Faecal indicator bacteria at recreational bathing sites

This report analyses the suitability of recreational bathing sites for swimming based on concentrations of faecal indicator bacteria as presented in Land, Air, Water, Aotearoa's latest update to their recreational bathing raw water quality dataset, published in December 2025. The Auckland region has been excluded from the analyses for reasons outlined in the 'Data for this indicator' section.

Key facts

- During the 2024/25 bathing season, 53.2% of monitored river swimming sites, 39.8% of beach sites and 32.0% of lake sites were unsafe to swim at on at least one occasion.
- In the 2024/25 bathing season, 19.2% of monitored river swimming sites, 6.2% of beach sites and 13.3% of lake sites were frequently unsuitable for swimming, with 20% or more of routine monitoring results showing they were unsafe to swim.
- Based on monitoring during the summer bathing seasons between 2020 and 2025, 63.3% of freshwater bathing sites (rivers and lakes) and 19.6% of marine bathing sites (beaches) could be considered unsafe for swimming at any time.
- The Gisborne region had the highest proportion of unsafe freshwater bathing sites, with 100% of the 13 sampled sites receiving 'poor' grades for the 2020-25 period. The Taranaki region had the highest proportion of unsafe beaches, with 56% (10 out of 18 sampled) being graded 'poor'.

Faecal indicator bacteria and health

Faecal indicator bacteria (FIB) are bacteria that grow in the gut of warm-blooded animals, including humans. They can be introduced into the environment through animal or bird excrement, stock effluent, wastewater discharge, and stormwater run-off from contaminated soil.

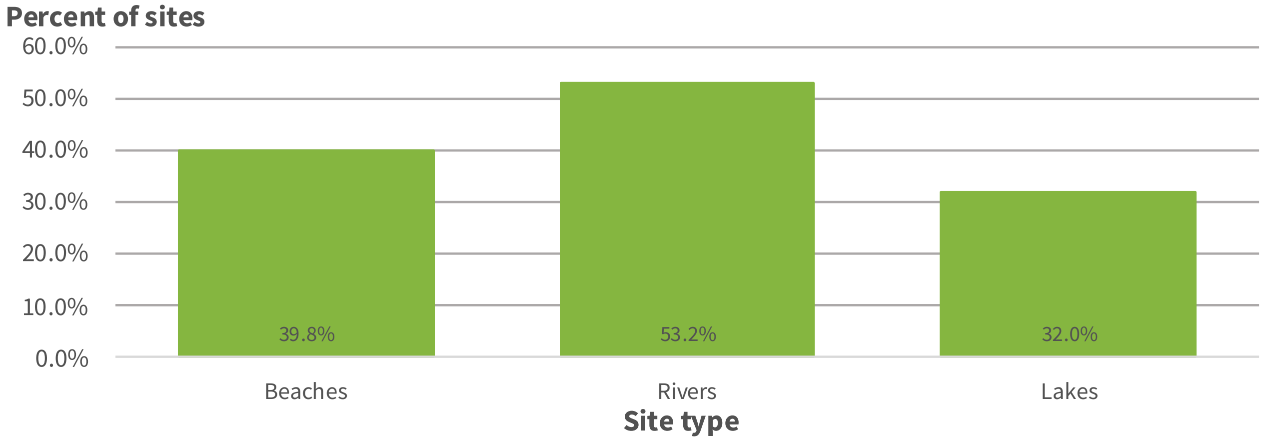
It is difficult to test for the full range of pathogens that may be present in the water. Instead, bacteria like *E. coli* and enterococci are used as indicators as their presence implies that other microorganisms such as campylobacter, cryptosporidium or giardia may also be present (McBride & Soller 2017). Both indicator bacteria and other waterborne pathogens may cause gastrointestinal illnesses and infections of the ears, eyes, nasal cavity, skin, and upper respiratory tract.

While the presence of a small number of indicator bacteria (typically measured as the number per 100ml of water) may pose little to no danger to swimmers, higher concentrations may pose a risk to children, the elderly, or people with compromised immune systems.

