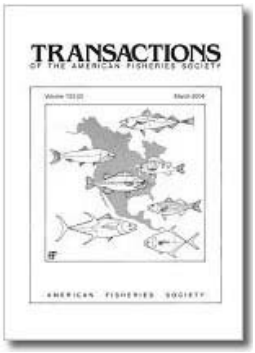

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Modeling Predation as a Source of Mortality for Piscivorous Fishes in a Southeastern U.S. Reservoir

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Abstract

We investigated the possibility that the survival of piscivorous fishes in **Norris** Reservoir, Tennessee, was reduced due to individuals being consumed by other piscivorous fishes. Black basses (smallmouth bass *Micropterus dolomieu*, spotted bass *M. punctulatus*, and largemouth bass *M. salmoides*) were the only piscivores consumed and were eaten only by other black basses. The total prey consumption for black bass populations was estimated via bioenergetics models. The effect of density-dependent survival was incorporated by modeling survival–density relationships based on estimates of densities in consecutive years. Survival for black basses decreased with increasing density. As a result, predation was projected to be a compensatory source of mortality that failed to reduce overall survival, even though we estimated that 85% of black basses were consumed during one year. The projections from the survival–density models indicated that these species were resistant to decreases in overall survival when densities and levels of predation were varied.

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