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Committee Environment Management
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Recreational Water Quality Report 2005/2006

1. Purpose

To present the results of recreational water quality monitoring undertaken by the Greater Wellington Regional Council and several of the territorial authorities in the Wellington Region during the period 1 November 2005 to 31 March 2006 inclusive.

2. Background

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

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

The results of this 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 the Greater Wellington Regional Council, and in the Wairarapa by the Greater Wellington Regional Council. Ninety-nine sites were visited weekly during the summer bathing season. 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 bacteria. At least 20 samples were taken at each site during the summer period.

4. Results and discussion

The results are presented in detail in the report "On the Beaches: Recreational Water Quality of the Wellington Region, 2005-2006". The main findings of the report are:

Fresh waters

- Fourteen of the 23 freshwater sites (61%) monitored over the 2005-2006 summer exceeded the "action" guideline during the bathing season (Figure 1). Twelve of these 14 sites exceeded the guideline on two or more occasions. Two sites – the Hutt River at Silverstream and Riversdale Lagoon – exceeded the "action" guideline on six occasions. In contrast, just five sites exceeded the guideline on more than one occasion over the 2004-2005 summer.
- The majority (70%) of the cases where freshwater sites exceeded the "action" guideline coincided with significant (= 10 mm) rainfall in the 72 hours prior to sampling. This finding is consistent with previous observations; elevated *E. coli* counts in fresh waters are typically related to diffuse-source runoff, urban stormwater, and re-suspension of stream sediment during rainfall events.

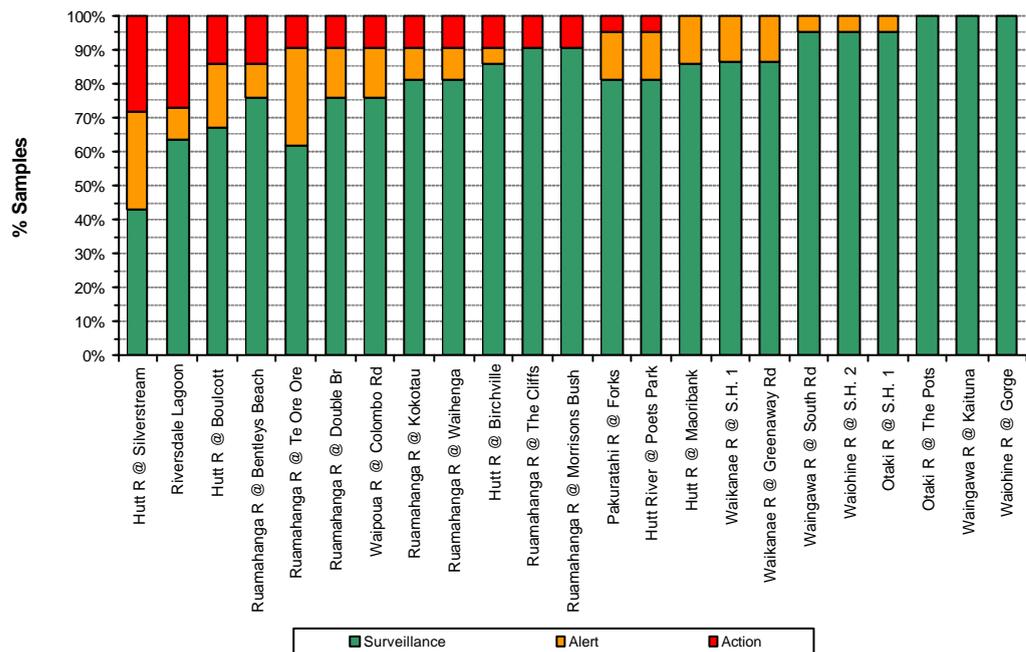


Figure 1: Summary of compliance with the surveillance, alert and action levels of the MfE/MoH (2003) guidelines for freshwater recreational areas, expressed as a percentage of the total number of routine weekly sampling events over the 2005/2006 summer.

- Periphyton (algae) cover remained below the Ministry for the Environment (2000) aesthetic and recreation guidelines at most sites during the bathing season. The exceptions were the Otaki River at SH 1, the Pakuratahi River at Hutt Forks and the Ruamahanga River at both The Cliffs and Morrisons Bush.

