

Spatial and Temporal Variation of Black Bass Population Dynamics in the Upper Ohio River: Insights from Five Years of Standardized Sampling

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Black bass, including largemouth bass (*Micropterus salmoides*), spotted bass (*Micropterus punctulatus*), and smallmouth bass (*Micropterus dolomieu*), are highly pursued sportfish (~20% of total fishing effort) in the upper Ohio River. Past research has suggested that black bass population dynamics are spatially and temporally variable across Ohio River pools. To effectively manage these important recreational fisheries, biologists need to understand the variation in abundance, reproductive success, growth, and mortality and ideally the mechanistic drivers affecting this variation. In 2005, the Ohio Division of Wildlife initiated a standardized black bass sampling program in 10 bordering navigational pools of the Ohio River. The purpose of this study is to explore variations in abundance and population dynamics of black bass from the first five years of this sampling program, identify possible abiotic and biotic mechanistic drivers, and inform future monitoring and management decisions. Shoreline electrofishing surveys were conducted in the dam tailwaters, embayments, and tributary mouths of 10 upper Ohio River pools. Population assessments (N = 29) were conducted at least four of the five years in four pools (intensive pools) and at least twice in all but one of the other six pools (extensive pools) during September 2005-2009. Largemouth bass catch rates were greater than smallmouth bass and spotted bass catch rates in the lower six pools whereas smallmouth bass catch rates were greater than largemouth and spotted bass catch rates in the upper pools. Spotted bass were ubiquitous across pools but catches were generally low. For all three species, growth rates were high and did not exhibit spatial or temporal trends. Reproductive success, as indexed by age-0 catch-per-effort, was highly variable across both pools and years. Spatial and temporal trends in mortality will be explored using catch curve analyses. The physical, hydrological, and chemical characteristics of the Ohio River change substantially across time and over the 724 km reach in which this study was conducted, and the subsequent changes in the dynamics of the black bass populations that reside in these waters presents a challenge to the effective management of these populations.