

Report 05.392
Date 21 July 2005
File ENV 11/01/01

Committee Environment
Author John Sherriff, Manager, Resource Investigations

Summary of Science and Research Support 2004/05

1. Purpose

To inform the Committee about how the Division's Science and Research budget has been used over the past year.

2. Background

The Environment Division currently has a budget of \$20,000 per annum to support science and research projects undertaken by outside agencies.

Greater Wellington receives a large number of requests each year to support projects. These range from students undertaking theses, to research institutes and consultants seeking contributions to support applications to other funding schemes, e.g., the Ministry for the Environment's Sustainable Management Fund. Many funding schemes require some contribution from end users before committing funds from their budget.

Historically we have found it difficult to support worthy projects from existing budgets. Since 2000, \$20,000 per year has been provided in our budget with the idea that four to five projects could be supported each year. This is consistent with approaches taken by other regional councils.

3. Project assessment

Staff have developed a list of science and research needs for the Division. This list provides the basis for assessing the worth of proposals received by Greater Wellington. When a proposal is received it is reviewed by a relevant staff member and they assess its benefits to the Greater Wellington work programme.

Assessment is made on a wide range of criteria including:

- The relevance of the project to our role, responsibilities and our strategic directions;
- The creditability of the science provider;

- The methodology, outputs and timeliness of these outputs; and
- The costs and benefits to Greater Wellington.

Funds are allocated on a first come first serve basis.

4. Projects supported during 2004/05

The following projects were supported in the last financial year.

Project: Groundwater Interactions with the Waikanae River

Provider: Charlotte Welch, Victoria University School of Earth Sciences.

GW Contribution: \$2,000

This project was designed to complement our shallow groundwater investigations programme in the Paraparaumu/Waikanae area. The results helped to verify the numerical model recently developed for the shallow aquifer system. Verification of the model increases our confidence in using the model to make resource management decisions.

The specific aims of this project were to:

- Quantify the amount of water lost, and gained, through the bed of the Waikanae River;
- Assess how this flux varies as a function of river flow;
- Determine the path this water takes as it moves down-gradient;
- Assess the storage potential, and response time, of groundwater fluctuations with increasing distance from the river;
- Quantify how the conductivity of the groundwater changes with increasing distance away from the river;
- Determine the interactions between the groundwater system and the flows in the Waikanae River and Waimeha Stream; and
- Quantify the role of the Waikanai River in recharging the shallow groundwater system

Project: Soil Moisture Storage in Kapiti Soils

Provider: Yvonne Ruehe, Victoria University School of Earth Sciences

GW Contribution: \$2,000

This project was also designed to complement our shallow groundwater investigations programme in the Paraparaumu/Waikanae area.

The specific aims of this project were to:

- Quantify the amount of water stored in Kapiti soils and its distribution throughout the profile;
- Determine the rates and processes by which water moves within the vadose zone;
- Determine the rates and processes by which water is lost from the vadose zone;
- Determine an empirically based water balance for the soils of the Kapiti Coast;

- Determine the annual potential recharge to the groundwater; and
- Quantify the loss of potential groundwater recharge as a result of urbanisation.

(A brief summary of the major findings of these two projects is attached with this report.)

Project: Endocrine Disrupting Compounds Scoping Investigation
Provide: Landcare Research, HortResearch, Forest Research.
GW Contribution: \$5,000

Overseas there is increasing concern about the effects of endocrine disrupting compounds (EDCs) in the environment. There is growing evidence that substances are present in the environment which are interfering with the reproductive functions of animals and humans. These effects are thought to arise through disruption to the animal's endocrine system. EDCs are thought to arise through the breakdown of synthetic chemicals ranging from pesticides like DDT, PCBs, and dioxins to chemicals found in the epoxy linings of tin cans and plastic used for storing food.

Some regional councils are finding that resource consent appellants are citing EDC issues with increasing frequency.

The objective of this project is to prepare a scoping report where implications of overseas work (and local data where it is available) are transposed to the New Zealand context. The report is intended to identify which of a range of potential EDC related issues are likely to be of genuine concern in specific settings and to provide a well reasoned starting point for assessing concerns of resource consent appellants. In addition to assisting with weeding out spurious concerns from valid ones, the scoping report would set a justifiable priority order for future EDC research in New Zealand.

This project is funded in collaboration with Environment Waikato, Environment Canterbury, Landcare Research, HortResearch and Forest Research.

Project: Nitrogen Leachate Measurement
Provider: Wairarapa Monitor Farm Community
GW Contribution: \$8,000

This project has been designed to assess the extent of nitrogen leachate from fertiliser application in the dry east coast Wairarapa high country environment. The information it provides will enable the calibration of the "Overseer" nutrient budgeting software and other nutrient balancing models for use on the dry east coast hill country.

Nationally there has been an exponential increase in the use of nitrogen fertilisers as farmers continue to intensify their production systems. The environmental impacts of nitrogen fertiliser application are now coming under intense scrutiny, particularly the effects of nitrogen fertiliser use and consequent nutrient leaching and run-off on water quality. This project is part

of a larger national project focussing on the wise use of nitrogen on hill country.

This project is funded in collaboration with Castlepoint Station, Meat and Wool NZ and AgResearch.

During the year we also agreed to support projects on Small Proprietary Wastewater Package Systems and Low impact drainage whole of life cost assessment. However, neither of these projects received support by the major science funders so our contribution was not required.

5. Communication

No further public communication is necessary for this report. The outcomes of the projects will be reported to the Committee as and when they are completed.

6. Conclusion

The provision of funds to support science and research has enabled us to help in a wide range of projects which will ultimately benefit Greater Wellington in its management of the region's environment.

7. Recommendation

It is recommended that the Committee:

- 1. receive the report; and*
- 2. note the contents.*

Report prepared by:

John Sherriff
Acting Divisional Manager,
Environment

Attachment 1: Summary of groundwater investigations in association with Victoria University