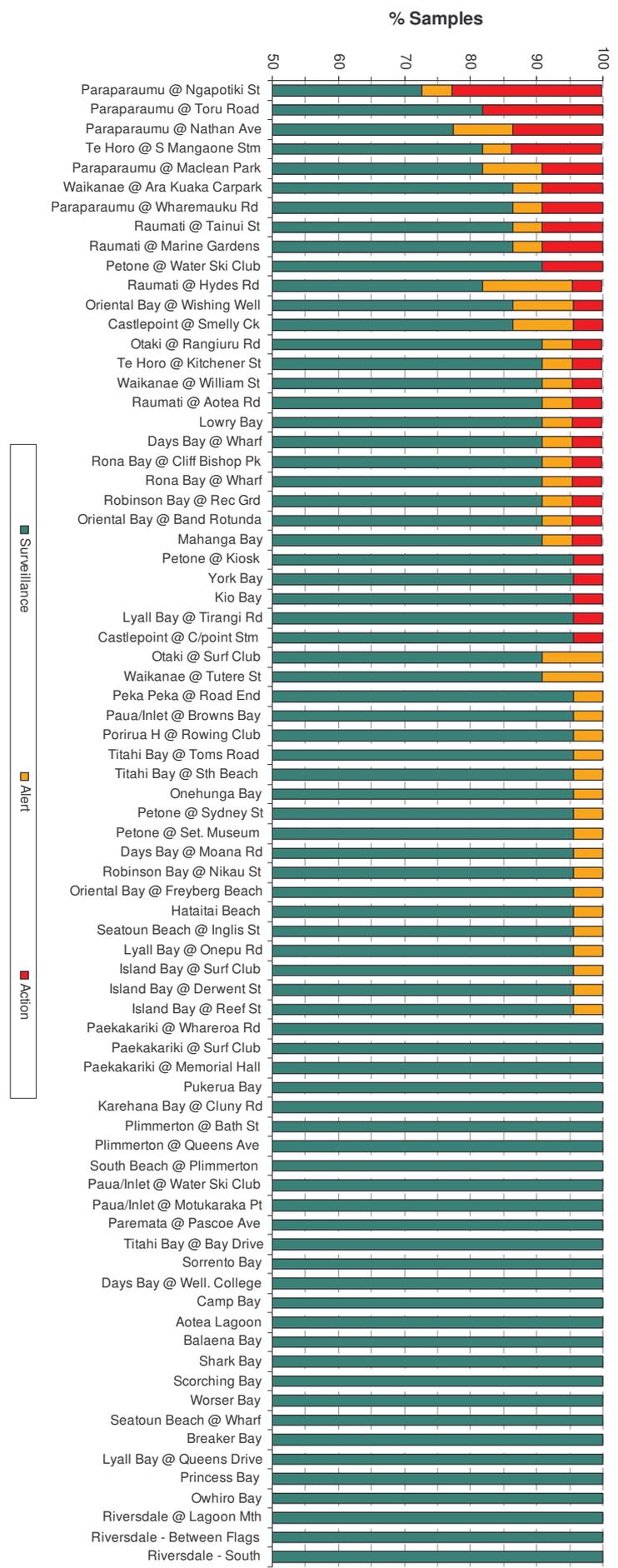
- Mats of cyanobacteria (blue-green algae) were present in certain reaches of the Otaki, Waikanae, Hutt and Waipoua rivers. The Hutt River was affected for much of the summer, with extensive thick, dark-brown/black mats of *Oscillatoria* sp. present on the river margins in the Boulcott-Avalon area during a period of extended low river flows in November 2005. *Phormidium* sp. was found in the Otaki River and the Waikanae River around the same time. *Phormidium* sp. was also found in the Waipoua River and the Wainuiomata River. The presence of extensive cyanobacteria mats is linked with environmental conditions conducive to their growth, including low river flows and warm weather. Cyanobacteria are capable of producing cytotoxins that can adversely affect humans and animals, in particular, dogs. It is for this reason that Regional Public Health and local councils erected health warning signs restricting access to affected rivers in the region over the summer.

Marine waters

- Recreational water quality was good at the majority of the region's coastal beaches throughout the 2005–2006 bathing season (Figure 2). Although 29 of the 76 sites monitored (39%) exceeded the “action” guideline of 280 enterococci/100mL during the bathing season, the majority of these sites (20) exceeded the guideline on only one occasion. However, four sites on the Kapiti Coast exceeded the “action” guideline on three or more occasions. A health warning sign was erected at one of these sites – Paraparaumu Beach at Ngapotiki Street – on one occasion in early February after follow-up results also exceeded the “action” guideline.
- A greater number of sites remained below the “action” guideline for the duration of the bathing period in 2005-2006 (62%) compared to 2004-2005 (48.7%)¹. However, the total number of action events over the 2005-2006 bathing season (49) compares closely with the 51 action events observed over the 2004-2005 bathing season. This is largely due to the influence of four sites exceeding the “action” guideline on three or more occasions.
- Fourteen (48%) of the 29 marine sites that exceeded the “action” guideline are located on the Kapiti Coast, seven (27.6%) in Hutt City, five (17%) in Wellington City, and two (7%) in the Wairarapa. None of the 14 sites monitored in Porirua City exceeded the “action” guideline over the 2005/2006 summer. Below average rainfall is likely to be a key reason for the lack of “action” events in Porirua (Figure 3).
- The majority (67%) of the cases where sites exceeded the “action” guideline coincided with rainfall in the 72 hours prior to sampling, with 34% of the breaches associated with heavy (≥ 10 mm) rainfall. This finding is consistent with previous observations; elevated enterococci counts in marine waters are typically related to urban stormwater (including sewer overflows), diffuse-source runoff into rivers and streams, and re-suspension of beach sediment during rainfall events.

