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Committee Regulatory Committee
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Recreational water quality monitoring report 2008/09

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 2008 to 31 March 2009 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 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 2008/09: Annual recreational water quality monitoring report for the Wellington region*”. The main findings of the report are summarised below.

4.1 Fresh waters

- Eleven of the 21 freshwater sites (52%) monitored weekly over the 2008/09 summer exceeded the “action” guideline of 550 *E. coli*/100 mL (Figure 1). Two sites (Hutt River at Silverstream and Wainuiomata River at Richard Prouse Park) exceeded the action guideline on four occasions.

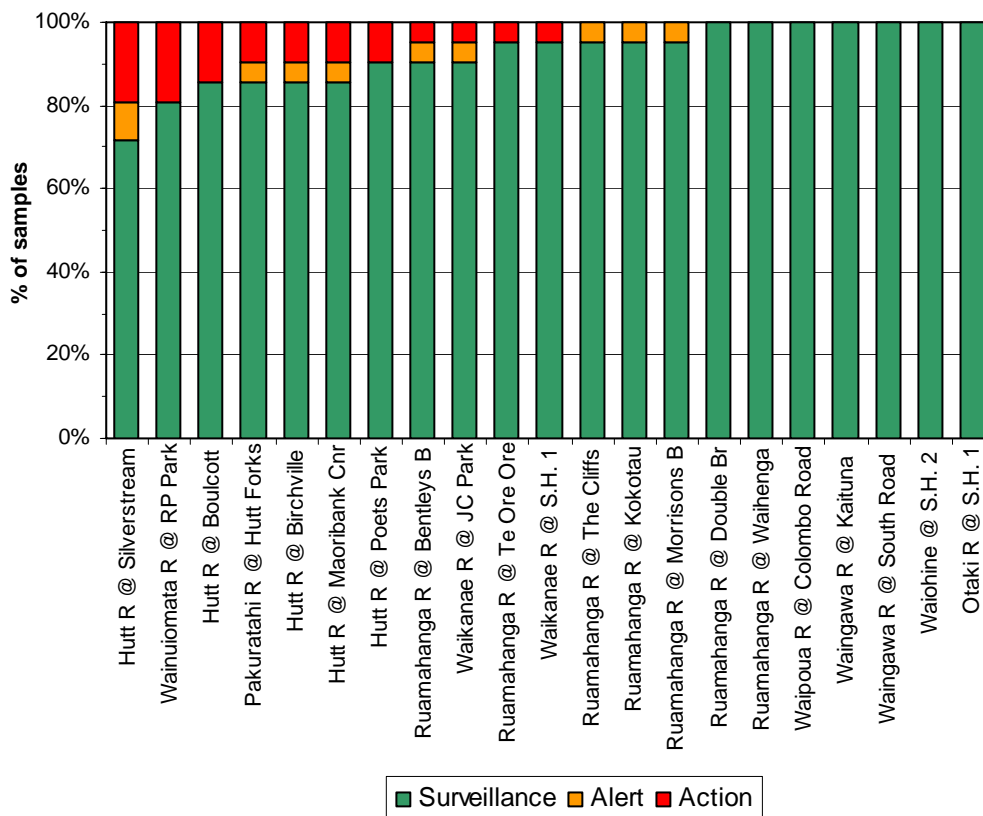


Figure 1: Summary of compliance with the surveillance, alert and action levels of the MfE/MoH (2003) guidelines for freshwater sites monitored weekly, expressed as a percentage of the total number of routine sampling events over the 2008/09 summer.

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 (5.2%) routine sampling results exceeded the action guideline. The same number of exceedances were recorded during the 2007/08 summer.
- The majority (17) of the 23 action level results were associated with at least 10mm 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 throughout the summer at most sites. However, the filamentous periphyton guideline was exceeded at three sites (Otaki River at State Highway 1, Waiohine River at State Highway 2 and Ruamahanga River at Bentley's Beach) on one occasion in early February.
- Cover of potentially toxic cyanobacterial mats was again widespread in the Hutt, Waipoua and Waikanae rivers in 2008/09. This year 'medium risk' and 'high risk' warning signs were used to communicate the potential health risks to the public. 'Medium risk' signs were erected at key public access points along the Hutt and Waikanae rivers in early December upon the first appearance of cyanobacterial mats and remained in place for the rest of the bathing season. 'High risk' warning signs were erected for a short time in mid December at the Hutt River at Silverstream following observations of widespread cyanobacteria cover, and in late January from the Melling Bridge downstream following a report of a dog illness. 'High risk' signs were also erected in the Waipoua River at Colombo Road (Masterton) in early January 2009 and remained in place until the end of the bathing season. In late January a young girl reported stomach pains after swimming in the upper reaches of the Waipoua River. Toxin concentrations in algal samples taken from this site shortly after the report was received were considered to be high enough to have caused the girl's illness. No warning signs were erected as the site is on private land.

4.2 Marine waters

Eighteen of the 77 marine sites (23%) monitored over the 2008/09 summer bathing season exceeded the action guideline, although many of these (10 sites) exceeded the guideline on only one occasion (Table 4.2).

A total of 32 (2%) routine sampling results exceeded the action guideline of 280 enterococci/100 mL. This is approximately half the number of exceedances recorded during the 2007/08 summer (66).

The Porirua Harbour at Rowing Club site exceeded the action threshold on five routine sampling occasions and the alert threshold on three sampling occasions. Follow up sampling results suggest that an unnamed tributary that enters the Porirua Harbour immediately adjacent to the Rowing Club may be the primary source of this contamination. Further investigation is currently being

undertaken to isolate the source of high indicator bacteria counts in this stream. Health warning signs were erected at the Porirua Harbour at Rowing Club site following all action mode exceedances and remained in place until sample results complied with the surveillance guideline.

Table 4.2: Summary of action guideline breaches from routine weekly monitoring at 77 marine sites over the 2008/09 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	19	2	14	20	4	59	76.6
1	1	6	1	1	1	10	13.0
2	0	3	0	1	0	4	5.2
3	0	3	0	0	0	3	3.9
4	0	0	0	0	0	0	0
5	0	1	0	0	0	1	1.3

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

The majority (24) of the 32 action events were associated with at least 10mm of rainfall in the three days prior to sampling; 14 were associated with more than 10mm of rainfall in the 24 hours prior to 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.

On 26 March 2009, two days after the final round of routine summer bathing sampling in the Hutt City area, several major leaks were discovered in the main sewer between the Seaview WWTP and the outfall at Pencarrow Heads. The subsequent repair of these leaks has involved diversion of all treated sewage from the Seaview WWTP to the mouth of the Waiwhetu Stream as well as periodic discharges of treated sewage to coastal waters in the vicinity of the leaks. Warning signage has been erected at affected sites and regular monitoring has been undertaken by the Hutt City Council during the near three-month period of discharges. The Hutt City Council estimates that repair of the sewer will not be completed until at least the end of June.

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 2008/09 summer was better than in the last few years; 23% of the 77 sites exceeded the action guideline on at least one occasion (compared with 56% in 2007/08 and 39% in 2006/07). Just seven sites (9 %) exceeded the guideline more than once.

6. Communication

Copies of "On the Beaches 2008/09" 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

That the Committee:

1. *Receives the report.*
2. *Notes the content of the report.*

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