

ABSTRACT

Sportfishing catch and effort were sampled for 27 Lake Michigan ports and 10 important river systems during the 1985 open-water season and the winter months of 1985 and 1986. The objective of the creel census was to obtain a monthly record of sport catch, catch rates, fishing effort, and catch composition for Lake Michigan and important anadromous river fisheries.

Approximately 45,000 anglers were sampled at the end of their fishing trips. Catch and effort estimates were calculated by month for all areas sampled. It was estimated that anglers spent 8,422,842 ($\pm 319,509$) hours fishing the Michigan waters of Lake Michigan and the 10 tributary streams which were censused. Total angler effort by mode of fishing was 81% boat, 12% pier, 5% ice, and 2% shore. St. Joseph-Benton Harbor was the busiest port in terms of angler hours on Lake Michigan. The Manistee River had the greatest amount of angler activity of the 10 streams sampled.

Total harvest was estimated to be over 4.0 million fish. The yellow perch were the most abundant species in the sport catch, totaling an estimated 2,673,415 ($\pm 281,594$) fish. In addition, sport anglers harvested an estimated 862,633 ($\pm 56,520$) salmonids from Lake Michigan. The salmonid catch was composed of 59% chinook salmon, 16% lake trout, 13% coho salmon, 6% brown trout, 5% rainbow trout, and less than 1% of other salmonids such as pink salmon, Atlantic salmon, brook trout, and splake.

INTRODUCTION

Michigan's Lake Michigan sport fishery was monitored with an intensive creel census during 1985 and the winter months of 1986. The objective of the program was to obtain a monthly record of sport catch, catch rates, fishing effort, and catch composition for the Great Lake and important anadromous river fisheries.

A fundamental requirement for sound management of the Lake Michigan sport fishery is knowledge of the response of fish stocks to fishing and the contributions of various fish stocks to the fisheries. The success and the future value of the open water and anadromous stream fisheries depends on the long-term consequences of current management. It is essential that management decisions be based on a sound empirical knowledge of the history, current status, and dynamics of the fish communities.

Fishing statistics are needed for stock assessment and to facilitate stock identification. Coupled with fish marking studies, these kinds of data can identify Great Lakes and anadromous fish stocks and determine their spatial distribution, movements, and contribution to various sport fisheries. In future years, data collected from this program could be used to develop, test, and improve decision models which will help to discern management strategies for Lake Michigan fish communities and fisheries.

During the 1985 open-water fishing season, angler catch and effort were sampled at 27 Lake Michigan ports and fishing areas. In addition, 10 important anadromous river fisheries tributary to Lake Michigan were sampled. During the winter months of 1985 and 1986, ice fisheries on two Lake Michigan embayments were also sampled.

Michigan Department of Natural Resources (MDNR) Fisheries Division personnel interviewed approximately 45,000 anglers on Lake Michigan at the end of their fishing trips during 1985 and the winter months of 1986. Most of these anglers were contacted during the April through November open-water season.

STUDY AREA AND METHODS

During the 1985 open-water season, an intensive creel census was conducted at all important ports and sportfishing areas of Lake Michigan from New Buffalo to Harbor Springs in the Lower Peninsula, and from Manistique to Menominee in the Upper Peninsula (Figure 1). During the winter months of 1985 and 1986 ice fisheries were also sampled on Little Bay de Noc and Grand Traverse bays, respectively.

The creel census used in Michigan is based on a stratified design using simple random sampling within strata. Strata included port fished by month by weekday-weekend (holiday) and by mode of fishing. Catch and effort estimates were made for each strata and then