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

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REPORT NO. 828

A PARTIAL FISHERIES SURVEY OF SHUPAC LAKE,

CRAWFORD COUNTY, AUGUST 13, 1942

by

Leonard N. Allison

This investigation was undertaken at the request of Dr. W. T. Shannon of Detroit, owner of considerable land around Shupac Lake, to determine whether this lake would be best suited for walleyed pike or rainbow trout.

Shupac Lake has an area of 107 acres and a maximum depth of 98.1 feet. The shore is sandy and the bottom is largely marl, with pulpy peat in the deeper portions; only limited areas of gravel are present. It has neither inlets nor outlet. Brush shelters have been placed at various locations in about 15 feet of water.

Species of fish present include bluegills, sunfish, rock bass, largemouth and smallmouth bass, yellow perch, walleyed pike, suckers, and brown trout. Minnows are abundant. One landlocked salmon weighing 12 pounds was reported to have been caught last year. Bluegills are said to reach 10 inches in length and to afford good fishing on occasion. It is said that largemouth bass are few but that smallmouth bass are abundant. I observed many smallmouth bass fry near the shore and numbers of sub-legal smallmouth bass around various brush shelters. Walleyed pike are seldom caught and it is said that only the larger ones, eight to ten pounds, are taken. Brown trout and landlocked salmon are rarely caught and those that are taken weigh five pounds or more. Mr. Frank Wood, cottage owner and resident of Lovells, states that he has observed great numbers of suckers in the spring of the year. Plans have been made to set gill nets in the near future in an attempt to verify the presence of landlocked salmon and to get a series of fish for study.

The following planting data concerning trout and walleyed pike was obtained by examination of the planting records from 1874-91 and from 1919 to date:

Rainbow trout:

1921-----70,000 fingerlings
1922-----15,000 fingerlings
1923-----15,000 fingerlings

Brown trout:

1931----- 3,000 fingerlings

Walleyed pike fry:

1933-----150,000	1937-----600,000
1934-----300,000	1938-----400,000
1935-----270,000	1939-----800,000
1936-----240,000	1940-----400,000

Eggs of landlocked salmon were received by the Grayling Fish Hatchery in the spring of 1921 but no planting record was made. Mr. H. L. Peterson, present Superintendent of the hatchery, says that some fingerlings from this shipment of eggs were planted in Shupac Lake by Mr. T. E. Douglas and that Mr. Douglas had made previous plantings of landlocked salmon which he obtained from the Federal Government.

The following temperatures and oxygen determinations were made on August 13, 1942:

Depth in feet	Temperature, °C.	O ₂ p.p.m.
Surface	23.5	9.6
5.0	22.0	9.4
10.0	21.7	...
15.0	21.4	...
20.0	21.0	8.5
22.5	21.5	...
25.0	20.0	8.6
27.5	17.8	...
30.0	15.9	9.2
32.5	14.2	...
35.0	12.2	8.5
37.5	11.1	...
40.0	9.5	7.8
50.0	7.8	3.1
60.0	6.5	...
70.0	5.9	...
80.0	5.9	0.3
87.5 (bottom)	5.9	...

At the present time the thermocline lies between the 22.5 and 40.0-foot levels, the temperature at 22.5 feet was 21.5°C. and at 40.0 feet was 8.5°C; the oxygen at 22.5 feet was 8.4 p.p.m. and at 40.0 feet was 7.6 p.p.m. The oxygen content dropped rapidly between 40 and 50 feet (3 p.p.m. at 50 feet) and at 80 feet was only 0.3 p.p.m. However, there is a layer of considerable depth having both temperature and oxygen content suitable for trout.

Since Shupac Lake contains only a meager growth of aquatic plants and limited gravel areas, it is not well suited to walleyed pike. The reports of fishermen that walleyed pike are only occasionally caught and are, without exception, large fish seems to indicate that many of the plantings of walleyed pike fry were largely unsuccessful. This is probably a good thing in view of the possibility that smallmouth bass and bluegills would probably be greatly interfered with if walleyes became abundant.

Since Shupac Lake contains suitable trout water the year around it is recommended that an experimental planting of 1,200 legal rainbow be made in this lake late this fall and that an equal number be planted in the fall of 1943. Rainbow trout are suggested in preference to the other species because they have proven themselves to be more suitable to lake conditions of this sort. A yearly check-up or investigations by the district biologist will determine the management policy to be followed after the two year trial.

For the present, the classification should remain unchanged. Should the planting of rainbow trout prove successful the legislature should be requested to open the lake to the taking of rainbow trout in the fall of the year.

INSTITUTE FOR FISHERIES RESEARCH

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