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Density-dependent changes in individual foraging specialization of largemouth bass

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Abstract Individual foraging specializations are an important source of intraspecific variability in feeding strategies, but little is known about what ecological factors affect their intensity or development. We evaluated stomach contents in marked individual largemouth bass (*Micropterus salmoides*) and tested the hypothesis that diet specialization is most pronounced during periods with high conspecific densities. We collected diet data over 10 years from an unexploited population of largemouth bass that displayed a greater than threefold variation in density. Although diet composition of the aggregate bass population did not change during the study, bass body condition was inversely correlated with population size. Individual marked bass exhibited high diet consistency (diet overlap between successive captures) during years with high population densities. Diet overlap between randomly assigned pairs of bass was not correlated with population size. We did not detect the expected positive relationship between diet breadth and population size. Our analyses demonstrate that population responses to density changes may represent the sum of many unique individual foraging responses and would be obscured by pooled sampling programs. Behavioral flexibility of individuals may contribute to the ability of largemouth bass to function as a keystone predator in many aquatic communities.

Key words Density dependence · Diet consistency · Intraspecific variability · Keystone predator · Largemouth bass

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