

ABSTRACT

THESIS: Morphometric variation of bluegill and green sunfish in lentic and lotic systems

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Bluegill and green sunfish were examined using geometric morphometrics to evaluate the variation in morphology between fishes that reside in lentic (e.g., lakes) and lotic (e.g., streams) ecosystems. Fishes were collected from reservoirs and rivers in central Indiana. Additional fish were sampled from museum collections at Ball State University and the Illinois Natural History Survey. Male and female bluegill and female green sunfish from lentic systems displayed a deeper body than those from lotic systems, while no differences were found in male green sunfish morphometry. A deeper body promotes greater maneuverability, typically desirable in lentic systems. In contrast, the more streamline body of the fish found in lotic systems reduces drag as it contends with flowing water, ultimately maximizing energy efficiency. The absence of morphological difference, such as those found in male green sunfish, may be caused by fish occupying both lentic and lotic systems, from the population not having been present in the body of water long enough to display any adaptations, or from a lack of statistical power caused by the small sample size.