Introduction

During the past decade Department of Natural Resources biologists have increasingly been involved with attempts to establish or enhance walleye (Stizostedion vitreum vitreum) populations throughout Michigan. In many localities, but especially in southern Michigan, scarcity of natural reproduction requires that walleye enhancement programs be supported by periodic plants of fingerlings. To maximize the results of this effort, information is needed on the conditions under which a fisheries manager can anticipate optimum survival and growth of planted walleye fingerlings.

Attempts to establish walleye populations in lakes dominated by bluegills (Lepomis macrochirus) have been particularly unsuccessful. However, in one bluegill lake (Beyerle 1976), survival of 10-cm walleye fingerlings planted at 111 per hectare in 1972 and 1973 to fall 1975 was 35.2% and 21.2%, respectively. Survival of the walleyes evidently was enhanced by the presence of an adequate supply of food (young bluegills) and absence of predators. Thus there is evidence that, given an abundant food supply and a minimum of predators, good survival of relatively large walleye fingerlings can occur. Because of the various difficulties in raising large quantities of walleye fingerlings to 10 cm or larger, the present study compared the survival and growth of three sizes of walleye fingerlings in ponds with bluegills, with the aim of determining the feasibility of planting smaller (5 cm) walleyes.

Procedure

In fall 1975, all fish were removed from three research ponds at Belmont, Kent County. In April 1976, all three ponds were restocked with adult bluegills (22 per kg) at the rate of 23 kg per ha. In June-September, 390 5-cm walleye