Many bathing sites were occasionally unsafe to swim at in 2024/25

In the 2024/25 bathing season (October-March), 35.4% of all sites tested for faecal indicator bacteria were unsafe to swim at least once. Of these sites, 155 sites located at beaches (39.8% of those monitored) were unsafe to swim at on at least one occasion, as were 235 (53.2%) river sites and 24 (32.0%) lake sites (Figure 1).

Figure 1: Percentage of bathing sites that tested unsafe for swimming at least once, 2024/25

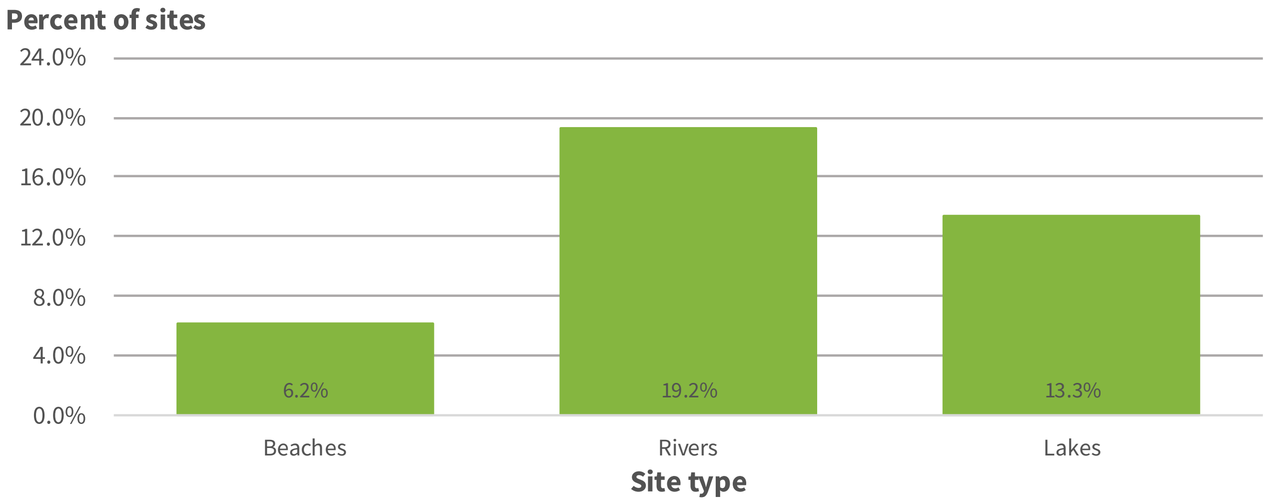


Source: Land, Air, Water Aotearoa 2025

Rivers were more likely to be frequently unsafe to swim

During the 2024/25 bathing season, 85 river sites (19.2% of those monitored) were found to be unsuitable for swimming on 20.0% or more of the occasions they were surveyed, along with 24 beach sites (6.2%) and 10 freshwater lakes (13.3%) (Figure 2).

Figure 2: Percentage of sites that tested unsafe for swimming >20% of the time, 2024/25



