

ABSTRACT

The objectives of this study were to determine the growth and diet of two coexisting populations of yellow perch (*Perca flavescens*) and white sucker (*Catostomus commersoni*) in order to assess potential axes of competition between the two species. Perch in both Little Bear Lake and Douglas Lake were "stunted", with 4-year old perch averaging less than 130 mm in length. The diet of young-of-the-year perch shifted from zooplankton to benthos in July. Adult perch shifted back to a diet of zooplankton during the second summer of life. Suckers initially fed on zooplankton, but quickly shifted to a diet of benthos. The low diet overlap observed may be an indication of little competition between the two species, or it may indicate depletion of benthos by sucker predation to the point where perch are competitively excluded from utilizing this resource.

INTRODUCTION

Yellow perch (*Perca flavescens*) are a highly valuable sport fish in Michigan, providing approximately 20% of the catch from inland lakes and 72% of the non-salmonid catch from the Great Lakes (Jansen 1985). Growth of yellow perch in inland lakes is sometimes poor, producing fisheries of low quality. In a workshop sponsored by the Michigan Department of Natural Resources, slow growth or "stunting" of bluegills (*Lepomis macrochirus*) and yellow perch ranked second behind insufficient public access among key problems identified by fishery managers and fishery user groups (Scott et al. 1985).

Stunted populations of yellow perch (including the closely related European perch, *Perca fluviatilis*) are thought to be the result of food limitation, especially in the availability of benthic invertebrates (Schneider 1972; Persson 1986). In lake systems where perch growth is relatively rapid, they often show an ontogeny of diet from zooplankton to benthos and finally fish or crayfish (Schneider 1972; Clady 1974; Elrod et al. 1981). When benthic food resources are scarce, perch are unable to switch to larger food items and a bottleneck in the growth of yellow perch may occur, with stunting the result. Intraspecific and interspecific exploitative competition (Pielow 1974) are commonly implicated as factors controlling the availability of benthic prey resources to yellow perch (Alm 1946; Schneider 1972; Persson 1983; Hanson and Leggett 1985). Some of the species that have been observed to compete with yellow perch or European perch are white sucker (*Catostomus commersoni*) (Johnson 1977; Schneider and Crowe 1980), pumpkinseed (*Lepomis gibbosus*) (Hanson and Leggett 1985), and roach (*Rutilus rutilus*) (Persson 1983). The mechanisms causing decreased growth, abundance, or recruitment of perch are only well known in the study by Persson (1986), where removal of 70% of the