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FOCAL POINT CHARACTERISTICS AND HABITAT USE CURVES OF
UNDERYEARLING BROWN TROUT (Salmo trutta) IN THE KAHUTERAWA
STREAM.

A thesis presented in partial fulfilment of the requirements for the degree of Master of
Science in Zoology at Massey University

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ABSTRACT

The physical focal point characteristics of underyearling brown trout (*Salmo trutta*) were examined by underwater observation in a nursery stream to determine the preferred depths, current speeds and substrates. Each focal point characteristic was analysed with respect to fish activity and age (in months after emergence). Underyearling brown trout in the Kahuterawa stream were found to use focal points with different physical characteristics for different activities. As they aged the Kahuterawa trout moved into swifter, deeper water.

The Physical Habitat Simulation (PHABSIM) of the Instream Flow Incremental Methodology (IFIM) was examined by obtaining habitat use curves from the focal point data, which were compared with habitat relative preference curves. Habitat relative preference curves examine habitat use in relation to habitat availability. It is concluded that habitat relative preference curves should be developed for each activity class of each life stage of the target species. In the case of brown trout, emergent fry should be considered a separate life stage from fingerlings. PHABSIM is criticized because it takes little account of cover and current shelter which are shown to be important factors in focal point choice.

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