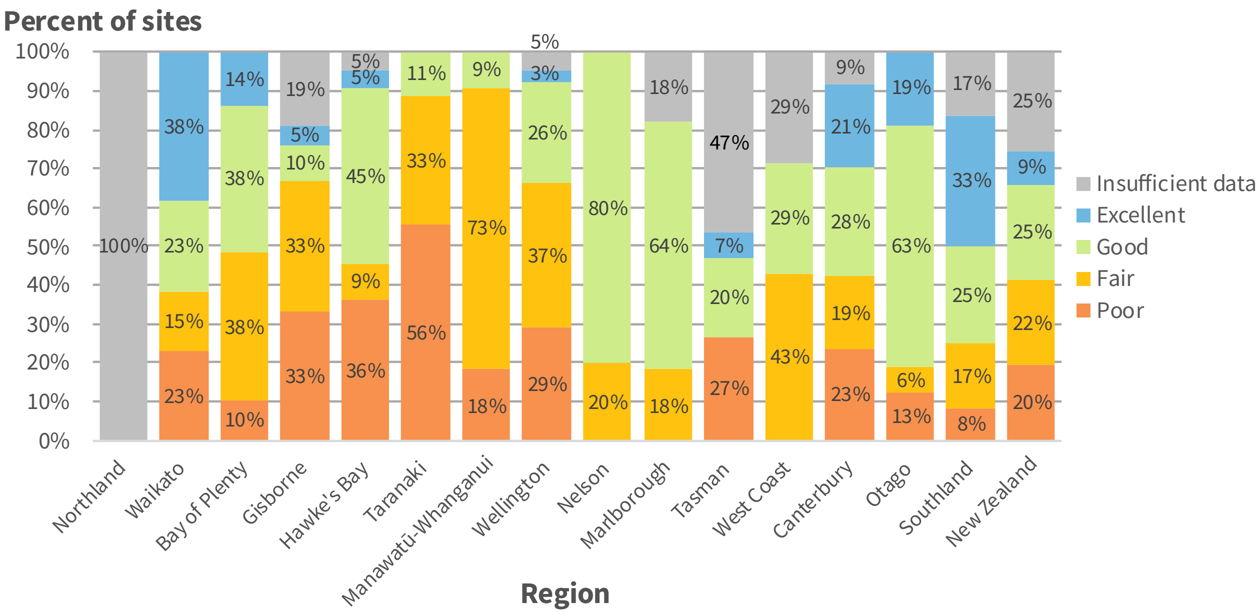
Source: Land, Air, Water Aotearoa 2025

Long term bacterial risk was generally low at coastal beaches

Between 2020–25, 19.6% of the 358 monitored marine bathing sites received a ‘poor’ grade, making them unsuitable for swimming (Figures 3 & 4). Beaches tend to have lower concentrations of FIB as contaminants are more rapidly diluted by currents and the larger volume of water.

The Taranaki region had the highest **proportion** of unsuitable beach sites (56%), with more than half of monitored sites in the region graded ‘poor’, in addition to a further third graded only ‘fair’ (Figure 3), The Wellington region had the highest **number** of sites receiving ‘poor’ grades (20), but also monitors more sites than most regions. (Table 1). Every site in Northland fell short of the 50 samples necessary to calculate a grade. On average, there were 22.1 samples per coastal site in the region, well below the required number.

