club	marine		
TAoP	South Beach at Plimmerton	Taupo Stream at Whenua Tapu	marine		Y
RMH	Tauherenikau River at Bucks Road		marine		
KC	Te Horo Beach at Sea Road	Ōtaki River at Depot	marine		
TAoP	Titahi Bay at Bay Drive	Taupo Stream at Whenua Tapu	marine		
TAoP	Titahi Bay at South Beach Access Road	Taupo Stream at Whenua Tapu	marine		Y
TAoP	Titahi Bay at Toms Road	Taupo Stream at Whenua Tapu	marine		Y
KC	Waikanae Beach at Ara Kuaka Carpark	Waikanae River at Water Treatment Plant	marine		
KC	Waikanae Beach at Tutere St Tennis Court	Waikanae River at Water Treatment Plant	marine		
KC	Waikanae Beach at William Street	Waikanae River at Water Treatment Plant	marine		
KC	Waikanae River at Jim Cooke Park	Waikanae River at Water Treatment Plant	freshwater	1	
KC	Waikanae River at Old SH1	Waikanae River at Water Treatment Plant	freshwater	1	
RMH	Waingawa River at Kaituna	Waingawa River at Angle Knob	freshwater		
RMH	Waingawa River at South Road	Waingawa River at Angle Knob	freshwater	1	
TWT	Wainuiomata River at Richard Prouse Park	Wainuiomata River at Wainui Reservoir	freshwater	other	
RMH	Waiohine River at SH2	Waiohine River at Gorge	freshwater		
RMH	Waipoua River at Colombo Road	Waipoua at Westons	freshwater	1	
TWT	Wellington City Waterfront at Shed 6	Wellington at Te Papa	marine		

<b>Whaitua</b>	<b>Site</b>	<b>Rainfall station</b>	<b>Type</b>	<b>Tier</b>	<b>Winter</b>
TWT	Wellington Harbour at Taranaki St Dive Platform	Wellington at Te Papa	marine		
TWT	Whairepo Lagoon	Wellington at Te Papa	marine		
TWT	Worser Bay	Miramar at Miramar Bowling Club	marine		
TWT	York Bay	Hutt River at Shandon Golf Club	marine		

## Appendix 2 - Data tables

### Freshwater *E. coli* NOF states

Table A2.1: NOF states calculated for samples taken in “All” and “Low” flow conditions. Low flow is considered less than three times the median of long-term flow, and these states do not require the minimum 50 data points so please take this in to account when making comparisons. Arrows next to NOF states indicate change in levels from the previous season – i.e. a single up arrow means that this season’s state is one level higher (worse) than last season’s state. See the [results section](#) for more details.

Whaitua abbreviations: **RMH**: Ruamāhanga, **TWT**: Te Whanganui-a-Tara, **KC**: Kāpiti Coast.

Whaitua	Site	Flows	95 <sup>th</sup> % of <i>E. coli</i>	NOF state	Samples this year	Total samples
KC	Ōtaki River at Old SH1	All	280	C	19	70
KC	Ōtaki River at Old SH1	Low	268	C↑	15	62
KC	Waikanae River at Jim Cooke Park	All	1,084	D	19	69
KC	Waikanae River at Jim Cooke Park	Low	1,030	D	17	60
KC	Waikanae River at Old SH1	All	700	D	19	69
KC	Waikanae River at Old SH1	Low	495	C	17	60
TWT	Akatarawa River at Hutt Confluence	All	570	D↑	12	57
TWT	Akatarawa River at Hutt Confluence	Low	579	D↑	11	51
TWT	Hutt River at Birchville	All	1,912	D	12	58
TWT	Hutt River at Birchville	Low	1,847	D	10	51
TWT	Hutt River at Maoribank Corner	All	1,284	D	12	58
TWT	Hutt River at Maoribank Corner	Low	1,186	D	10	51
TWT	Hutt River at Melling Bridge	All	1,142	D	12	56
TWT	Hutt River at Melling Bridge	Low	1,180	D	10	48
TWT	Hutt River at Poets Park	All	1,012	D	12	58
TWT	Hutt River at Poets Park	Low	876	D	10	51
TWT	Hutt River at Silverstream Bridge	All	780	D	12	58
TWT	Hutt River at Silverstream Bridge	Low	903	D	10	51
TWT	Hutt River at Taita Rock	All	178	Not rated	12	12
TWT	Hutt River at Taita Rock	Low	180	B	10	10
TWT	Pakuratahi River at Hutt Forks	All	863	D	12	57
TWT	Pakuratahi River at Hutt Forks	Low	946	D	9	44
TWT	Pakuratahi River at Kaitoke Campground	All	3,450	Not rated	12	23
TWT	Pakuratahi River at Kaitoke Campground	Low	5,550	D	9	17
TWT	Wainuiomata River at Richard Prouse Park	All	1,325	D	12	57
TWT	Wainuiomata River at Richard Prouse Park	Low	1,500	D	9	50
RMH	Ruamāhanga River at Double Bridges	All	276	C↑	12	56
RMH	Ruamāhanga River at Double Bridges	Low	390	C↑	10	44
RMH	Ruamāhanga River at Kokotau	All	2,033	D↑	11	53
RMH	Ruamāhanga River at Kokotau	Low	698	D↑	9	48
RMH	Ruamāhanga River at Morrisons Bush	All	1,234	D	12	54
RMH	Ruamāhanga River at Morrisons Bush	Low	445	C	11	49

