

**ABSTRACT**

The sizes of native warmwater fish populations in Cassidy Lake, principally bluegill (*Lepomis macrochirus*), pumpkinseed (*Lepomis gibbosus*), yellow perch (*Perca flavescens*), and largemouth bass (*Micropterus salmoides*), were estimated in 1964 and again in 1987. The lake was treated with rotenone in 1964 to achieve a total fish kill and an experiment using only yellow perch was conducted until 1969. Subsequently, native fish species were restocked in minimal numbers and the lake was then left unmanaged and scarcely examined for 18 years until the present study. A comparison between the two data sets indicated that the 1964 and 1987 fish communities generally were similar in numbers, survival rates, size at age, and growth patterns of important species, and in relative numbers among species. Fish populations in 1987 also had reattained several characteristics which were associated with lakes identified as being good for fishing. The few exceptions to the similarity of data sets were not compelling. Size and age distributions of yellow perch and largemouth bass appeared to have changed between 1964 and 1987, but at least part of these changes was due to differences in selectivity of the sampling gear used in the two studies. Abundance of some minor species fluctuated between study years, but not to the extent that any patterns or ecological changes could be inferred. Future studies should seek to identify dynamic interactions among the biological, physical, and/or chemical characteristics of lakes to determine how and why fish communities tend toward different states of equilibrium.