Figure 3: Bacterial risk for marine bathing sites, by regional council, 2020–25

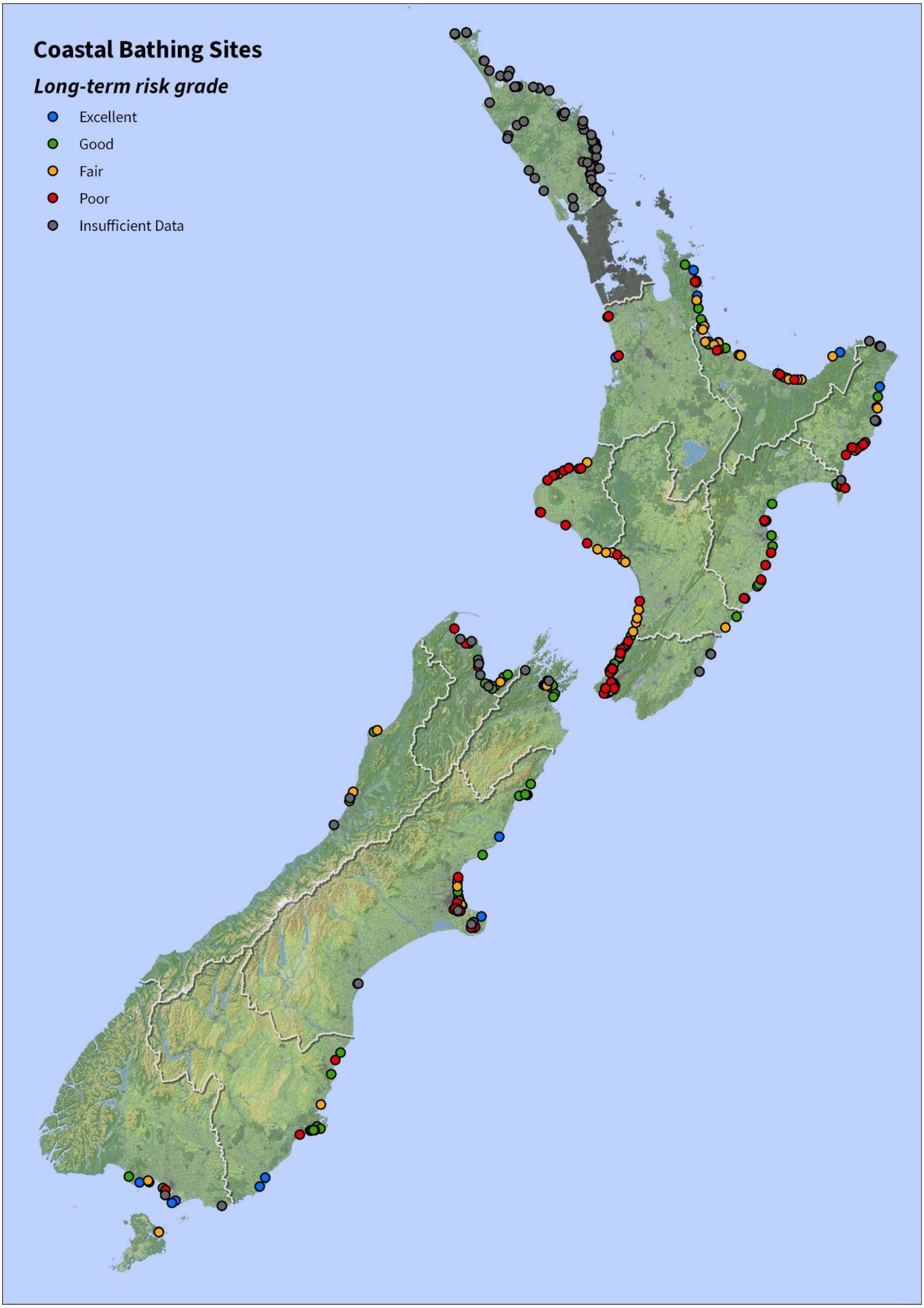


Note: New Zealand data excludes the Auckland region for reasons outlined in the ‘Data for this indicator’ section.
Source: Land, Air, Water Aotearoa 2025

Table 1: Bacterial risk for marine bathing sites, by regional council, 2020–25

Grade	Northland	Waikato	Bay of Plenty	Gisborne	Hawke's Bay	Taranaki	Manawatū-Whanganui	Wellington	Nelson	Marlborough	Tasman	West Coast	Canterbury	Otago	Southland	New Zealand
Insufficient data	66	0	0	4	1	0	0	3	0	2	7	2	4	0	2	91
Excellent	0	5	4	1	1	0	0	2	0	0	1	0	10	3	4	31
Good	0	3	11	2	10	2	1	17	4	7	3	2	13	10	3	88
Fair	0	2	11	7	2	6	8	24	1	2	0	3	9	1	2	78
Poor	0	3	3	7	8	10	2	19	0	0	4	0	11	2	1	70
Sites monitored	**66**	**13**	**29**	**21**	**22**	**18**	**11**	**65**	**5**	**11**	**15**	**7**	**47**	**16**	**12**	**358**

