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Committee Environment
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Findings from the Freshwater work for the State of the Environment Report

1. Purpose

To inform the Committee of some of the main points emerging from technical reports on fresh water, written as part of the development of the State of the Environment Report.

2. Background

Over the last year, officers have been working on technical reports for the State of the Environment Report (SER), which will be published by the end of 2005. In some cases, where the resource being considered has many different aspects and a large amount of relevant data, such as for fresh water, a number of technical reports have been prepared.

This report covers the main findings of work done for the Freshwater chapter of the SER.

3. Water Quantity

The Regional Freshwater Plan identifies safe yields for all groundwater zones and it includes minimum flows and allocation limits for 14 rivers. The amount of surface and groundwater in the region has generally been sufficient to meet peoples' needs but this situation is now changing because of increasing demand, particularly for irrigation needs in the Wairarapa.

Water allocated for public water supply from the Waikanae and Lower Hutt groundwater zones is above 80% of their safe yields. In the Wairarapa, six aquifers are more than 80% allocated. The Council has indicated there should be no additional water takes from the three groundwater zones that are listed in *Attachment 1*. The reason is that we now believe our estimates of safe yields in these zones are too high and groundwater levels are declining under current water takes. Safe yields in these zones are currently being revised using an improved methodology for estimating safe groundwater yields.

Since the Regional Freshwater Plan became operative, Greater Wellington has also indicated there should be no new water takes from the seven surface water management zones that are listed in Attachment 1. Rivers in these zones are already fully allocated and they are priorities for establishing minimum flows and allocation limits in the Regional Freshwater Plan.

Figure 1 shows volumes of groundwater allocated for use in the region from 1996 to 2004. The steady increase in the amount of groundwater water taken in the Wairarapa is mostly for irrigation. However, we know little about the level of increased demand in the future and the specific locations in the Wairarapa where it will occur.

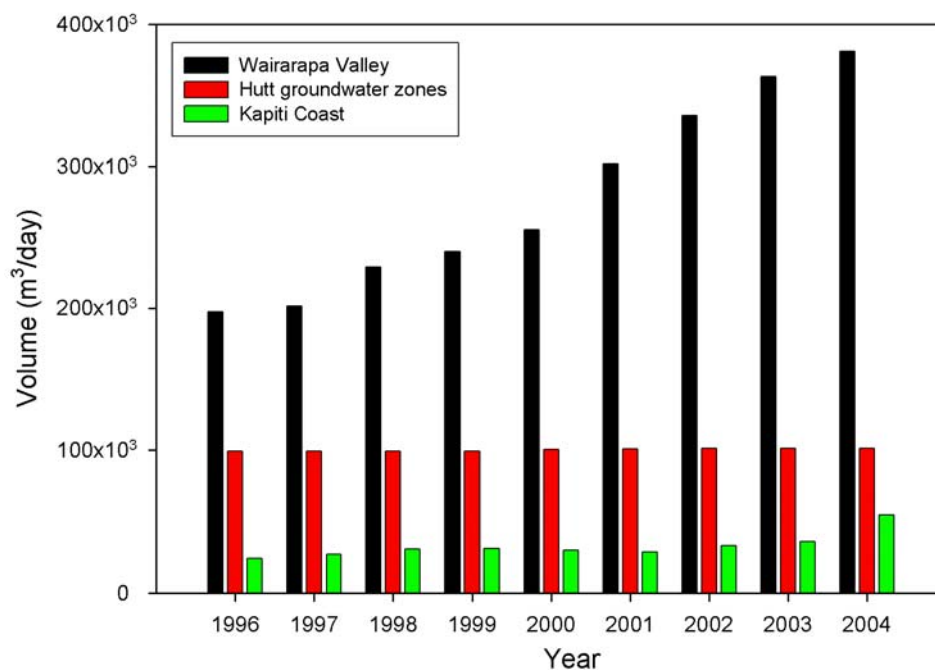


Figure 1: Volumes of groundwater allocated for use in the Wellington Region from 1996 to 2004.

The information that we use to compare water takes with safe yields of groundwater or allocation limits for surface water is based on the quantity allowed by resource consents. Actual water use is poorly known because only a small proportion of takes are metered. The metering data that we do have allows us to compare actual use and consented takes. It indicates that about 20% of the allocated volume is actually being used.

