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INSTITUTE FOR FISHERIES RESEARCH
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COOPERATING WITH THE
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UNIVERSITY MUSEUMS ANNEX
ANN ARBOR, MICHIGAN

ALBERT S. HAZZARD, PH.D.
DIRECTOR

January 15, 1951

Report No. 1272

Inventory Summary for Long and Baldwin
Lakes, Cass County

By

Clarence M. Taube

Abstract

Long and Baldwin lakes have highly varied fish populations of which the principal game species were found to be experiencing average growth. Fishing success has been reported poor. The relatively small catches taken with gill nets supported other evidence that the productivity of these lakes is low.

The possibility of introducing brush shelters is discussed. Experimentation with angling methods is suggested to utilize more fully the fish which are available. Stocking with trout is recommended.

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Biological inventories of Long and Baldwin lakes (T. 8 S., R. 13 W.), Cass County, were made during the period of September 7-14, 1950. Members of the inventory crew were R.F. Stinauer, J. E. Williams, and C. M. Taube. The lakes were mapped during the winter of 1949 by R. Scholma, G. Van Antwerp, and D. Westphal. The surface areas are 241 acres for Long Lake and 266 acres for Baldwin.

Inventory findings.

Fish of wide variety occur in these waters. Game fishes collected from Long Lake were bluegill, largemouth bass, smallmouth bass, black crappie, warmouth, green sunfish, longear sunfish, yellow perch, and cisco. Species holding less interest for sportsmen that were found included white sucker, redhorse, spotted sucker, grass pickerel, and longnose gar. Fifteen species of minnows and other forage species were seined.

Probably because the collecting activity in Baldwin Lake was somewhat more intensive, an even greater variety of fishes was captured here. Additional species obtained from Baldwin Lake were pike, pumpkinseed, rock bass, yellow bullhead, spotted gar, bowfin (dogfish), and carp. It seems virtually certain that these species also occur in Long Lake, in view of the fact the lakes are connected.

The water of both lakes is quite hard. Methyl orange alkalinity tests gave readings which ranged from 176 to 202 parts per million of dissolved mineral salts in Long Lake; the range for Baldwin Lake was 162 to 185 parts per million. The range of pH (readings from surface to near bottom) was 8.2-7.2 for Long and 8.2-7.3 for Baldwin.

The upper limit of the cold-water layer was at about 20 feet in Long Lake and 25 feet in Baldwin Lake. Dissolved oxygen in quantities sufficient to support fish life occurred to an extreme depth of around 25 feet in Long and 30 feet in Baldwin. Approximately the same limits can be expected to exist at this same time each year. The most critical conditions for deep-water fish occur from July until around the time of the first autumn frost, when cooling of the surface water brings about an overturn of the lakes. The latter results in temperatures and quantities of dissolved oxygen which vary little from top to bottom.

Scales of the game fishes have been examined for information on age and growth. In addition to the inventory collection, scales from collections made at these lakes during the fall of 1949 by C. T. Yoder, District Fisheries Supervisor, also were studied. The game fishes revealed a growth rate which is average for Michigan waters. Long Lake fish generally show a little better growth than those from Baldwin Lake. For both waters, bluegills of Age-Group III (approximately 39 months old) averaged about six inches long; crappies of Age-Group II (about 27 months old) averaged around 7 1/2 inches.

Discussion of conditions for fish and fishing.

With regard to the quality of fishing provided by these waters, Mr. J. G. Wallick has stated that it has never been good during the time he has lived in that locality--since 1932. Mr. Wallick owns a cottage on

Long Lake and apparently is interested mostly in this lake. During the inventory various local people remarked about poor fishing in Long and Baldwin lakes. Occasionally, though, a good catch is taken, and it was said that pretty good bluegill fishing is available in winter--considerably better than that of the summer season. However, it appears that a considerable number of people who own property on these lakes are residents of Indiana and cannot take advantage of the ice fishing because Cass is one of the six Michigan counties closed to non-residents for this sport. Conservation Officer Herbert Lees, who was on duty in Cass County in the 1930's has informed the writer that during the period he was acquainted with Long and Baldwin lakes, fishing was generally poor, although winter angling was fairly productive.

Available evidence, then, shows that the productivity of these lakes is low and that this condition has existed for a long time. Just what factors are responsible for low production are not readily apparent. Judging from similar results given by lakes having physical characteristics comparable to those of Long and Baldwin, it seems possible that the relatively small areas of shoal and a particular consistency of the predominant marl bottom of the shoal (which could limit production of fish food organisms) are significant factors. It is quite pertinent to note that these lakes have physical features similar to Birch Lake, the outflow of which eventually enters Long Lake. Birch Lake also has been characterized by low production of warm-water fishes. This fact is borne out by the creel census which has been in progress there for 10 successive fishing seasons. Gill netting of Birch Lake, when it was inventoried in 1937, resulted in a catch-per-net-per-day figure (4.8 fish) almost identical to the figures produced by comparable netting in Long (4.6) and Baldwin (4.9) lakes. The average catch per gill net for 15 Lower Peninsula lakes inventoried

during the summer of 1950 (including Long and Baldwin) was 11.9 fish (exclusive of gars and trout).

Management.

No practicable means of improving the productivity of these lakes for warm-water fishes is apparent at this time. Research has shown the futility of stocking warm-water species for increasing the yield to anglers. Long and Baldwin lakes afforded ample evidence of good natural reproduction. Moreover, according to reliable reports, fishing here was not appreciably better during the years these waters were heavily stocked with bass and bluegills.

Brush shelters have been put in a number of lakes where it appeared desirable to add cover for concentrating the fish, thereby making them more available to anglers. Long and Baldwin lakes are characterized by pronounced contrasts as to availability of natural cover; several areas support dense stands of aquatic vegetation while other areas have extremely little or no vegetation. The predominant overall scarcity of plant beds would make it seem desirable to install brush shelters. However, the very sharp drop-off at the level where these structures usually are placed (between 10 and 15 feet) may not permit effective installation of shelters due to the difficulty of holding them in place on an abrupt declivity.

While the productivity of these lakes is low, it is thought that experimentation with fishing methods holds good possibilities of improving the return to anglers. Some people take fair catches here. These individuals obviously have developed the know-how of taking fish under the conditions which prevail on Long and Baldwin lakes. Others might well profit from their example, by studying the feeding habits of the fishes and trying a variety of angling methods.

The inventory indicated that these lakes have possibilities for supporting trout. In view of this finding and also because stocking trout in some lakes in the past has considerably augmented the sport provided by these waters, it is recommended that trout be stocked in Long and Baldwin lakes. The stocking rates would be determined and included in planting recommendations for lakes submitted each year by the District Fisheries Supervisor.

INSTITUTE FOR FISHERIES RESEARCH

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Report approved by A. S. Hazzard

Report typed by M. E. Keyser