Quantitative sampling of 0-group fish populations in large lowland rivers: point abundance sampling by electric fishing versus micromesh seine netting

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With 3 figures and 3 tables

Abstract: This paper compares the density and population structure of 0-group fishes obtained from simultaneous quantitative point abundance sampling using electric fishing with a special electrode design, comprising a 10-cm diameter, spherical anode inside a 70-cm cathode frame, and micromesh seine netting surveys on the River Trent, England, over a four-month period.

Point abundance sampling was effective at catching fish as small as 5 mm in length, whereas fish <15 mm were found to escape through the mesh of the seine nets. Point abundance sampling produced higher densities of 0-group fish in May and June than seine netting, linked primarily to the inability of seine netting to catch fish <15 mm, but the situation reversed in July and August. In all months, a significant difference was found between the mean fork length of fish caught by the two methods (P<0.01), with those captured by point abundance sampling being smaller than those captured by seine netting. The usefulness of point abundance sampling for estimating density as the fish get larger and more mobile is questioned. It is recommended that point abundance sampling is used in conjunction with other sampling methods to assess quantitatively the status of juvenile fish populations.

Key words: Point abundance sampling, electric fishing, micromesh seine netting, 0-group fishes.

Introduction

In recent years, there has been growing concern about a decline in the coarse fisheries of many large lowland rivers across Europe, and this has been im-