Alizarin mark retention in the otoliths of whitefish (*Coregonus lavaretus* f. *lavaretus* L.) from Lake Łebsko, Poland

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with 2 figures and 3 tables

**Abstract:** During the spawning migrations of whitefish (*Coregonus lavaretus* f. *lavaretus* L.) to Lake Łebsko in Poland during 2009 and 2010, a total of 276 individuals was caught and analysed to determine the retention time of alizarin red S (ARS) marks in their otoliths following marking in 2004 and 2005. ARS marks were visible in the otoliths of 89 specimens, with the oldest fish having an age of 5+. Such mark retention of in excess of 5 years means that bath-marking with ARS is a valuable method for monitoring whitefish from Lake Łebsko during a current recovery programme for this endemic population.

**Keywords:** Fish marking, alizarin red S, mark retention.

**Introduction**

The fish marking method developed by Hettler (1984), consisting of fish immersion in solutions of fluorescent dyes, created new possibilities for monitoring populations of endangered species. Previous studies concerned with the use of fish marking by means of fluorochromes have focused only on the application itself or on qualitative aspects of such activities (Blom et al. 1994, Brooks et al. 1994, Beckman & Schulz 1996) and were of an experimental nature. Chemical marks, in contrast to other tagging methods, are the most suitable tools for the evaluation of large-scale stocking of small juveniles (Baer & Rösch 2008) because such methods must be suitable for application to large numbers of small fish, handling stress should be kept to a minimum, markers should be retained for several months, and the marking process and

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