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Report to Environment Committee
from Murray McLea, Section Leader, Policy Development

Freshwater Fish Survey of the Wellington Region

1. Purpose

To inform the Committee of the findings of a freshwater fish survey and a new tool being developed to help manage freshwater fish.

2. Background

A freshwater fish survey of the Region's rivers has been carried out as part of our Freshwater Ecosystems Programme. The purpose of this programme is to develop ways of managing rivers and streams as ecosystems rather than managing just some waterway characteristics (such as water quality or flooding), as we have done in the past. The programme seeks to determine the conditions needed for aquatic life to flourish and how best to provide those conditions. It also contributes to enhancing biodiversity in the Region. Other work in the Programme is listed in Attachment 1, which was reported to the Council in March of this year.

3. The Survey

Ninety sites in the Region were fished using an electric fishing machine over the period January-April 2002. This is the period of maximum species diversity in New Zealand streams because during mid-late summer all migratory species are present in fresh water. Sites were selected with the involvement of people from the Council, the Department of Conservation and Massey University. The Utility Services Division and the Landcare Division were also involved in the surveys. Sites were fished in water supply catchments and in Regional Parks. Mike Joy from Massey University carried out the survey for us under contract.

4. **What did we find?**

A total of 5195 individuals belonging to 17 species of freshwater fish and 2 species of crustacea (a freshwater shrimp and the freshwater crayfish) were recorded from 90 sites. Of the 19 species found only one, the brown trout, was not native.

Similar surveys have also been carried out by Mr Joy in the Auckland and Manawatu-Wanganui Regions. These are useful for comparative purposes. The diversity of native fish species was higher in the Wellington survey than in the other regions, despite only half as many sites being fished.

In the Wellington survey, fish densities were comparable with other North Island streams apart from the Ruamahanga River tributaries where fish densities were lower than the rest of the sites in the Region. The most abundant fish found in the Wellington survey was the Koaro. This species was noticeably more abundant than in other regions.

5. **What happens next – POINT, CLICK, FISH?**

The recent survey adds significantly to our knowledge of freshwater fish. More surveys may be warranted, but there are things we can do now to make the most of our efforts to date, and in the future.

Following the sampling in our water supply catchments, discussions with staff in the Water Group have resulted in work being commissioned by them to investigate opportunities for the passage of native fish over the Council's water supply weirs. The Parks and Forest Department is also taking action to enhance fish passage in our Regional Parks and Forests. Good practices on our own land will help a lot when we promote freshwater biodiversity in rivers on public and private land.

In addition, the new data will help us manage rivers in a more ecologically sound manner. We can now make greater use of a tool called River Environment Classification. It uses environmental variables such as, source of flow, geology, landcover, elevation, river size and channel type, to classify river reaches. By comparing the presence of fish with these river classes, the key variables that determine the river environment for any fish species can be identified. We can then use these key variables at other locations to predict the likelihood of fish species being present in a river.

There are many potential uses of this methodology. We use a computer based (GIS) format that can generate maps and other information at the click of a mouse. For example, by selecting a point on any river in the Region, you can bring up information about fish that you would expect to find there, including photographs, and the actual habitat present in the river. The methodology has applications for regional plans, resource consents, State of the Environment Reporting, and education. At this stage, we intend to do more work to field test the methodology and make sure that it is set up for the uses that can be made of it.

6. **Communications**

Results of the survey will be entered into the New Zealand Freshwater Fish Database. This is a nationally recognised database for freshwater fish that is managed by the National Institute of Water and Atmospheric Research. It is freely available on their website. The survey was publicised in the last edition of Elements.

7. **Recommendations**

It is recommended that the Committee:

- (1) *receives the report; and*
- (2) *notes the contents.*

Report prepared by:

Approved for submission:

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Attachment

1. Work completed over the last 2 years as part of the Freshwater Ecosystems Programme