

## Linking Bluegill and Gizzard Shad Prey Assemblages to Growth of Age-0 Largemouth Bass in Reservoirs

James E. Garvey and Roy A. Stein

**ABSTRACT** - Either gizzard shad *Dorosoma cepedianum* or bluegill *Lepomis macrochirus* dominate prey assemblages in many small (< 100 ha) Ohio reservoirs. Because gizzard shad spawn early in the spring and their offspring grow rapidly, age-0 gizzard shad may be invulnerable to age-0 largemouth bass *Micropterus salmoides*, thereby compromising this piscivore's growth and, potentially, recruitment. To test this hypothesis, we quantified growth, abundance, and diets of age-0 largemouth bass in reservoirs dominated by age-0 bluegill (one reservoir) or age-0 gizzard shad (two reservoirs) during June through early-October, 1992-1994. In the bluegill-dominated reservoir, age-0 largemouth bass grew slowly (about 0.04 g/d) during June through mid-August. Though age-0 bluegill became abundant after mid-August contributing to rapid growth (about 0.2 g/d) of age-0 largemouth bass, these age-0 largemouth bass only reached small to moderate sizes by fall (range of mean wet weights = 3-7 g). In the gizzard shad-dominated reservoirs, summer growth and fall sizes of largemouth bass varied among systems and years. During one summer in one reservoir, an early rise in temperature plus small age-0 gizzard shad likely contributed to rapid growth (- 0.12 g/d) and large fall size (mean wet weight = 10.8 g) of age-0 largemouth bass. More commonly, age-0 largemouth bass grew slowly or moderately (- 0.06 g/d). However, fall sizes always were equivalent to or exceeded those in the bluegill-dominated reservoir (range of mean wet weights: 3-11 g). Our results suggest that growth of age-0 largemouth bass should vary more in gizzard shad-dominated systems than in bluegill-dominated ones. Management efforts that increase gizzard shad vulnerability during early summer may reduce this variability, thereby enhancing first summer growth and, potentially, recruitment success of largemouth bass.