

Abstract

The 1980-1981 on-site creel census of the Michigan waters of Lake Erie and the Detroit River provided the first accurate assessment of sportfishing harvest and effort in these waters.

In 1980, total shore and boat angler harvest in Lake Erie was an estimated 1,037,000 fish; in 1981 harvest was only 485,100 fish; however combined with the winter catch it totaled 1,168,900 fish. Six times more fish were caught by boat than by shore anglers during the 2-year census. Yellow perch comprised 82% of the total harvest in 1981. Ice fishing in 1981 on Lake Erie yielded more yellow perch in 2 months than the catch of all species combined for the remainder of the year. Two and 3-year-olds were the most numerous in the walleye catch in 1980 and 1981. Age IV walleyes were the next most numerous in the 1981 catch, due to persistence of a very strong 1977 cohort. The catch of white bass consisted mainly of age II and III fish in 1980, and age I fish in 1981.

In 1980, total shore and boat angler harvest in Detroit River was an estimated 697,000 fish; in 1981 harvest was only 489,000 fish. Several species comprised the bulk of the Detroit River harvest, contrasting to the dominance of yellow perch in the Lake Erie catch. White bass were the most numerous in the 1980 and 1981 catch, followed by yellow perch, freshwater drum and walleye. The boat angler catch rate of white bass was 9 times and walleyes 10 times the catch rate of shore anglers. The 1977 year class of walleyes was the most numerous in both 1980 and 1981. Survey netting indicated walleye stock density in Lake St. Clair increased greatly in recent years due to the occurrence of several strong cohorts. The 1977 year class, which contributed heavily to the Detroit River and Lake Erie angler harvest, was numerically dominant in the net catches. The white bass fishery, concentrating on spawning

fish in the lower half of the river, consisted mainly of age II, III, and IV fish in 1980 and age III and IV fish in 1981.

Nearly 18,000 walleye were tagged between 1974 and 1982 at sites located in west and east Anchor Bay of Lake St. Clair, west Lake Erie and south Lake Huron. Nearly all of the 1,491 tags returned came from anglers. Tag returns indicated substantial movement of walleyes into the Detroit River from western Lake Erie and from Anchor Bay into the St. Clair River. Most springtime returns came from the Thames River of Lake St. Clair and the Maumee River of western Lake Erie, confirming the importance of these streams for spawning.

Using maximum likelihood procedures with tag recovery data, the mean survival rate for Anchor Bay walleyes was estimated to be 51.2% and for western Lake Erie walleyes 57.7%.

A program of monetary rewards for tag returns started in Anchor Bay in 1981 for the purpose of measuring discrepancies between the number of tags reported and the number actually recovered. Recapture data showed that significant numbers of non-reward tags were not being reported. Apparent exploitation rate increased from the mean annual tag reporting rate of 4.9% to 9.7%. Estimates of instantaneous fishing and natural mortality were 0.13 and 0.54, respectively.