

# RECREATIONAL BATHING WATER QUALITY



## Annual Monitoring Summary 2015/16

### Why we monitor recreational bathing water quality

Nelson's swimming holes and beaches are regularly used by locals and visitors over summer. Bacteria levels are monitored at our recreational bathing water sites over summer to minimise the risk of illness from harmful water borne bacteria and viruses that may be present. This summer is the first year that water samples were collected in both wet and dry weather conditions, which means that some readings may be higher due to rainfall effects.

Bathing water quality in Nelson is generally very good. However, higher bacteria levels can occur from various sources such as wild birds, animals, farm stock and wastewater. An increase in bacteria often occurs after periods of rainfall, when river flow increases from land run-off and stormwater.

Nelson City Council reports weekly bacteria results to the Nelson Marlborough District Health Board (NMDHB). Sites with elevated Red Action bacteria counts that have unexplained sources are re-sampled within 24 hours. The NMDHB is consulted on the potential sources of bacteria, the risk to public health and the appropriate action required, which may include public health warnings. The Suitability for Recreation Grade (SFRG) for each recreation site is derived from a two stage assessment of historical bacteria counts and a sanitation survey that identifies the sources of bacteria contamination.

The number of Red Action bacteria counts for the summer monitoring programme and overall long term trend in SFRG is shown in Table 1. These grades indicate the level of risk of getting sick from harmful bugs when swimming, surfing or otherwise exposed to freshwater or seawater at each site. The last five years of data is used to calculate the grades as it gives a better indication of risk than just one year's data. The percentage of Green, Amber Alert and Red Action bacteria samples is summarised in Figure 1 for 2015/16 freshwater and marine recreation monitoring sites.

Red alert action exceedances occur when samples exceed 550 E coli /100ml for freshwater and 280 Enterococci /100ml for marine sites.

Green, Amber and Red Alert levels for bacteria counts per 100ml.

Freshwater	< 260	260 – 550	> 550
Marine	< 140	140 – 280	> 280

Table 1. Recreational Bathing Water Grades 2015/16.

Site Name	Number of Red Action Exceedances in 2015/16	Bacteria Grade Assessment	Overall trend in Suitability for Recreation Grade
<b>Rivers - Freshwater</b>			
Maitai at Collingwood St Bridge	3	D	Very Poor
Maitai at Girlies Hole	2	C	Fair
Maitai at Sunday Hole	0	C	Fair
Maitai at Maitai Camp	1	B	Good
Wakapuaka at Paremata Flats	5	D	Very Poor
Wakapuaka at Hira Reserve	3	C	Fair
<b>Beaches - Marine</b>			
Nelson Haven at Atawhai	1	C	Fair
Cable Bay (Nelson)	0	B	Good
Monaco Beach	0	C	Fair
Tahunanui Beach	1	B	Good

All sites had 21 water samples taken over the 2015/16 summer.

**Good** – satisfactory for swimming most of the time.

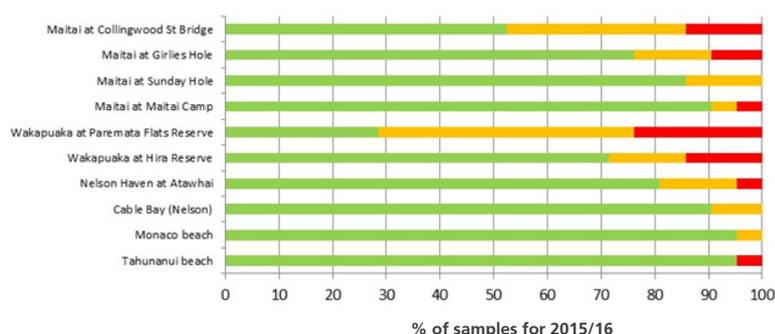
**Fair** – generally satisfactory for swimming, though there are many potential sources of faecal material.

**Poor** – generally unsuitable for swimming, as indicated by historical water quality results.

**Very Poor** – should be avoided for swimming, as indicated by historical water quality results and risk of wastewater contamination.

In all cases caution should be taken during or following periods of rainfall, and swimming avoided if water is discoloured.

Figure 1. The percentage of samples for each site with Green, Amber Alert and Red Action exceedances in 2015/16.





## Key Results

Nelson's beach monitoring sites at Monaco and Cable Bay had no Red Action exceedances and Nelson Haven at Atawhai and Tahunanui Beach only had one exceedance, associated with a storm event. Choppy seas driven by strong winds also re-mobilise sediment with bacteria, which can also elevate bacteria levels. Tahunanui Beach and Cable Bay have retained Good recreation grades, with Nelson Haven (Atawhai) and Monaco (Wharf) attaining Fair grades due to exceedances in previous years. All of the freshwater recreation bathing monitoring sites except Sunday Hole had at least one Red Action bacteria exceedance. Most exceedances were explained by wet-weather effects, due to sampling when bathing sites were contaminated by stormwater runoff.