Whaitua	Site	Flows	95 <sup>th</sup> % of <i>E. coli</i>	NOF state	Samples this year	Total samples
RMH	Ruamāhanga River at Te Ore Ore	All	898	D	12	56
RMH	Ruamāhanga River at Te Ore Ore	Low	370	C↓	10	50
RMH	Ruamāhanga River at The Cliffs	All	346	C	12	55
RMH	Ruamāhanga River at The Cliffs	Low	280	C	10	50
RMH	Ruamāhanga River at Waihenga Bridge	All	2,220	D	12	54
RMH	Ruamāhanga River at Waihenga Bridge	Low	835	D	11	49
RMH	Waingawa River at South Road	All	59	A	12	56
RMH	Waingawa River at South Road	Low	50	A	9	47
RMH	Waiohine River at SH2	Low	247	B	9	44
RMH	Waiohine River at SH2	All	148	B↑	12	53
RMH	Waipoua River at Colombo Road	All	1,254	D	12	56
RMH	Waipoua River at Colombo Road	Low	1,100	D	10	50

## Marine enterococci MAC grades

Table A2.2: MAC grades calculated for samples taken in the summer (start of November to the end of March) and winter bathing periods (outsider of summer). Arrows next to MAC grades indicate change in levels from the previous season – i.e. a single up arrow means that this season’s grade is one level higher (worse) than last season’s grade. Sites with too few data points are not rated (**N/R**), see the [results section](#) for more details.

Whaitua abbreviations: **TAoP**: Te Awarua-o-Porirua, **TWT**: Te Whanganui-a-Tara, **KC**: Kāpiti Coast.

Whaitua	Site	Season	95 <sup>th</sup> % of Enterococci	MAC	Samples this year	Total samples
KC	Ōtaki Beach at Surf Club	Summer	128	B↓	12	58
KC	Paekākāriki Beach at Surf Club	Summer	97	B	13	64
KC	Paekākāriki Beach at Surf Club	Winter	78	B	16	70
KC	Paekākāriki Beach at Whareroa Road	Summer	1,053	D	12	58
KC	Paraparaumu Beach at Maclean Park	Summer	674	D	12	58
KC	Paraparaumu Beach at Nathan Avenue	Summer	422	C	12	58
KC	Paraparaumu Beach at Ngapotiki Street	Summer	604	D	12	58
KC	Paraparaumu Beach at Toru Road	Summer	644	D	12	58
KC	Peka Peka Beach at Road End	Summer	170	B	12	58
KC	Raumati Beach at Aotea Road	Summer	456	C	12	58
KC	Raumati Beach at Marine Gardens	Summer	1,046	D	13	64
KC	Raumati Beach at Marine Gardens	Winter	369	C	16	69
KC	Raumati Beach at Tainui Street	Summer	238	C	12	58
KC	Te Horo Beach at Sea Road	Summer	1,051	D	11	57
KC	Waikanae Beach at Ara Kuaka Carpark	Summer	193	B	11	57
KC	Waikanae Beach at Tutere St Tennis Court	Summer	137	B	11	57
KC	Waikanae Beach at William Street	Summer	135	B	11	57
TAoP	Karehana Bay at Cluny Road	Winter	551	N/R	16	44
TAoP	Karehana Bay at Cluny Road	Summer	501	D↑	16	68
TAoP	Pāuatahanui Inlet at Paremata Bridge	Summer	314	C	16	69
TAoP	Pāuatahanui Inlet at Water Ski Club	Summer	1,250	D↑	16	69
TAoP	Plimmerton Beach at Bath Street	Summer	718	D	16	69
TAoP	Porirua Harbour at Rowing Club	Summer	2,620	D	16	72

