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Report 01.658
28 August 2001
File: Y/12/3/3

Report to the Rural Services and Wairarapa Committee and Environment Committee from Summer Warr, Water Quality Scientist, Resource Investigations

Annual Freshwater Quality Report 2000

1. Purpose

To present the findings of the 2000/2001 Annual Freshwater Quality Report to the Committee.

2. Background

2.1 The Wellington Regional Council monitors freshwater quality at fifty one sites throughout the Region. The Council undertakes this monitoring to fulfil its responsibilities under the Resource Management Act 1991, the Regional Policy Statement and the Regional Freshwater Plan.

2.2 The results of our monitoring are summarised in an annual report to:

- Provide a measure of the state of our freshwater resources;
- Identify water quality trends and causes for these trends;
- Identify emerging or on-going water quality issues;
- Evaluate the attainment of environmental objectives set out in the Regional Policy Statement and Regional Plans.

2.3 This report provides the results of monitoring undertaken throughout the Region between March 2000 and June 2001.

3. Methods

3.1 Water quality was monitored in the following ways:

- Monthly sampling for chemical, physical and biological variables;
    - Dissolved oxygen, water clarity, temperature, and % cover by algae were measured in the field;

- Biological oxygen demand, conductivity, pH, turbidity, nutrients and faecal coliforms were analysed in the laboratory;
- Annual summer sampling of macroinvertebrates, (e.g. mayfies, caddisflies, stoneflies), from the streambed.
- The results from this sampling being analysed by the Semi Quantitative Macroinvertebrate Community Index (SQMCI). This index is the most commonly used index in New Zealand for the assessment of biological communities as an indicator of water quality.

3.2 The following guidelines were used to assess these results:

- New Zealand Periphyton Guidelines prepared by the Ministry for the Environment
- Australia and New Zealand Environment and Conservation Council (ANZECC) Water Quality Guidelines 1992
- Water Quality Classes, Schedule 3, Resource Management Act 1991

4. Results

4.1 Key outcomes are:

- The monitoring results do not show any significant change from those reported last year;
- Generally the eastern region (Wairarapa) water quality sites, (as depicted by the chemical physical and bacteriological results), are of a higher quality than that found in the western parts of the region;
- The Pauatahanui, Owhiro, Ngauranga, Ngarara, Waitohu, and Waiwhetu Streams and the Wainuiomata, Porirua, and Mangaroa Rivers have the poorest water quality in the region;
- The Ngarara, Waitohu, Waiwhetu, Ngauranga Streams all showed high levels of turbidity and biological oxygen demand. Turbidity was also high in the Waikanae and Otaki Rivers;
- Karori, Waiwhetu, Porirua, Ngauranga, Owhiro, Makara, Ngarara and Waitohu Streams all reported high levels of faecal coliforms;
- Ammonia levels were high in the Ngarara, Mangaroa, Waitohu, Makara, Waiwhetu and Ngauranga Streams.

4.2 All these waterbodies are affected by urban and/or rural runoff. The Council's work programme includes a number of projects which are ultimately intended to reduce the impact of urban and rural runoff on stream water quality. These include riparian protection trials (Kakariki, Karori and Enaki streams) which are currently underway and a major stormwater investigation. An initial report synthesising the existing information on the effects of urban stormwater in the Wellington Region has now been completed. As the lessons learnt

from these projects are implemented, we anticipate that water quality in these most affected waterbodies will improve.

4.3 The attachment to this report depicts the SQMCI values for the Wellington region water quality sites and are plotted in relation to the dominant landuse. The Wairarapa sites have been highlighted (identified by the unfilled bars) for comparative purposes.

4.4 The report includes some general recommendations, which will help us develop our understanding of the instream water quality dynamics, causes of poor water quality, and ultimately to aid us in identifying appropriate solutions.

Recommendations include:

1. Implement continuous water quality monitoring equipment so that diurnal changes in water quality can be identified; and
2. Undertake targeted investigations at identified problem areas to develop a better understanding of the causes of poor water quality.

5. Communication

The Annual Freshwater Quality Report will be circulated to the following organisations who have an active interest in water quality:

- Territorial authorities
- Iwi authorities
- Wellington Fish and Game Council
- Wellington Department of Conservation

Copies of the report will be available at the meeting for Councillors who would like a copy and will also be made available to the Wairarapa newspapers.

6. Recommendation

That the report be received.

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