Figure 4: Bacterial risk for marine bathing sites, by regional council, 2020–25



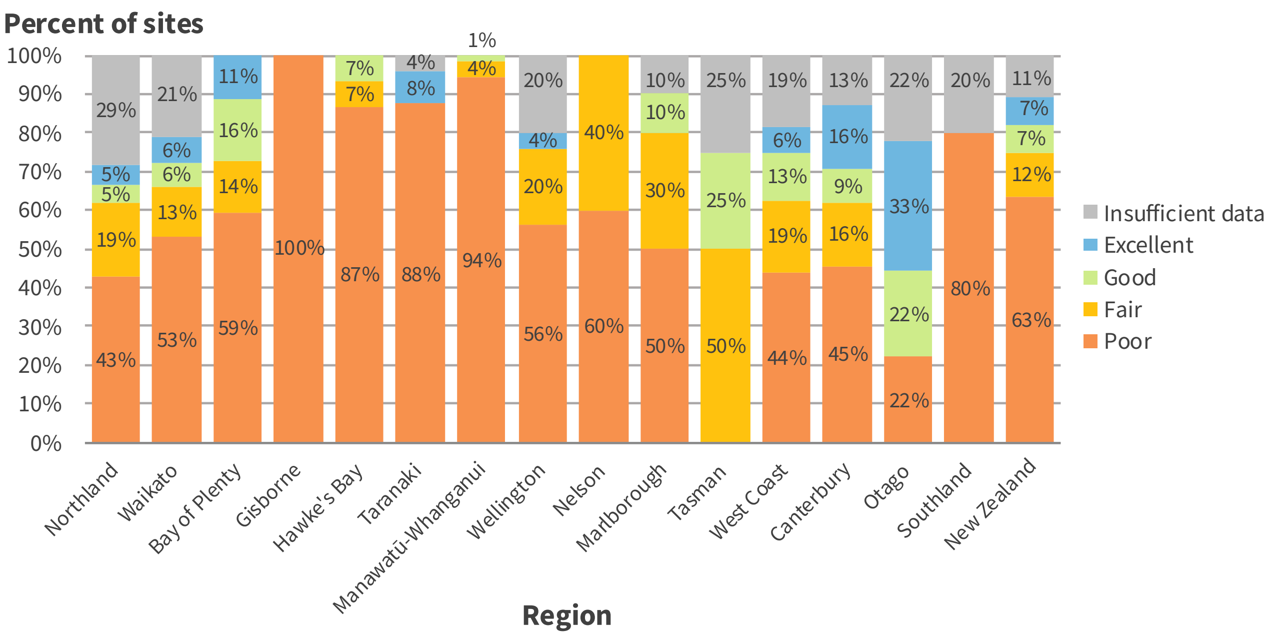
Source: Land, Air, Water Aotearoa 2025

Long-term bacterial risk was generally high at freshwater bathing sites

In contrast to marine bathing sites, most freshwater bathing sites were unsuitable for swimming, with 63.3% of all monitored river and lake sites receiving a 'poor' grade between 2020–25 (Figures 5 & 6). The Gisborne region had the greatest **proportion** of unsafe sites, with all 13 of its freshwater bathing sites being graded 'poor'.

The Manawatū-Whanganui region also tested poorly, with 94% of sites graded ‘poor’ and the Manawatū had the highest **number** of ‘poor’ grades overall (65) (Table 2).

Figure 5: Bacterial risk for freshwater bathing sites, by regional council, 2020–25

