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Committee Regulatory
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Recreational water quality report 2007/08

1. Purpose

To present the results of recreational water quality monitoring undertaken by the Greater Wellington Regional Council (Greater Wellington) and several of the territorial authorities in the Wellington region during the period 1 November 2007 to 31 March 2008 inclusive.

2. Background

Greater Wellington and the region's territorial authorities undertake a recreational water quality monitoring programme in order to:

- Fulfil respective legislative responsibilities; and
- Establish background levels of faecal bacteria in surface waters, thereby permitting assessment of environmental contamination.

The results of the programme are assessed against the national recreational water quality guidelines published by the Ministry for the Environment and the Ministry of Health (2003). These guidelines use bacteriological indicators associated with the gut of warm-blooded animals to assess the risk of faecal contamination and therefore the potential presence of harmful pathogens. Compliance with the guidelines should ensure that people using water for contact recreation are not exposed to significant health risks.

3. Methods

Recreational water quality monitoring in the western part of the Wellington region was carried out by four territorial authorities and Greater Wellington, and in the Wairarapa by Greater Wellington. One hundred sites were monitored during the summer bathing season, with most sites sampled weekly. On each occasion a single water sample was collected 0.2 metres below the surface in 0.5 metres water depth and analysed for *Escherichia coli* (fresh

waters) or enterococci (marine) indicator bacteria¹. Visual estimates of periphyton (algae and cyanobacteria) cover are also made at freshwater bathing sites; excessive amounts of periphyton can reduce the amenity value of waterways. Some species of cyanobacteria can also produce natural toxins which can be harmful to humans and animals, particularly dogs.

4. Results and discussion

The results are presented in detail in the report “On the beaches 2007/08: Annual recreational water quality monitoring report for the Wellington region”. The main findings of the report are summarised below.

4.1 Fresh waters

- Sixteen of the 21 freshwater sites (81%) monitored weekly over the 2007/08 summer exceeded the “action” guideline of 550 cfu/100 mL (Figure 1). Ten sites exceeded the guideline once, five sites exceeded the guideline twice and one site (Hutt River at Boulcott) exceeded the guideline three times. As well as having the highest number of action level exceedances the Hutt River at Boulcott site also exceeded the alert level guideline six times.

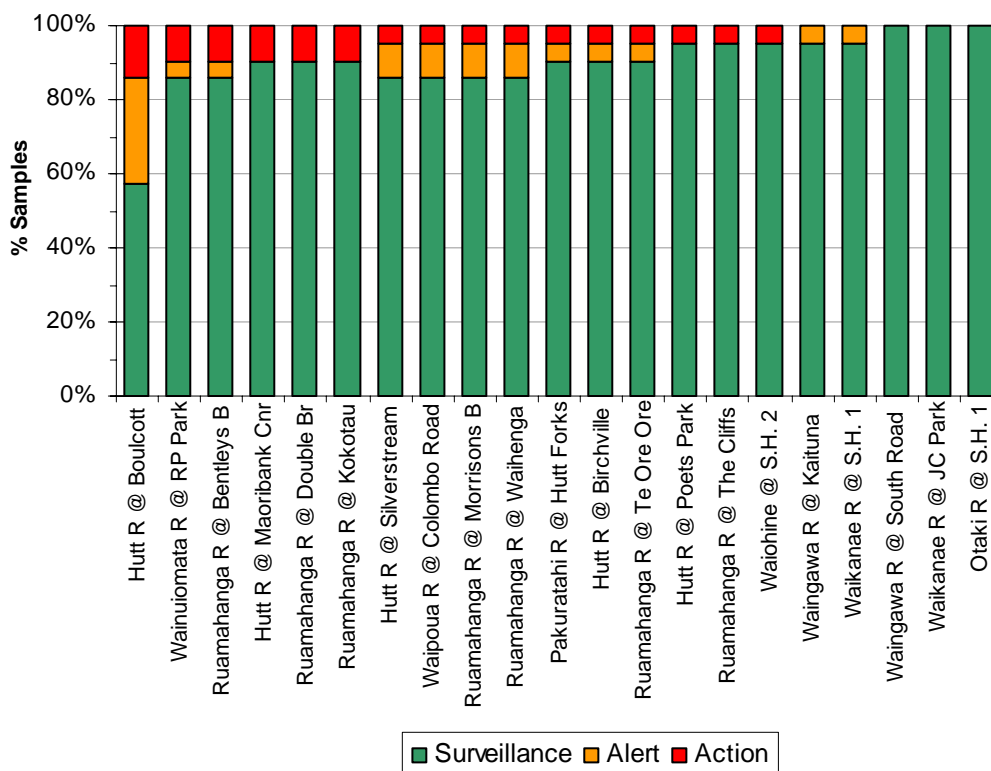


Figure 1: Summary of compliance with the surveillance, alert and action levels of the MfE/MoH (2003) guidelines for freshwater sites monitored weekly, expressed as a percentage of the total number of routine sampling events over the 2007/08 summer.