Whaitua	Site	Season	95 <sup>th</sup> % of Enterococci	MAC	Samples this year	Total samples
TAoP	Porirua Harbour at Rowing Club	Winter	3,090	D	16	67
TAoP	Porirua Harbour at Wi Neera Drive Boat Ramp	Summer	4,325	D	16	69
TAoP	Porirua Harbour at Wi Neera Drive Boat Ramp	Winter	4,235	N/R	15	41
TAoP	Pukerua Bay	Summer	184	B	16	68
TAoP	Pukerua Bay	Winter	62	N/R	16	44
TAoP	South Beach at Plimmerton	Summer	798	D	15	72
TAoP	South Beach at Plimmerton	Winter	670	D	16	70
TAoP	Titahi Bay at Bay Drive	Summer	295	C	15	80
TAoP	Titahi Bay at South Beach Access Road	Summer	466	C	15	77
TAoP	Titahi Bay at South Beach Access Road	Winter	323	N/R	16	48
TAoP	Titahi Bay at Toms Road	Summer	234	C↑	14	82
TAoP	Titahi Bay at Toms Road	Winter	184	B↓	16	74
TWT	Ōwhiro Bay	Summer	1,016	D	17	82
TWT	Ōwhiro Bay	Winter	1,200	N/R	15	44
TWT	Balaena Bay	Summer	303	C	16	81
TWT	Breaker Bay	Summer	68	B	16	81
TWT	Days Bay at Moana Road	Summer	224	C	16	82
TWT	Days Bay at Wellesley College	Summer	174	B	16	82
TWT	Days Bay at Wharf	Summer	142	B	16	82
TWT	Hataitai Beach	Summer	249	C	16	81
TWT	Island Bay at Derwent Street	Summer	291	C	16	81
TWT	Island Bay at Reef St Recreation Ground	Summer	695	D	16	81
TWT	Island Bay at Surf Club	Summer	665	D	15	85
TWT	Island Bay at Surf Club	Winter	383	C	15	69
TWT	Lowry Bay at Cheviot Road	Summer	188	B↓	15	81
TWT	Lyll Bay at Onepu Road	Summer	73	B	16	81
TWT	Lyll Bay at Queens Drive	Summer	109	B	16	81
TWT	Lyll Bay at Tirangi Road	Summer	393	C	16	85
TWT	Lyll Bay at Tirangi Road	Winter	421	C	15	69
TWT	Mahanga Bay	Summer	259	C	16	81
TWT	Oriental Bay at Band Rotunda	Summer	401	C	16	81
TWT	Oriental Bay at Freyberg Beach	Summer	74	B	16	81
TWT	Oriental Bay at Wishing Well	Summer	170	B	16	85
TWT	Oriental Bay at Wishing Well	Winter	330	C	15	70
TWT	Petone Beach at Kiosk	Winter	339	C	16	71
TWT	Petone Beach at Kiosk	Summer	603	D↑	16	87
TWT	Petone Beach at Sydney Street	Summer	770	D	16	82
TWT	Petone Beach at Water Ski Club	Summer	556	D↑	16	82
TWT	Princess Bay	Summer	36	A↓	16	81
TWT	Robinson Bay at HW Shortt Rec Ground	Summer	144	B	16	82
TWT	Robinson Bay at Nikau Street	Summer	96	B	16	86
TWT	Robinson Bay at Nikau Street	Winter	200	B↓	16	71
TWT	Rona Bay at N end of Cliff Bishop Park	Summer	210	C	16	82
TWT	Rona Bay at Wharf	Summer	191	B	16	83
TWT	Scorching Bay	Summer	62	B	16	85
TWT	Scorching Bay	Winter	310	C	15	70
TWT	Seatoun Beach at Inglis Street	Summer	220	C↑	16	81

<b>Whaitua</b>	<b>Site</b>	<b>Season</b>	<b>95<sup>th</sup> % of Enterococci</b>	<b>MAC</b>	<b>Samples this year</b>	<b>Total samples</b>
TWT	Seatoun Beach at Wharf	Summer	152	B	16	81
TWT	Shark Bay	Summer	209	C↑	16	81
TWT	Sorrento Bay	Summer	164	B↓	15	81
TWT	Wellington City Waterfront at Shed 6	Summer	564	D↑	16	78
TWT	Wellington Harbour at Taranaki St Dive Platform	Summer	935	D	16	80
TWT	Whairepo Lagoon	Summer	384	C	16	79
TWT	Worser Bay	Summer	170	B	16	81
TWT	York Bay	Summer	212	C	15	81