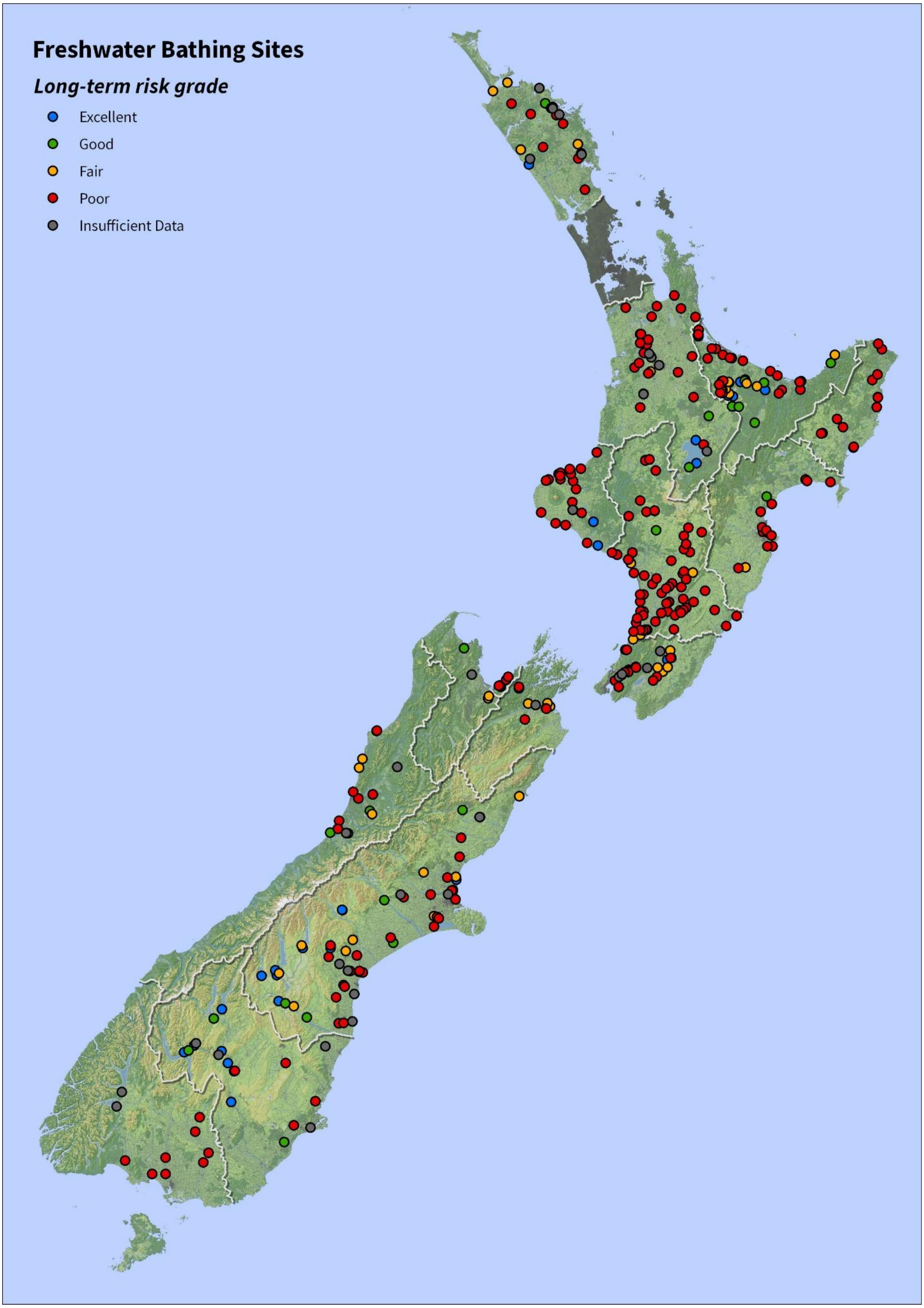


Note: New Zealand data excludes the Auckland region for reasons outlined in the ‘Data for this indicator’ section.
Source: Land, Air, Water Aotearoa 2025

Table 2: Bacterial risk for freshwater bathing sites, by regional council, 2020–25

Grade	Northland	Waikato	Bay of Plenty	Gisborne	Hawke's Bay	Taranaki	Manawatū-Whanganui	Wellington	Nelson	Marlborough	Tasman	West Coast	Canterbury	Otago	Southland	New Zealand
Insufficient data	6	10	0	0	0	1	0	5	0	1	1	3	7	4	2	40
Excellent	1	3	5	0	0	2	0	1	0	0	0	1	9	6	0	28
Good	1	3	7	0	1	0	1	0	0	1	1	2	5	4	0	26
Fair	4	6	6	0	1	0	3	5	2	3	2	3	9	0	0	44
Poor	9	25	26	13	13	21	65	14	3	5	0	7	25	4	8	238
Sites monitored	**21**	**47**	**44**	**13**	**15**	**24**	**69**	**25**	**5**	**10**	**4**	**16**	**55**	**18**	**10**	**376**

Figure 6: Bacterial risk for freshwater bathing sites, by regional council, 2020–25