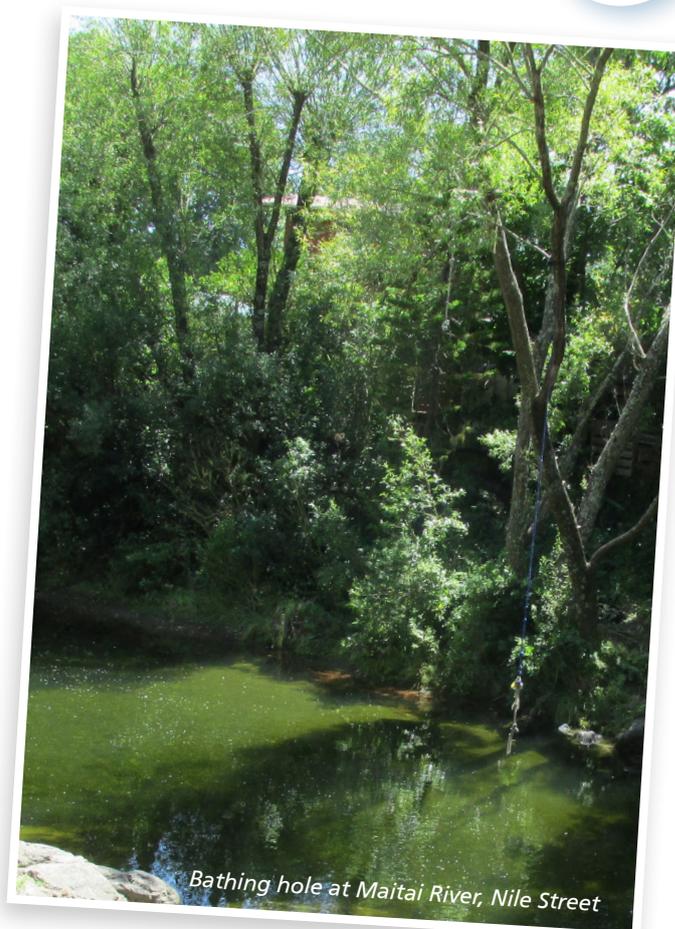
The Maitai River bathing holes between Maitai Camp and Girlies Hole continue to have Fair-Good grades, with few exceedances over the last five years.

The Maitai at Collingwood Street Bridge had three Red Action exceedances, fewer than the six exceedances in the previous summer. The recreation grade for Collingwood Street remains at Very Poor due to the risk of contamination from wastewater and other sources such as dogs and wildfowl.

The Wakapuaka River at Hira Reserve had three exceedances over the summer. The Fair grade was assigned to Hira Reserve due to the long term trend of elevated bacteria counts.

There were five exceedances at Paremata Flats Reserve on the Wakapuaka River. The elevated bacteria counts occurred during both dry and wet conditions, indicating various sources of bacteria, including livestock, feral animals and wildfowl upstream of the sampling site.

In consultation with the Nelson Marlborough District Health Board, a health warning remains in place for the lower Maitai below Collingwood Street Bridge and for the Wakapuaka River at Paremata Flats Reserve warning people not to swim at these sites.



## Initiatives for improving recreational bathing water quality

### Working with land owners

Council is currently working with Nelson landowners to fence off waterways to prevent livestock standing and defecating in waterways used for domestic drinking water supplies and recreation. It will also reduce disturbance to the stream bed and bank erosion from movement of livestock. Council provides free advice and financial assistance for land owners towards fencing and native plants for riparian planting and biodiversity enhancement through Nelson Nature. Further advice is also available on best practice land management and related issues, including maintenance of septic tanks.

### Work in progress

The source and relative contributions of bacteria are likely to vary through the year. Weekly *Escherichia coli* bacteria monitoring at Collingwood Street Bridge resulted in only one Red Action and three Amber Alert exceedances over a year's sampling, with higher background *E. coli* levels during the summer months. Research

indicates that bacteria can naturalise and persist with sediment and algae mats indefinitely, to be re-mobilised during freshes or when the river bed is disturbed.

Council has ongoing work to locate and replace old leaking wastewater pipes and cross-connections with stormwater. Dry weather sampling for *E. coli* in the stormwater network and dye-testing is part of a strategy to address wastewater leaks and infiltration to stormwater. Six wastewater leaks have been fixed, and there is an ongoing programme to locate and fix other wastewater leaks potentially affecting this site. Other initiatives include raising awareness for dog owners to be responsible, improvements to street cleaning to reduce contaminants entering via stormwater and working with communities to minimise inappropriate domestic discharges to their land and stormwater.