¹ Samples from nine marine sites were also analysed for faecal coliform indicator bacteria, the preferred microbiological indicator for recreational shellfish gathering waters. Recreational shellfish gathering water quality results are not presented here.

- A total of 23 routine sampling results exceeded the action guideline. This is five less than the previous summer.
- The majority (19) of the 23 action level results were associated with at least 10 mm of rainfall in the 72 hours prior to sampling. This finding is consistent with previous observations; elevated *E. coli* counts in fresh water are typically related to diffuse-source runoff, urban stormwater (including sewer overflows), and re-suspension of sediments during rainfall events.
- Periphyton cover remained below the Ministry for the Environment (MfE 2000) aesthetic and recreation guidelines at all sites from November 2007 to January 2008. However, by February 2008, the riverbed at sites in the Hutt, Wainuiomata and Ruamahanga rivers had high coverage of filamentous algae and/or cyanobacteria mats.
- Cyanobacteria mat growth was widespread in the lower reaches of the Hutt River from late December until the end of March. Over much of this time large amounts of dislodged algal mats were exposed on the river banks. Three dogs died after coming into contact with cyanobacterial mats in the Silverstream/Kennedy Good Bridge area early in the New Year. Health warning signs were erected by Upper Hutt and Hutt City councils at public access points along the length of the Hutt River and remained in place until the end of March. Throughout this period media updates were released by Greater Wellington and/or Regional Public Health and posted on Greater Wellington's website. Moderate amounts of cyanobacterial growth were recorded in the Wainuiomata, Waikanae and Waipoua rivers and health warning signs were also erected along parts of these rivers from early January until the end of March².

4.2 Marine waters

Forty three of the 77 marine sites (56%) monitored over the 2007/08 summer bathing season exceeded the action guideline, though many of these (26 sites) exceeded the guideline on only one occasion (Table 4.2). Health warning signs were erected at Titahi Bay in mid December, at the rowing club in Porirua Harbour in early January and at Owhiro Bay in mid February after routine and consecutive follow-up sampling results exceeded the 'action' guideline. No definitive source could be identified for any of these elevated results, though the Owhiro Bay and Porirua Harbour results both coincided with heavy rain.

² The cyanobacteria proliferations coincided with prolonged dry weather and stable or declining flows in affected rivers.

Table 4.2: Summary of action guideline breaches from routine weekly monitoring at 77 marine sites over the 2007/08 summer bathing season[†].

No. of Times Site Exceeded the Action Guideline	No. of Sites in each Exceedance Category					Total No. of Sites (77)	% of Sites
	Kapiti (20 sites)	Porirua (15 sites)	Hutt (15 sites)	Wellington (22 sites)	Wairarapa (5 sites)		
0	11	7	1	11	4	34	44.2
1	6	7	6	6	1	26	33.8
2	3	0	5	3	0	11	14.3
3	0	1	3	2	0	6	7.8

[†] includes four sites (one in Hutt City and the Wairarapa and two in Wellington City) sampled fortnightly.

The number of sites that remained below the action guideline of 280 cfu/100mL for the duration of the bathing period (44%) was less than in both the 2006/07 (60%) and 2005/06 (62%) bathing seasons.

The majority (40) of the 66 action events were associated with at least 10 mm of rainfall in the three days prior to sampling; 24 were associated with more than 10 mm of rainfall in the 24 hours prior to the day of sampling. This finding is consistent with previous observations; elevated enterococci counts in marine waters are often related to urban stormwater (including sewer overflows), diffuse-source runoff into rivers and streams and re-suspension of sediments during rainfall events. Re-suspension of sediments (due to winds and/or tidal action) can also affect some beaches in dry weather as can poor water quality in rivers, streams and drains discharging directly to the coast.

5. Summary

As with previous years, recreational water quality at freshwater bathing sites was strongly influenced by rainfall. The majority of monitored sites exceeded the action guideline at least once following rainfall, reflecting the effects of diffuse source agricultural and/or urban stormwater run-off (most sites are located within catchments with a significant portion of pastoral or urban land cover).

Overall, recreational water quality at marine bathing sites over the 2007/08 summer was worse than previous years; 56% of the 77 sites (compared with 39% in 2006/07 and 38% in 2005/06) exceeded the action guideline on at least one occasion. Seventeen sites (22%) exceeded the guideline more than once.

6. Communications

Copies of "On the Beaches 2007/08" will be sent to all the territorial authorities in the region and to Regional Public Health and Wairarapa Public Health. The report will also be made available to the public via Greater Wellington's bathing webpage and a press release issued. Details of Greater Wellington's recreational water quality programme, including tables and graphs of the bacteriological data, are available on-line at www.gw.govt.nz/on-the-beaches.

7. Recommendations

It is recommended that the Committee:

1. ***Receives the report; and***
2. ***Notes the contents.***

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