¹ The statistics provided here differ slightly from those presented in *On the Beaches 2004-2005*, and reflect the results of a recent quality assurance audit of the 2004-2005 bathing data.

Figure 2: Summary of compliance with the surveillance, alert and action levels of the MfE/MoH (2003) guidelines for marine recreational areas, expressed as a percentage of the total number of routine weekly sampling events undertaken over the 2005/2006 summer.



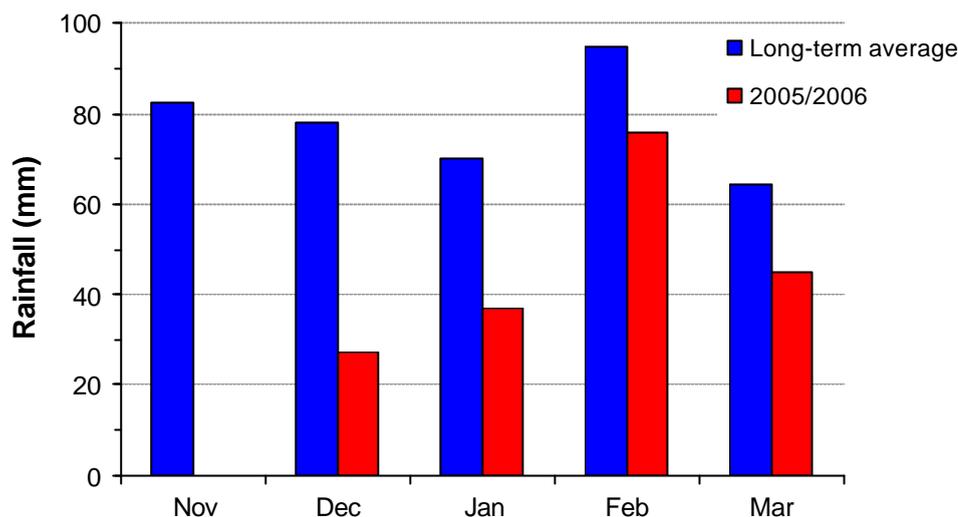


Figure 3: Monthly rainfall recorded at the Whenua Tapu Rainfall Station in Porirua over the 2005/2006 summer months, together with the long-term average monthly rainfall (1991-2006).

- Several coastal areas were affected by sewer overflows/spills and wastewater discharges over the summer; Porirua Harbour (sewer overflow at Titahi Bay on 22 November); the Hutt beaches (emergency discharges from the Hutt Wastewater Treatment Plant during mid February); and Aotea Lagoon/Frank Kitts Park (sewage spill on 3 March). Additional water sampling was conducted in response to these pollution events and health warning signs were placed at affected areas.

5. Communications

Copies of "On the Beaches: Recreational Water Quality of the Wellington Region 2005-2006" will be sent to all the territorial authorities in the region and to Regional Public Health. Copies of the report are available for councillors who wish to have a copy. The report will also be made available to the public. The brochure describing the recreational water quality programme, details of the monitored sites, and tables and graphs of the bacteriological data, are constantly available on-line at www.gw.govt.nz/on-the-beaches.

6. Strategic context

This report gives effect to the following Take 10 target:

“By 2013 coastal/water quality does not fall below the standard for which it is being managed i.e., ‘contact recreation standard’ for urban areas and ‘shellfish gathering standard’ for remaining areas.”

7. Looking ahead

Five years of summer bathing data are now available for the majority of the 99 recreational water quality monitoring sites. Existing sanitary grades for the monitoring sites are currently being reviewed with input from the appropriate territorial authorities. Sanitary grades provide a measure of the susceptibility

of a body of water to faecal contamination from such things as sewage overflows, stormwater discharges, agricultural runoff, and wildlife. In conjunction with five years of water quality monitoring results, sanitary assessments enable an overall risk-associated grade to be determined for each bathing site in the region (referred to as a “suitability for recreation grade” or SFRG). An SFRG provides an indication of what the likely condition of a bathing site will be on any given day.

8. Recommendations

It is recommended that the Committee:

1. **Receive** the report; and
2. **Note** the contents.

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