Original: Fish Division
cc: Fish Division
Mr. Washburn
Education-Game
Mr. J. G. Marks

INSTITUTE FOR FISHERIES RESEARCH
DIVISION OF FISHERIES
MICHIGAN DEPARTMENT OF CONSERVATION
COOPERATING WITH THE
UNIVERSITY OF MICHIGAN

ALBERT S. HAZZARD, PH.D.
DIRECTOR

ADDRESS
UNIVERSITY MUSEUMS ANNEX
ANN ARBOR, MICHIGAN

November 11, 1943

REPORT NO. 900

EXPERIMENTAL NETTING OF CISCO IN BIRCH LAKE, CASS COUNTY

(TENTATIVE PROGRAM FOR FALL OF 1943)

by

George N. Washburn

Introduction

Birch Lake has a surface area of 309 acres and lies in the east central part of Cass County. The results of an Institute survey indicated that this lake possessed suitable trout water which subsequently led to an experimental fisheries management program calling for the planting of trout and cessation of all other fish stocking. The first planting of trout in the lake following the survey was in 1937, the planting consisting of lake trout. Since then additional plantings have been made including brook and rainbow trout. The last planting made in 1940 and subsequent plantings consisted of marked fish. These fish were marked by the removal of certain fins to identify them from previous plantings and possible naturally spawned fish. Since the initial plantings a considerable amount of research has been conducted as to survival, growth, reproduction and fishing quality. It has been a policy of the fisheries program to keep an accurate record of the catch in the lake, and certain regulations have been in operation to attain this end.

Birch Lake contains a large population of ciscoes in addition to the trout. Previous to the introduction of trout and up until 1940, ciscoes

were legally taken by gill nets in the fall of the year by local fishermen. Since this time the netting of cisco has been prohibited because it was determined that trout were taken in nets along with the cisco. It was felt that further research in this field was needed before considering the advisability of again opening this lake to fall cisco netting, as these regulations (Act 247 P. A. 1919) may or may not be adequate to protect other species present in the lake.

A project to investigate the taking of ciscoes by nets will be conducted this fall. By using different kinds of nets of various lengths, depths and mesh size, and by setting these nets in different depths at various locations during various hours of the day and night, it is hoped that sufficient data can be compiled to ascertain whether or not the present regulations are the best possible and if not, to propose recommendations for changes. It may be possible to harvest the ciscoes in this lake without injuring trout or other game fish if certain methods are used, and the same regulations may be applicable to other lakes presenting the same problem.

Cisco Netting Investigation

Ciscoes are expected to begin spawning activities in Birch Lake sometime in the latter part of November or early December and should continue for about ten days or longer. The tentative plan is to be at Birch Lake a little before the season begins and to remain there until it is over or netting operations become impossible due to ice conditions. Mr. Scholma of the Institute staff, who is located at the lake, will assist in the project.

The kind of nets to be used in this project are as follows: Gill nets of different lengths and mesh size, fyke nets, seines, and dip nets (with lights).

The above nets will be set in various depths at different locations; some will be set in deep water, others on shoal areas; some will be resting on bottom, while others will be floated from the surface. It is planned to mark each gill net in linear sections and the fishes taken from these nets will be recorded as coming from a specific section.

The reason for making these various sets is to learn more about the distribution and migration of fish in the fall of the year. There may be a possibility that at this time of year ciscoes may be congregated in certain depths of water where other species are absent and the taking of this species could be accomplished with little interference with other fish.

Another phase of the investigation will be to determine if the position of the set (in relation to the shoreline) has any effect on the fishing qualities of a net. As an example, would a net set parallel to shore capture more fish than if it were set perpendicular. This would depend a great deal upon the directional movement of fishes. Some are expected to move directly from deep to shallow water and others to move along the banks parallel to shore. In order to obtain a little data on this subject, it is planned to make some parallel and perpendicular sets and at various intervals to reverse the procedure, using the same nets.

The last point of the cisco netting problem to be investigated is to determine which period of the day or night is the most suitable for the taking of ciscoes. Ciscoes are considered as being more active in the evening during the spawning season than at any other period of the day and it is expected that the most successful capture will be made at this time. However, there may be other hours at which ciscoes can be taken relatively easy. To attack this problem it is planned to set nets at intervals of several hours during a 24-hour period. Some of these nets will be lifted in a few hours while others will remain for a longer period.

Recording of Data

A field record sheet (copy attached) has been prepared which will be used for each net and set made. Each net used will be described as to kind, length, width, and mesh size, and given a number. The descriptive data pertaining to the nets will be kept in the office file and only the net number will appear on the field sheet. In this way additional space on the field sheet can be provided for other pertinent data. The station location of the set will be given a number on a provided field map and likewise be recorded on the field sheet for future references.

Information is to be obtained for which no space is provided on the field sheet as follows: scale samples should be collected from a large series of ciscoes and also from all trout taken. Any fish which are lightly caught and not needed for specimens will be returned alive after data are taken. Stomach samples are desirable from some of the trout for future food studies and all small unmarked trout are to be preserved and saved.

Observations On the Spawning and Feeding Of Cisco

Complete data are lacking on the feeding and breeding habits of cisco. The proposed study should afford opportunities to fill in some of the gaps in our knowledge of the life history of this fish.

Results From Various Trout Plants and From Possible Natural Reproduction

In addition to the information which may bear on future regulations for taking cisco, it is expected that the netting may yield additional information concerning the results of various marked plantings of trout. Also netting may disclose the presence of small, unmarked trout of various species which would prove that they have spawned successfully in the lake.

The planting of 4,000 marked legal rainbow trout will be deferred this year until the netting is over.

Disposal Of Fish

In a conference at Lansing on October 28, the disposal of ciscoes and suckers taken in the netting was discussed by Dr. Hazzard and Mr. Westerman. It was agreed that:

(1) The fish should be sold locally at a price somewhat below the prevailing market.

(2) The number or poundage sold to any individual shall be limited to whatever amount seems appropriate to assure an equitable distribution of the catch.

(3) Any trout or other game fish killed by the nets shall be preserved as specimens and shall be brought to Ann Arbor for further study and disposal.

INSTITUTE FOR FISHERIES RESEARCH

By George N. Washburn

Report approved by: A. S. Hazzard

Report typed by: V. M. Andres

FISH NETTING RECORD

Date_____ Net No._____ Station_____ Wind Dir._____ Sky_____ Temp: Water_____ Air_____ Time set was made_____

Time lifted_____ Type of set: Floating from surface ( ) Bottom ( ) Position to shore: Parallel ( ) Perpendicular ( )

Fish Capture Record

Depth of water: Shallow end_____ Top of net Depth of water: Deep end_____

(1)	(2)	(3)	(4)	(5)

Bottom of net

Directions: Record the fish in the diagrammatic net above in relatively the same position as captured in the net. Use a different symbol for each species and supply a key for symbols used.

Species	Section	Length	Weight	Species	Section	Length	Weight	Species	Section	Length	Weight	Species	Section	Length	Weight

(continued over)

Record marked fish on back. *Preserved as specimens. **Stomach preserved.