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Report 01.619

30 August 2001

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Report to Environment Committee
from Summer Warr, Water Quality Scientist, Resource Investigations Section, Wairarapa

Annual Freshwater Quality Report 2000

1. Purpose

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

2. Background

The Wellington Regional Council monitors freshwater quality at 51 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.

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.

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

3. Methods

Water quality was monitored in the following ways:

- Monthly sampling for chemical, physical and biological variables;

- Dissolved oxygen, water clarity, temperature, and the degree of algal cover 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. mayflies, caddisflies, stoneflies), from the streambed.

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

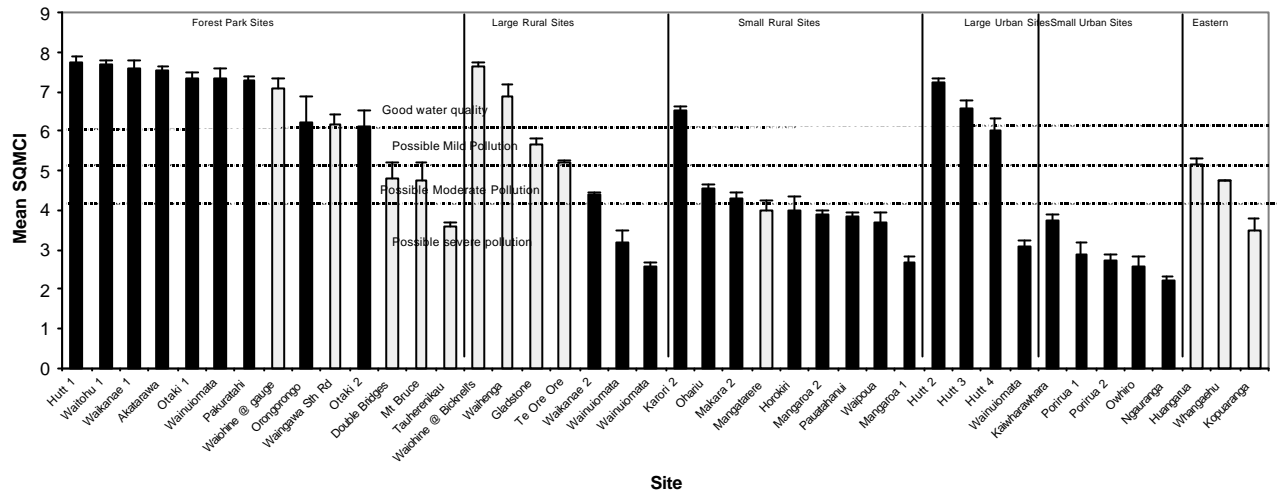
4. Results

- The monitoring results did not show any significant change from those reported last year;
- Generally water quality at sites in the eastern Region is of a higher quality than water at sites monitored 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.

These waterbodies are affected by urban and/or rural runoff. The Council's work programme includes a number of projects which ultimately should reduce the impact of urban and rural runoff on stream water quality. These include: the riparian protection trials which are currently underway on the Kakariki, Karori and Enaki Streams; the major stormwater investigation; and *Take Charge*, our pollution prevention programme. As these projects are completed and/or implemented, we expect that water quality in these most affected waterbodies will improve.

Macroinvertebrate sampling provides us with a measure of the long-term effects of water quality in the rivers and streams we monitor. The following figure shows the macroinvertebrate results across the Wellington Region. The results are plotted in relation to the dominant landuse of the catchments feeding these water bodies and the Wairarapa sites have been highlighted (identified by the unfilled bars) for comparative purposes.

These results confirm that streams draining urban areas and intensively used agricultural areas have the poorest habitat for aquatic species.



5. Where to From Here?

The report includes some general recommendations, aimed at helping us to develop our understanding of the instream water quality dynamics, identify causes of poor water quality, and ultimately to aid us in identifying appropriate solutions. These recommendations are:

1. Deploy our 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.

The riparian protection trials and stormwater investigations will continue this year. The outcomes of these projects will provide information which will shape the future management of freshwater quality in the Region.

Our *Take Charge* programme will start in industrial areas within the Waiwhetu Stream and Porirua Stream catchments during the coming year.

6. 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.

7. Recommendation

That the report be received and its contents noted.

Report prepared by:

Approved for submission:

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