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Report to the Environment Committee
from Brett Stansfield, Water Quality Scientist

Annual Freshwater Quality Report 1998/99

1. Purpose

To present the findings of the 1998/99 Annual Freshwater Quality Report to the Committee.

2. Background

The Wellington Regional Council monitors fresh water quality at sixty two 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.

Water quality data generated by the baseline freshwater quality monitoring programme is summarised in an annual report in order to:

- identify water quality trends
- identify water quality related issues
- allow the Council to gauge its progress with its objectives for water quality in the region and to identify areas where enhancement of water quality is necessary
- evaluate the effectiveness of the policies and strategies relevant to river and stream water quality
- provide data which can be used for making appropriate effects-based decisions on resource consent applications

This report provides an assessment of the overall quality of rivers and streams throughout the Wellington Region for the period March 1998 to February 1999.

3. **Methods**

The water quality was monitored in the following way:

- Monthly sampling for chemical and microbiological variables and assessment of algal cover.
- Dissolved oxygen, water clarity and temperature 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 from the streambed. The structure of the macroinvertebrate community is summarised by the Semi Quantitative Macroinvertebrate Community Index (SMCI). This index is the most commonly used index in New Zealand for the assessment of biological water quality.

The following guidelines were used in our assessments:

- The New Zealand Periphyton Guideline prepared by the Ministry for the Environment (DRAFT 1999) – periphyton cover and dissolved nutrients (for the monitoring and managing enrichment of streams)
- Australia and New Zealand Environment and Conservation Council (ANZECC) Water Quality Guidelines 1992 - dissolved oxygen, total ammonia and pH (for the protection of aquatic ecosystems)
- The Resource Management 1991 Act Schedule 3 – temperature and % saturation dissolved oxygen (for the protection of aquatic ecosystems)

4. **Results**

Generally, sites in, or near undeveloped areas had good water quality. But sites close to urban areas or the areas of intensive agricultural use, and in streams with comparatively small volumetric flows, had poor water quality.

The Waitohu, Ngarara, Porirua, Makara, Karori, Ngauranga, Pauatahanui, Mangaone, Mangaroa and Waiwhetu Streams have some of the poorest water quality in the Region. We believe that this is caused by stormwater discharges into these streams from either urban or rural areas.

The Regional Freshwater Plan identifies a number of waterbodies with poor water quality that require enhancement. Over the last four years the water quality at none of these sites has improved. Ngarara Stream has shown increasing turbidity levels; Waiwhetu Stream has shown increasing biochemical oxygen demand concentrations; both the Wainuiomata River and Ngauranga Stream have shown no change; while the lower Waiohine and Ruamahanga Rivers have shown increasing faecal coliform concentrations.

This report has highlighted a number of areas where improvements could be made to the existing water quality monitoring programme to improve the accuracy of our assessments of the health of the Region's rivers and streams. These will be considered in the review of surface water quality monitoring that is currently being undertaken.

For example:

- The laboratories undertaking water quality analyses for the Environment and Wairarapa Divisions should use consistent methods and detection limits for all water quality variables.
- Diurnal monitoring of temperature, pH and dissolved oxygen should be undertaken at selected baseline water quality sites within the Region to gain a better understanding of fluctuations in water quality.
- Selected urban stream in the Wellington Region should be investigated to identify possible sources of contamination.
- ecosystem monitoring methods like the urban community index and the urban stream habitat assessment developed by Suren et al (1988) should be trialled in selected urban streams of the Wellington Region.

5. **Communication**

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

- territorial authorities within the Region
- iwi authorities within the Region
- Wellington Fish and Game Council
- Wellington Department of Conservation

A press release will be issued so that the report's findings can be relayed to the wider community. Copies of the report will also be sent to public libraries throughout the Region.

6. **Recommendations**

That the report be received and noted.

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