The discrepancy between allocated volumes and actual use arises partly because water allocation is decided on a first come, first served basis. In practice, irrigators typically apply for the maximum rate of use they may require during extended dry conditions, which in reality occur infrequently. Consequently, the amount of water allocated effectively locks up water when the maximum rate of use is not required and for fully allocated water resources there is no room for new users.

The discrepancy between allocated volumes and actual use is inefficient because some water that is allocated is not being used. More efficient use of water could be helped by more widespread metering of water takes that would allow the actual use of water and the consented amount to be better aligned.

Another approach that would promote greater efficiency could be more widespread water transfer between users. When a consent holder is not using water, it can be made available to someone else. A better understanding of water requirements based on crop, soil and climatic conditions would also help because it would reduce water wastage by providing more accurate estimates of the amount of water an irrigator needs.

4. Water Quality

Surface water quality in the region is generally being maintained. The number of major discharges to rivers has decreased over the reporting period and there are some notable improvements that have occurred as a result of removing sewage discharges from the Wainuiomata River and the Ngarara Stream at Waikanae. By June 2005 there were only three discharges of dairy effluent made directly to water compared with 63 discharges ten years ago.

We have applied a water quality index that uses the six key water quality variables to summarise water quality at 51 sites in rivers of the region using long term data (1997-2003). Application of the index allows us to classify the water quality at these sites as “very good”, “good”, “fair”, or “poor”.

Fifteen sites are classified as having very good water quality. Most of these sites (11) are in high elevation reaches associated with the Tararua, Rimutaka and Aorangi Ranges. Indigenous forest is the dominant land cover in almost all catchments above the “very good” water quality sites and rural land uses (sheep and beef farming) also occur at nine sites.

Attachment 2 lists the ten sites classified as having poor water quality, and whether they are affected by sewage discharges or drainage from rural or urban catchments. Three of the sites are in urban catchments, four are in rural areas, and three receive drainage from a combination of rural and urban land. Four of the sites are, or were, also affected by discharges from municipal wastewater treatment plants during the reporting period.

Bacterial contamination at the poor water quality sites is nearly always high and well above stockwater drinking guidelines in rural areas and contact recreation guidelines in urban areas. In many rural areas, land use is intensifying and discharges of animal effluent and nitrogen based fertilisers to land have increased in the region. These changes are likely to be contributors to poor water quality at some of the rural sites.

The reason for poor water quality in urban streams is stormwater discharges. Bacterial contamination occurs because of contamination of stormwater by sewage. A number of investigations that have focussed on streams flowing to Wellington Harbour and Porirua Harbour over the last four years show that contamination by heavy metals, poly-aromatic hydrocarbons and organo-chlorine pesticides sometimes exceed guidelines for aquatic ecosystems. We are working with territorial authorities to find ways to reduce the effects of stormwater discharges. The problems associated with stormwater discharges are increasingly being highlighted, perhaps because of people's growing interest in urban streams and their health.

Land use changes and increased discharges to land also affect groundwater quality. We monitor 80 groundwater sites in the region. There is some evidence that that agricultural land use is adversely affecting groundwater quality. At 17 sites elevated nitrate-nitrogen and/or sulphate concentrations indicate people's activities are having an affect on groundwater quality. While there is no evidence of significant groundwater deterioration, care is needed because groundwater response to discharges can take from two to more than 20 years.

Our freshwater resources are now being enhanced by actions that were not in place when we prepared our last State of the Environment Report. Our social marketing campaign *Be the Difference*, Care Groups, programmes that we are aiming at schools (Take Action) and small to medium sized industry (Take Charge), the Fonterra Accord, and our *Streams Alive programme* for riparian plantings are all being enthusiastically received by communities and will lead to greater community involvement in the management of our water bodies.

5. Communication

A communications plan is being developed for the State of the Environment Report, which will be published in December of this year.

6. Recommendations

That the Committee:

1. *Receives the report, and*
2. *Notes the contents.*

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Attachment 1: List of zones that should not be subject to additional water takes

Attachment 2: List of sites that have "poor" water quality