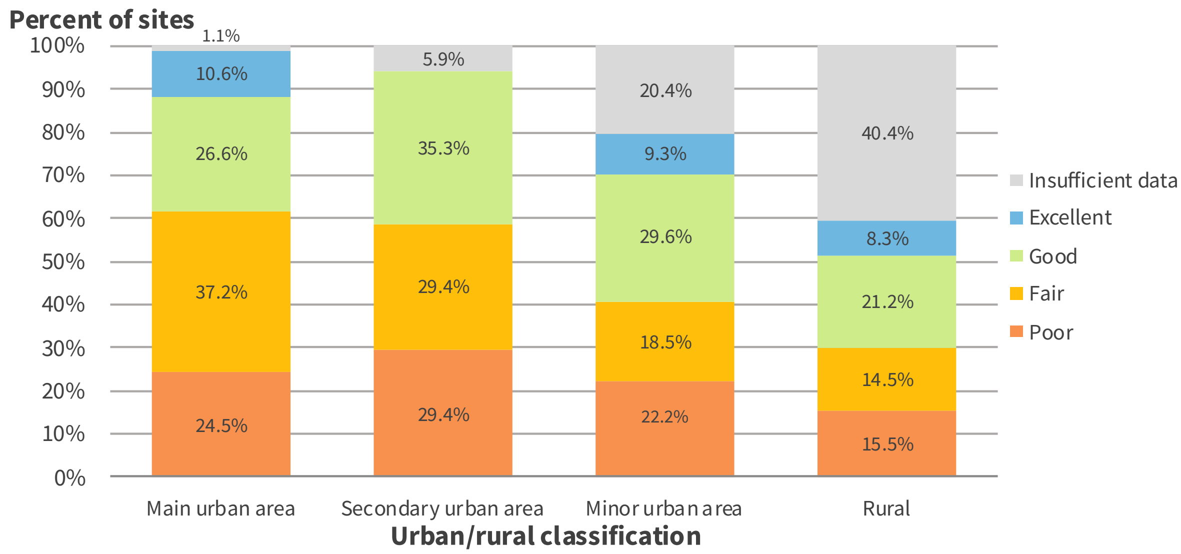


Source: Land, Air, Water Aotearoa 2025

Bathing sites in urban areas are less likely to receive safer risk grades

Monitored marine swimming sites in rural areas received the lowest proportions of 'poor' and 'fair' grades, implying better water quality than any class of urban area. However, they were also far more likely to have insufficient monitoring data over the five-year period to calculate a grade, leaving greater uncertainty for the 40% of sites that were less frequently surveyed. The level of uncertainty may be driven especially by the number of 'insufficient data' results in the Northland region (Figure 3 above).

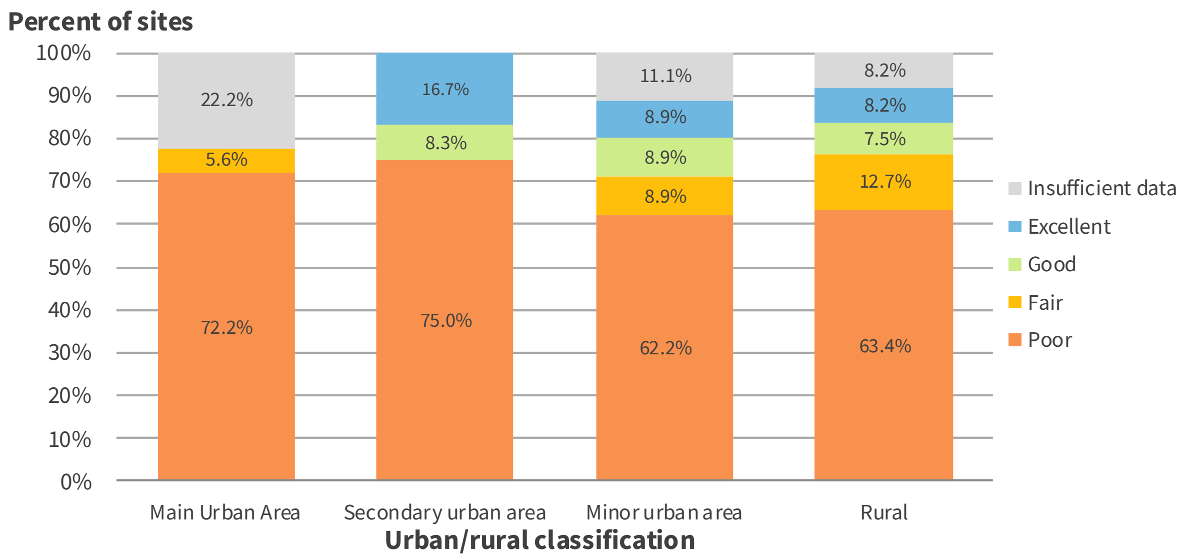
Figure 7: Bacterial risk at marine bathing sites, by urban/rural classification, 2020–25



Source: Land, Air, Water Aotearoa 2025

No freshwater bathing sites in main urban areas received anything better than a 'fair' grade. While secondary urban areas appear to have had a high proportion of 'excellent' grades, this represents only two of 12 locations. Main and secondary urban areas had the highest proportions of freshwater bathing sites receiving 'poor' grades (Figure 8).

