

OVIDIO, M., BARAS, E., GOFFAUX, D., BIRTLES, C., PHILIPPART, J.C., (1997). Environmental unpredictability rules the autumn migrations of trout (*Salmo trutta*) in the Belgian Ardennes. In *Abstract book of the Second conference on fish telemetry in Europe*. La Rochelle (France), 5-9 April 1997.

Abstract

This telemetry study aimed to document the mobility of *Salmo trutta* in the River Ourthe sub-basin (tributary of the River Meuse) during summer and autumn, and to analyse the environmental factors which trigger spawning migration or limit their extension. Nine trout (233-2217 g and 26.6-55.2 cm FL) were radio-tagged with intraperitoneal radio transmitters and positioned daily, from 14 August 1996 to 15 January 1997.

Until 1 October, fish showed restricted movements: daily journeys never exceeded 300 m and corresponded to displacements by high floods or to routine home range movements. From 7 October to 15 November, seven of the nine trout travelled upstream over distances from 5.6 to 20.25 km, into tributaries and sub-tributaries. Migration speed was fast during the early days, when trout could travel over more than 5 km per night, then progressively decreased as they were approaching putative spawning redds under lower temperature. Both in the River Ourthe and in the Aisne stream, all migrations started within less than three weeks (early October) and were found to be triggered by the combination of three environmental factors: high variations of water temperature and water level between consecutive days, within a thermal range of 10-12 °C. From the trout point's of view, these may be signs that the environment becomes unpredictable, as its variability increases within a thermal range which no longer enables them to achieve high growth rates. These results are discussed within the context of foraging strategies, life history strategies and management of trout population.