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Report to Environment Committee
from Mike Harkness, Hydrologist

Instream Habitat Assessment for the Lower Reaches of the Hutt River

1. Purpose

To inform the Committee of the results of an investigation and report into the available fish habitat in the Hutt River as part of a review of minimum flow levels.

2. Background

The Regional Freshwater Plan defines minimum flows for various rivers throughout the Region that seek to allow people and communities to take or use water while ensuring that the flows are sufficient to maintain the natural and amenity values of the water bodies. As these minimum flow levels are under constant scrutiny because of the effects they have on resource users, we need to continually question, validate, and update the scientific assumptions upon which the various Regional Plans were based. With this in mind we have commenced a programme to review the minimum flows set in the Regional Freshwater Plan. This programme started by reviewing the minimum flow levels set for the Hutt River.

Minimum flows in the Hutt River have been set at 600 litres per second (L/s) at Kaitoke and 1,200 L/s at Birchville. The flow at Kaitoke has not reached 600 L/s since monitoring started in 1967; the lowest recorded is 800 L/s. However, it has been a common occurrence for the entire flow at Kaitoke to be abstracted by the WRC Water Group, leaving a dry riverbed immediately below Kaitoke. The existing consents for this abstraction do not have a requirement for the minimum flow to be enforced. However, as of October 2001 new consent conditions for the water abstraction will require that a flow of at least 600 L/s is always maintained.

3. Methodology

The Instream Flow Incremental Methodology (IFIM) was used to determine the amount of suitable habitat available for brown trout at a range of river flows. The Hutt River is a regionally significant trout fishery and setting minimum flows to maintain trout habitat will not only benefit trout, but also native fish as they require a smaller amount of habitat than brown trout.

The results from this work are also being used as part of a wider study investigating declining trout numbers in the Hutt River which will be carried out by consultants commissioned by the Water Group.

Three reaches of the Hutt River, taken to be representative of the overall lower part of the river, were surveyed for the study. These were: (i) opposite the Heretaunga golf course; (ii) at Taita Gorge; and (iii) at Melling. At each of these three reaches, fifteen cross sections of the river were surveyed, water velocities measured, and the composition of the river bed (e.g. gravels, sand, vegetation etc) was noted.

This information allowed us to predict water depths and velocities for a range of river flows. The river's ability to support brown trout over this range of conditions was assessed using software developed by NIWA.

Minimum flows have been calculated for each of the three reaches using the same criteria used to define the minimum flows of major rivers in the Regional Freshwater Plan, i.e., that the minimum flow must retain two-thirds of the habitat that is currently available at the average yearly low flow.

4. Major Findings

The percentage of river area suitable for brown trout is at its optimum when flows are just below average for the Taita Gorge and Melling reaches, and at one-third of average at the Heretaunga reach.

This study indicates that minimum flows should be 1,500 L/s at the Heretaunga and Taita Gorge reaches, and 1,900 L/s at the Melling reach. The current minimum flow in the Regional Freshwater Plan is 1,200 L/s at Birchville in Upper Hutt, which is upstream of these three reaches.

From October 2001, as part of new Resource Consent conditions, a minimum flow of 600 L/s must be maintained at Kaitoke where previously all available water was often abstracted. This extra 600 L/s in the river will increase the amount of instream habitat available downstream for brown trout and should ensure that the minimum flows determined in this study are maintained.

The results from this and future studies will be used when the Regional Freshwater Plan is reviewed to either confirm the existing minimum flow levels or advocate for a change to be made.

Over the next summer, when the 600 L/s minimum flow at Kaitoke will come into force, the downstream flows will be closely monitored to see whether the 'new' minimum flows are met. After this time a decision can be made as to whether any changes to the Regional Freshwater Plan should be recommended.

5. **Future Work**

Within the next two years a similar study will to be undertaken on the Wainuiomata River. After this, a programme will be defined to progressively complete IFIM studies on other rivers throughout the Region.

6. **Communications**

The results and the report will be communicated to the WRC Water Group and also to NZ Fish and Game Ltd.

Copies of the report are available to Councillors on request.

7. **Recommendation**

That this report be received and its contents noted.

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