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INTERIM REPORT UPON THE INVESTIGATIONS MADE IN BOAR'S BACK,
TEDFORD AND JESSE LAKES, MAY 1938.

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INTERIM REPORT UPON THE INVESTIGATIONS MADE IN BOAR'S BACK,
TEDFORD AND JESSE LAKES, MAY, 1939.

The purpose of the surveys on Boar's Back and Tedford lakes was to determine if these lakes were in suitable condition for planting trout fry, following the copper sulphate treatment carried out in 1936.

The plankton conditions were investigated in lake Jesse and some angling was carried out.

BOAR'S BACK LAKE

1. Copper sulphate content of the water.

Samples for copper analyses were secured prior to our visit by Capt. A. E. Calder on April 18th. The surface water had a determined content of 0.033 p.p.m. of Cu, or 0.13 p.p.m. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$. Samples taken at half-depth and bottom were contaminated with water from the water-bottle used, so were discarded. Additional samples were taken at these depths on May 5th., but as yet have not been analysed.

2. Plankton

The zooplankton was well represented. Cladocera (Diaphanosoma, Bosmina, Daphnia), Copepoda (Diaptomus, Mesocyclops) were fairly abundant. The phytoplankton was dominated by diatoms, principally Asterionella formosa, which was abundant.

3. Bottom fauna

The bottom fauna was quite poor, although there was evidence that certain forms were becoming re-established. Shallow-water dredges yielded 2.5 chironomid larvae and 0.5 mayfly nymphs per dredge (0.05 sq. m.) and the deeper water 1.0 chironomid larvae per dredge.

4. Physical and chemical conditions of the water.

The temperature of the water varied from 10.8°C. at 7 metres to 11.7°C. at the surface on May 5. The oxygen content was quite uniform from surface to bottom, averaging 6.70 S.G. per litre. The pH value of the water was 4.5 at both surface and bottom.

TEDFORD LAKE

1. Copper sulphate content of the water.

A surface sample secured on April 18 gave 0.067 p.p.m. of Cu, or 0.26 p.p.m. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$. Samples for deeper water are at hand but not analysed.

2. Plankton

Cladocera (Diaphanosoma, Bosmina), Copepoda (Diaptomus, Mesocyclops), and Rotifera (Conochilus, Anuraea) were present on May th., in good quantities. Synura and Mellicomonas constituted the greater part of the phytoplankton which was moderately abundant.

3. Bottom fauna.

Bottom forms were present in considerable numbers. One dredge among the reeds at the inlet end in 1.5 metres of water yielded 13 chironomid larvae, 4 caddis fly nymphs, 1 phantom larva, 3 leeches and 1 aquatic earthworm. Another in open water at 2 metres gave 24 chironomid larvae and 1 phantom larva. Still another in the open water in 3 metres of water gave fewer organisms, viz., 1 chironomid larva, 1 phantom larva and 1 Zygoptera nymph. Aquatic hemipterans and coleopterans were plentiful. Tadpoles were common in the shallow water at the shores.

4. Fish life.

A number of small schools of Fundulus diaphanus were noted in the shallow water at the shore-line. A sample indicates that these schools were largely, if not entirely, made up of fish in their second year of age.

5. Physical and chemical conditions of the water

On May 6th., the surface temperature of the water was 12.4°C., and the bottom temperature at a depth of 4.25 metres was 11.6°C. The dissolved oxygen varied from 7.27 to 7.53 c.c. per litre. The pH value of the water was constant at 5.9 from surface to bottom.

In view of the apparently suitable conditions for planting trout fry in Boar's Back and Tedford lakes, a telegram was sent to Mr. J. A. Rodd on May 6th., indicating that these lakes were considered suitable for stocking. Tedford lake was to receive 1,000 fry per acre and Boar's Back lake 750 per acre.

LAKE JESSE

1. Plankton

The zoo- and phytoplankton of this lake was rich. Although comparisons have not actually been worked out, it would appear that the plankton crop present in lake Jesse on May 6th., was greater than usually encountered in lakes of this type in the Maritimes.

2. Fish life.

Some angling was carried out with flies. One salmon smolt, 11-3/8 inches total length was captured. This fish

was entering its third year of age. Three other salmon smolts were hooked but not landed. One other fish was also hooked and lost, but of what species was not ascertained.

SUGGESTIONS RE TRAPS IN THE OUTLETS

The existing traps in the outlets of Bear's Back, Tedford and Jesse were examined and found in good repair. These are designed to prevent fish from entering the lakes from the waters lying below. There is considered a need for additional traps, or alterations to the present ones, to prevent fish running from the lakes. In the case of lake Jesse, for instance, some of the trout planted there in 1936 would probably have been ready to spawn in the fall of 1937, and definitely so in the fall of 1938. Since the lakes that have been treated are head-water lakes, the only running water for spawning fish to enter is to be found in the outlets. Thus spawning fish running to the outlets might well pass over the traps now in position, and so find themselves unable to re-enter the lakes. It is therefore recommended that suitable traps to prevent downward migration of spawning trout be placed in the outlet.

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