Behaviour and habitat use of young-of-the-year Atlantic salmon (*Salmo salar*) at the onset of winter in artificial streams

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With 6 figures and 3 tables

Abstract: Behaviour and microhabitat use of young-of-the-year Atlantic salmon (*Salmo salar* L.) was studied in six trials of four subsequent days between 8 September–20 November 2000 (13.8 °C to 1.8 °C) in artificial flumes. When the temperature decreased, movements and aggressions by young salmon also decreased. Although the decline in activity was more evident in daytime compared to nighttime, salmon remained more active and aggressive during the day than the night throughout the study. Temperature also affected microhabitat use; salmon used gradually lower water velocities, were located closer to cover and increased their use of low velocity shelters as the temperature decreased. The most pronounced changes in behaviour and microhabitat use took place in temperatures near 10 °C. Juvenile salmon also changed their behaviour and microhabitat use gradually during the four subsequent study days of each trial. Salmon showed a diel pattern of behaviour, they were found closer to cover at night compared to during the day, irrespective of temperature. Temperature is a major factor affecting both behaviour and habitat use of young Atlantic salmon, fish can adapt to decreasing temperatures by minimising their energy expenditure and possible risk. However, other factors, such as food availability, may also interact with temperature in determining behavioural patterns.

Key words: Temperature dependent activity, microhabitat use, diel pattern of behaviour.

Introduction

The behaviour of fish, like other ectothermic animals, is largely mediated by temperature. Fish become less active as the temperature decreases, and their