

Age and growth of European barbel



Suspected of being in decline, the European barbel *Barbus barbus* population of the River Lee, a heavily-modified river in South East England, has been the subject of investigations to identify factors associated with perceived population decreases. Population surveys between 1995 and 1999 captured a total of 912 individuals, and standard length (SL) frequency analyses between years suggested that the population decline was not related to juvenile recruitment but rather to a recruitment bottleneck in fish 300–340 mm SL. This bottleneck probably results from insufficient available habitat suitable to this size class. Of the sampled fish, scales were removed from 764 and were used in a scale ageing exercise among three researchers. Analyses of their independent age estimates revealed variable interpretations, which arose from uncertainties relating to the difficulty of analysing scale patterns from relatively large, slow-growing fish. Nevertheless, error was within published acceptable margins, and age estimates revealed *B. barbus* in the river to age 10 years, lower than in many UK rivers. The SL-at-age growth curve was characterised by very fast growth in the initial years of life. Thus, the causal factors in the decline of this *B. barbus* population appear to have been in the adult life-

stage habitat and were likely related to the loss of longitudinal connectivity, mainly due to the presence of water retention structures. River and aquatic ecosystem remediation strategies should therefore focus on enhancing longitudinal connectivity in conjunction with the ongoing improvement of water quality and ecosystem integrity.

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