greater WELLINGTON
REGIONAL COUNCIL

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**Committee** **Environment**
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# Technical Reports on Monitoring Programmes

## 1. Purpose

To advise the Committee of the completion of technical reports summarising and analysing monitoring of the region's natural resources.

## 2. Background

Under the Resource Management Act 1991 Greater Wellington is required to monitor the state of the environment in the Wellington Region. This monitoring allows us to:

- identify and interpret trends and changes in environmental quality and determine the reasons for these;
- have good information for making resource management decision (i.e., assessing resource consent applications and assessing the effectiveness of regional policy); and
- convey information about our natural and physical resources to the wider community.

Monitoring reports on the state of our natural resources used to be prepared annually. However, in 2002 Greater Wellington made the decision to prepare comprehensive reports every six years. This change was made because it was recognised that:

- generally, environmental state changes very slowly and that long term trends can be distorted by short term variations in climatic conditions; and
- trend analyses needs to be taken using a significant dataset

The preparation of these comprehensive monitoring reports has been timed to immediately precede the development of the State of the Environment report. In this way the most up to date monitoring information can be taken into consideration when the State of the Environment Report is prepared. The State of the Environment report is prepared every six years. Our next State of the Environment Report is due for release at the end of 2005.

The 2004/05 Annual Plan included the following target for our environmental management role:

> "A comprehensive technical report describing the condition of our important natural resources will be published to the satisfaction of the Council and within a budget of $1,665,000
>
> - Hydrology
> - Groundwater
> - Freshwater quality
> - Coastal water quality
> - Recreational water quality
> - Air quality
> - Soil quality"

## 3. Strategic context

The technical reports provide information which contributes to the attainment of the *Take 10* targets for biodiversity, water, air and land.

## 4. Results

Eight separate technical reports have been prepared; additional reports were prepared for Lake Wairarapa Water Quality monitoring and summarising coastal investigations. The coastal water quality monitoring information has been included in the contact recreation monitoring report.

Some highlights from these reports are:

**Recreational water quality**

There was a relatively high correlation between the occurrence of heavy rainfall and elevated bacteria counts at the majority of monitoring sites in both freshwater and marine waters across the region. Urban stormwater (including sewer overflows during heavy rainfall) and diffuse source runoff into rivers and streams are considered to be the major contributors to faecal contamination of recreational waters in the region.

The sites which most frequently exceeded the action levels of the guideline were:

*Freshwater:*

Riversdale Lagoon, Waipoua River at Colombo Road, and the Hutt River at both Silverstream and Birchville.

*Marine water:*

Titahi Bay at Bay Drive, Pauatahanui Inlet at Browns Bay, South Beach at Plimmerton, Porirua Harbour at the Rowing Club and Plimmerton Beach at Bath Street

**Soil Quality**

The programme has now sampled sufficient sites to provide robust representative information on the quality of the soils across the region. However, as no re-sampling has yet been undertaken it is not possible to determine any trends in soil quality at this time.

**Lake Wairarapa Water Quality**

There is evidence of slight improvement in water quality in Lake Wairarapa since monitoring began in 1994 with decreases in total nitrogen and increases in water clarity. However, rates of change are extremely slow and unlikely to have biological significance at this stage.

**Air Quality**

Fine particle concentrations were found at levels which exceeded the new National Environmental Standard for PM 10 during winter months at Wainuiomata, Upper Hutt and Masterton. Research and analyses of fine particle composition and source contributions has shown that the pollution episodes are primarily a result of domestic fire emissions coupled with adverse meteorological and topographical effects.

Statistical analysis of our monitoring results indicates that peak concentrations of carbon monoxide and nitrogen dioxide are not currently reaching levels that would be of concern for human health

**Freshwater Quality**

Water quality in the region's rivers and streams is highly varied and largely determined by the land use of surrounding areas. Trend analysis concluded that in general the water quality in the region's rivers and streams has not changed significantly since 1999. Increasing and decreasing trends were detected for some variables at some sites. For example, nutrient and faecal coliform results suggest that the quality of water in parts of the Ngarara Stream and the Wainuiomata River are benefiting from the removal of sewage discharges, while ammonia and faecal coliform results suggest that parts of the Mangaone Stream and the Waitohu Stream may be benefiting from changes in agricultural practices.

**Groundwater**

The volume of groundwater allocated for use over the past nine years has been largely static on the Kapiti Coast and in Lower Hutt. However, the volume has been steadily increasing in the Wairarapa Valley. The report suggests that a strategic assessment of the potential demand for water in the region should be undertaken. This would provide guidance about how much more demand is likely and where that demand might be. The report also suggests that we need to review the current estimates of aquifer safe yields, specifically, to take into account the effects of natural groundwater discharge.

Four distinctly different groups of groundwater chemistry were identified across the region. These were differentiated on the basis of the source of water, (i.e., rainfall or river recharge) and degree of impact from land-use. At the majority of sites monitored by Greater Wellington no significant trends in groundwater quality were detected.

**Hydrology**

Many of the water bodies from which water is currently taken are considered to be near to fully, or fully allocated. In the Wairarapa in particular, there are very few waterways that are not considered under pressure from abstraction. The increase in surface water allocation since 1999 was mainly due to demand for water for irrigation and for crop frost protection. In the future, in many waterbodies of the region, additional surface water allocation may only be possible if water storage, high flow harvesting, or flow sharing methods are utilised.

In the future, human induced climate change has the potential to create significant pressure on water quantity. The risk of heavy rainfall events, and therefore flooding, is likely to increase, as is the probability of drought in the Wairarapa.

## 5. Where to from here?

The technical reports on the monitoring programmes will form the basis of briefing papers which are being prepared as part of the process to the State of the Environment Report. Briefing papers are being prepared for each of the chapters of the Regional Policy Statement and include information on the pressures state and responses.

Our next State of the Environment Report is due to be completed by the end of 2005.

## 6. Communication

The technical reports will be available to interested parties upon request. They will also be put on the Greater Wellington Website.

## 7. Recommendations

*It is recommended that the Committee:*

1. ***receive** the report; and*

2. ***note** the contents.*

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