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Report to the Environment Committee

From Alison Berry, Resource Scientist and Ann Sheridan, Policy Advisor

Waikanae River Water Quality Follow-up Investigation

1. Purpose

To inform the Committee of the outcomes of an investigation into the sources of faecal contamination in the Otaihanga Domain area of the Waikanae River.

2. Background

This investigation continues our programme of work in relation to the water quality of the Waikanae River. Over the summer of 1997/98, the Council undertook a targeted investigation of the Waikanae to identify the sources of faecal contamination in the River. This was reported to the Committee in March 1998 and one of its recommendations was to look further at the effects of the stormwater drains (including Drain 13) at Otaihanga. In November and December 1998 we went back to the Otaihanga area to pursue this investigation. This report summarises our findings.

The Council has made a commitment to improving the quality of freshwater. Both the Regional Policy Statement and the proposed Regional Freshwater Plan identify poor quality water as an issue and propose ways of maintaining or improving it. When our baseline monitoring programme identifies a problem that needs more work, we undertake targeted investigations and follow-ups. In this case, our baseline monitoring had indicated there was a problem.

3. Investigation Objectives

The objectives of this investigation were to:

- determine the extent of faecal contamination in the Waikanae at Otaihanga Domain, and in particular those areas which do not meet the bacteria guideline for contact recreation (bathing);

- identify the source(s) of faecal contamination in the Otaihanga Domain area; and
- develop practical solutions to any problems that were found.

4. **Methods**

Water samples were gathered at eight sites in the Otaihanga Domain area on eight occasions between November and December 1998. The locations of the sites are described in the accompanying report *Waikanae River Water Quality Follow-up Investigation*. The Domain is a recreational reserve on the true left bank of the Waikanae River. The River in this area is immensely popular for bathing and canoeing over the summer months. As the purpose of the investigation was to determine the suitability of the river for contact recreation, all samples were gathered at times when the river was in a state that was suitable for swimming.

Faecal coliforms are a group of bacteria that are associated with the gut of warm blooded animals. Although faecal coliform bacteria do not necessarily cause disease in humans, their presence is used as an indicator for the presence of pathogens. Above a certain concentration, the risk of disease is sufficiently high to render the water unsuitable for contact recreation.

The results were compared with the faecal coliform guideline for contact recreation (bathing) of a median bacteria level of 200 faecal coliforms/100mL. This part of the Waikanae is required by the proposed Regional Freshwater Plan to be managed for contact recreational purposes.

5. **Results**

Full results are presented in the report. However, the key findings are:

- The median bacteria levels found in the Waikanae at the Otaihanga Domain area were below the contact recreation (bathing) guideline level of 200 faecal coliforms/100mL *except at the Boat Ramp site*. This result is consistent with our March 1998 findings.
- At the Boat Ramp site (50 metres west of the swing bridge) the levels were marginally over the guideline level with a median of 250 faecal coliforms/100mL.
- Poor water quality at this site is likely to be caused by discharges from Drain 13 (which joins the Waikanae River just below the swing bridge) and two subsurface drains.
- The bacteria levels recorded at the Drain 13 site were the highest of all the drains sampled (2825 faecal coliforms/100mL) but were not high enough to suggest human sewage contamination of the stormwater (by means of a cross connection or leaking sewer).

- Our results for the Waikanae differ from those of the Kapiti Coast District Council (KCDC) which suggest that the water is unsuitable for bathing below the Otaihanga swing bridge. KCDC's samples were collected during all weathers and varying tidal conditions. Our samples were taken from the same site during low tide, and fine weather conditions.
- With no apparent sewage contamination, other sources of the drains' faecal contamination from the Otaihanga suburban area need to be considered. Animal (dogs, rats, cats, horses) and bird wastes (ducks) are the most common sources of faecal contamination in stormwater and can contribute high bacteria levels to receiving waters

6. **Resolving the Problem**

Finding the source of faecal contamination can be like finding a needle in a haystack. With transitory sources such as animals and birds being a contributing factor, the levels of contamination can change by the day or even by the hour. Identifying the problem is made worse in situations where the level of contamination is not great. We would, for example, expect to find faecal coliform levels of between 4,000 and 8,000/100mL in stormwater if there was only a minor sewage leak into the system. Higher levels are a tell-tale sign of larger leaks.

A practical means of mitigating the adverse effects of faecal coliform levels on contact recreation in the Waikanae River is to commence a public education campaign about the likely causes of poor water quality in the river. In particular, we consider it would be useful to raise people's awareness about how stormwater can be contaminated by animal wastes and by other household activities. This could be done simply through letter box information for local residents (including Waikanae residents with dogs living upstream of Otaihanga) and related means of removing animal waste. It is our intention to seek the co-operation of the Kapiti Coast District Council in undertaking a joint programme of this nature. We have already discussed the matter with KCDC officers.

There is, of course, no guarantee that this will solve the problem. However, we consider the effort should be made. In addition to resolving the problem, this would also help us understand the extent to which educational initiatives can contribute to issues of this nature. It is a prudent option, in a well-defined and manageable area and can be achieved within budgets already established for this purpose. Given that the level of faecal contamination in the River is, in some places, only marginally exceeding the health guidelines for contact recreation some of the time, cheaper options are worth exploring before more costly options such as physical works (e.g., stormwater detention ponds) are considered.

7. Regional Policy Statement Implementation

The investigation and resulting work to which this report refers helps to implement the Regional Policy Statement. It gives effect to freshwater methods 22, 25 and 28.

8. Recommendation

That the report be received and the contents noted.

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