

University of South Bohemia
Faculty of Science

**Littoral age 0+ fish distribution in
relation to multi-scale spatial
heterogeneity of a deep-valley reservoir**

RNDr. Thesis

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ANNOTATION

The distribution of the littoral age 0+ fish assemblage was studied with respect to spatial heterogeneity of a deep-valley reservoir over the entire growing season. The abundance and diversity of age 0+ fish were also examined in different habitat types along the longitudinal profile of the reservoir during the daytime.

DECLARATION [in Czech]

Prohlašuji, že svoji rigorózní práci jsem vypracoval samostatně pouze s použitím pramenů a literatury uvedených v seznamu citované literatury.

Prohlašuji, že v souladu s § 47b zákona č. 111/1998 Sb. v platném znění souhlasím se zveřejněním své rigorózní práce, a to v úpravě vzniklé vypuštěním vyznačených částí archivovaných Přírodovědeckou fakultou elektronickou cestou ve veřejně přístupné části databáze STAG provozované Jihočeskou univerzitou v Českých Budějovicích na jejích internetových stránkách, a to se zachováním mého autorského práva k odevzdanému textu této kvalifikační práce. Souhlasím dále s tím, aby toutéž elektronickou cestou byly v souladu s uvedeným ustanovením zákona č. 111/1998 Sb. zveřejněny posudky školitele a oponentů práce i záznam o průběhu a výsledku obhajoby kvalifikační práce. Rovněž souhlasím s porovnáním textu mé kvalifikační práce s databází kvalifikačních prací Theses.cz provozovanou Národním registrem vysokoškolských kvalifikačních prací a systémem na odhalování plagiátů.

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Michal Kratochvíl

AUTHOR'S CONTRIBUTION

The RNDr. thesis is based on the following paper:

Kratochvíl, M., Mrkvička, T., Vašek, M., Peterka, J., Čech, M., Drašík, V., Jůza, T., Matěna, J., Muška, M., Sed'a, J., Znachor, P. & Kubečka, J., 2012. Littoral age 0+ fish distribution in relation to multi-scale spatial heterogeneity of a deep-valley reservoir. *Hydrobiologia* 696, 185-198 (IF = 1.784).

Michal Kratochvíl was responsible for the sampling arrangement and surveys, the sample processing and writing the manuscript.

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Littoral age 0+ fish distribution in relation to multi-scale spatial heterogeneity of a deep-valley reservoir

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Abstract Littoral age 0+ fish were studied with respect to spatio-temporal heterogeneity in the deep-valley Římov Reservoir (Czech Republic) from June to October 2007 using point abundance sampling by electrofishing. The abundance and diversity of age 0+ fish in different types of littoral habitats were examined along the longitudinal gradient of the reservoir during daytime. The impact of some physical attributes of the studied littoral habitats, e.g. slope steepness and substrate size, along with the season was the main factors affecting the distribution of age 0+ fish. The level of structural complexity was not a strong determinant, because the overall diversity and structural complexity of the available littoral habitats

were relatively too low to have greater impact on the age 0+ fish distribution. The physical factors markedly influenced the spatial segregation between the two most important taxa in the reservoir—percids and cyprinids. Perch was the only representative of age 0+ percids in the littoral zone, which occupied steep-sloped habitats early in the season. In contrast, gently sloped habitats were mainly occupied by cyprinids later in the season. Species diversity was reflected in the occurrence of age 0+ cyprinids, achieving a maximum in gently sloped habitats in October. The effect of the longitudinal gradients on age 0+ fish distribution and diversity was generally far less significant, but was rather decisive during the period of a pronounced longitudinal trophic gradient during the summer season.

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Introduction

The distribution of age 0+ fish as well as their interactions with prey and/or predators in highly structured littoral habitats has been documented in numerous studies from natural lakes and shallow reservoirs (Bryan & Scarnecchia, 1992; Jacobsen & Berg, 1998; Hülsmann et al., 1999; Lewin et al., 2004; Okun & Mehner, 2005; Dembski et al., 2008). Less attention has been focused onto the littoral zone of