Figure 8: Bacterial risk at freshwater bathing sites, by urban/rural classification, 2020–25



Source: Land, Air, Water Aotearoa 2025

Data for this indicator

This indicator analyses the most recent data available from Land, Air Water Aotearoa (LAWA)'s recreational bathing dataset, published online in December 2025.

Data availability

As the Auckland region does not supply water quality sampling results to LAWA, the region has been excluded from the recreational bathing data set and, consequently, from all analyses in this factsheet, as field measurements and predicted data are not comparable.

Grading of sites

Two measurements of swim site quality are presented in this surveillance report. Firstly, the regular monitoring results, which are passed to LAWA by regional councils and are based on regular field sampling at each site. A grade is assigned to every measurement based on the concentration of FIB at the time of measurement. Sampling is usually conducted at least once per week during the summer bathing season (the last week in October to the end of March). Grades are assigned to each measurement as below (LAWA 2023):

Grade	Criteria (*E. coli*)	Criteria (enterococci)
Green	The site was safe to swim at the time of measurement.	
	Equal to or less than 260 *E. coli* per 100ml	Equal to or less than 140 enterococci per 100ml
Amber	The site was generally safe at the time of measurement, but caution would be advised for children, the elderly, or those with compromised health	
	More than 260 *E. coli* per 100ml	More than 140 enterococci per 100ml
Red	The site was not safe to swim at the time of measurement.	
	More than 550 *E. coli* per 100ml	More than 280 enterococci per 100ml

Secondly, 'long-term bacterial risk' is calculated based on the 95th Hazen percentile value of all recorded FIB concentrations at a given swim site over the past five monitoring seasons. The overall risk is determined according to these criteria:

Grade	Criteria (*E. coli*)	Criteria (enterococci)
Excellent	95th percentile value of *E.coli* /100ml: 0–130 *Estimated risk of campylobacter infection is <0.1%, 95% of the time.*	95th percentile value of enterococci /100ml: 0–40 *Estimated risk of contracting an illness is <1% during the summer bathing period*
Good	95th percentile value of *E.coli* /100ml: >130–260 *Estimated risk of campylobacter infection is >0.1–1%, 95% of the time.*	95th percentile value of enterococci /100ml: >40–200 *Estimated risk of contracting an illness is <5% during the summer bathing period*
Fair	95th percentile value of *E.coli* /100ml: >260–500 *Estimated risk of campylobacter infection is 1%–5%, 95% of the time.*	95th percentile value of enterococci /100ml: >200–500 *Estimated risk of contracting an illness is >5%–10% during the summer bathing period*
Poor	95th percentile value of *E.coli* /100ml: >500 *Estimated risk of campylobacter infection is >5%, 95% of the time.*	95th percentile value of enterococci /100ml: >500 *Estimated risk of contracting an illness is >5%–10% during the summer bathing period*

To receive a valid 'overall risk' grade, a site must have at least 50 sample results across the past five monitoring seasons (2020/21 – 2024/25). This is consistent with LAWA's methodology for grading monitoring results.

Samples taken as part of follow-up tests prompted by elevated FIB levels were excluded from the assessment. Where sites were monitored for both enterococci and *E.coli,* measurements of each FIB type were assessed separately, and the worst of the two resulting grades was assigned as the site's long-term grade. For additional information, see the Metadata sheet.

References

Land, Air, Water Aotearoa (LAWA). 2023. *Factsheet: Coastal and freshwater monitoring*. Retrieved from https://www.lawa.org.nz/learn/factsheets/coastal-and-freshwater-recreation-monitoring/ on 13/11/2023

Land, Air, Water Aotearoa (LAWA). 2025. *Recreational bathing water quality raw dataset.* Retrieved from https://www.lawa.org.nz/download-data/ on 16/02/2026

McBride G, Soller J. 2017. Technical Background for 2017 MfE 'Clean Water' Swimmability Proposals for Rivers. NIWA.

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