

Characteristics of Spotted Bass in Southeast Kansas Streams

by

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ABSTRACT

Spotted bass *Micropterus punctulatus* are a popular sportfish in streams and reservoirs throughout the southeastern U.S. Despite their popularity there is a paucity of research regarding population characteristics, habitat requirements, and vulnerability to angling, especially in streams. The purpose of this study was to investigate age and growth, influence of abiotic and biotic habitat variables on population characteristics, and angling vulnerability of spotted bass in southeast Kansas streams.

Study sites were selected throughout the native range of spotted bass in Kansas. Spotted bass were sampled by electrofishing, and 36 habitat variables were measured at 19 study sites. Linear regression analysis (single and multiple) was used to determine relationships between habitat variables and density, biomass, catch per effort (CPE) relative weight (Wr), and growth.

Mean back-calculated length at age 2 varied from 139 mm to 263 mm. Mean ultimate length (L) was 495 mm for spotted bass in streams compared to 450 mm for spotted bass in Kansas reservoirs. Variability in density was best explained by area of rootwads ($P=0.002$, $r=0.70$), and percent pebble substrate ($P=0.004$, $r=0.64$). Biomass of spotted bass was positively correlated with area of logs ($P=0.001$, $r=0.75$). Catch per effort for quality-length (>280 mm) spotted bass was positively correlated with area of bank roots ($P=0.01$, $r=0.64$) and area of rootwads ($P=0.0001$, $r=0.84$). Relative weight (Wr) was negatively correlated with biomass ($P=0.001$, $r=-0.71$) and mean back-calculated length at age 3 was positively correlated with overall mean Wr ($P=0.008$, $r=0.89$). These data indicate that habitat, especially woody debris, influences spotted bass populations in Kansas streams.

Standardized angling was conducted on three streams to study the vulnerability of stock-length (>180 mm) spotted bass to angling. Mean angler CPE was 0.26 fish/h and potential harvest was 2.7 fish/ha. Percent of the spotted bass population that was vulnerable to harvest varied from 0% to 15.4%. Thus, it is likely that 43% of spotted bass > 180 mm could be harvested in 19.0 h (five angler trips). These data illustrate the vulnerability of spotted bass to angling.