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A SCHEME FOR STOCKING LAKES WITH SPECKLED TROUT
IN CHARLOTTE COUNTY, NEW BRUNSWICK.
November 5, 1938.

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A SCHEME FOR STOCKING LAKES WITH SPECKLED TROUT
IN CHARLOTTE COUNTY, NEW BRUNSWICK.
April 18, 1939.

No.188C.

MEMORANDUM UPON THE SCHEME FOR STOCKING LAKES WITH
SPECKLED TROUT IN CHARLOTTE COUNTY, NEW BRUNSWICK.
February 24, 1939.

by

M. W. Smith.

FISHERIES RESEARCH BOARD OF CANADA

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February 24, 1939.

Author

M. W. Smith.

MEMORANDA UPON THE SCHEME FOR STOCKING LAKES WITH SPECKLED TROUT IN CHARLOTTE COUNTY, NEW BRUNSWICK.

by

M. W. Smith

In a previous memorandum, dated November 5, 1938, we proposed a scheme for stocking eight lakes in Charlotte county. In the scheme the lakes were to be stocked, closed and openend to fishing in groups of two, so that after the scheme was in operation two lakes would be open and six closed to fishing in any one year. The lakes proposed for the shheme were Welch, Gibson, Limeburner, Bonaparte, Johnson, Kerr, St. Patrick and Navigation. The following memoranda set forth certain minor alterations in the scheme as originally outlined, as well as suggestions in regard to a stocking policy for the lakes.

1. Substitution of Crecy lake for Navigation lake. A survey of the area of Navigation lake was made on January 24, 1939. It was found that the lake is more difficult to reach than was at first anticipated, and would be definitely unhandy for stocking operations. Crecy lake, on the other hand, lies a shorter distance in the woods and is connected to the highway by a wagon trail. It is proposed, therefore, to substitute Crecy lake for Navigation lake in the scheme.

2. A two-year rather than a one-year open season. In the original outline the lakes were to be opened for one year of fishing, then stocked the following year, and closed. If fingerlings are used for stocking there is no need to close the lake during the year that these small fish are planted, as they will not enter to any extent into the anglers' catches. Since it is

deemed necessary to continue planting in order to maintain the trout stock, it would be better to allow the lakes to remain open for two years so that as many large trout as possible might be removed, and thus reduce the predator action against the introduced fingerlings. With the scheme modified in this fashion, then four lakes would be open and four closed to fishing in any one year.

If yearlings are used as stock, the lake or lakes should be closed during the year that they are planted since these fish would enter into the anglers' catches.

3. Stocking policy for the lakes.

(1) Size of stock. Roughly two groups of stock may be distinguished, viz. (a) fingerlings and (b) yearlings, which we wish to consider in this discussion.

(a) Fingerlings. In the original outline the proposal was to follow the stocking policy as now usually employed in these lakes, namely a planting with fingerlings. Planting with fingerlings may be carried out in late spring or early summer with number 2 fingerlings, or later in the season with larger number 5 fingerlings. It is suggested that stocking in these two fashions be tested in the lakes (see suggested schedule below).

(b) Yearlings. It is obvious that yearlings have better chances of survival than fingerlings when introduced into a lake. However, planting with yearlings may have no greater ultimate value than a comparable stocking with fingerlings. If the proposed scheme is adopted, there is provided an excellent opportunity to test fingerlings versus yearlings as planting stock. Two

lakes could be planted with yearlings, and in the same year two more with a comparable number (based on relative survival values) of fingerlings. After the lakes involved were opened, the second plantigs could be reversed, so that the two methods of stocking would be tested in four lakes within a reasonable time. Further, if yearlings were planted in two lakes at the outset, the scheme would be advanced one year. (See suggested schedule below).

There is another feature to stocking with yearlings that should be considered. It is the general concensus of opinion among the local anglers that stocking with fingerlings gives no results and that older fish should be used. The prime object of the scheme is an attempt to prove or disprove this opinion. However, in executing the scheme it is desirable to obtain as much cooperation from the local anglers as possible. If only fingerlings are employed at the start, the interest and dooperation of the anglers would not be as great as if yearlings were also planted.

SUGGESTED SCHEDULE FOR STOCKING AND OPENING LAKES, AND SIZE OF STOCK

Lake	Stocking year	Stock	Opening year	Stocking year	Stock	Opening year
Limeburner	1939	No. 2 fingerlings	1942	1944	yearlings	1946
Bonaparte	1939	" " "	1942	1944	"	1946
Johnson	1939	Yearlings	1941	1942	No.2 fingerlings	1945
Kerr	1939	"	1941	1942	" " "	1945
St. Patrick	1940	No. 2 fingerlings	1943	1944	No.5 fingerlings	1947
Creey	1940	" " "	1943	1944	" " "	1947
Welch	1941	No. 5 fingerlings	1944	1945	No. 2 fingerlings	1948
Gibson	1941	" " "	1944	1945	" " "	1948

(kk) Quantity of stock. It is essential in order to evaluate the results of the stocking, as carried out under the

scheme, that all lakes be stocked in a comparable fashion. The best stocking policy would be one developed for each lake, and based upon the physical and biological characteristics of each lake. However, at the present time we have not the information to develop a policy of that type. Accordingly, about the only method we have is to base the stocking policy, as regards quantity of stock upon the area of each lake.

The schedule given below was determined in the following manner. (a) It was first necessary to estimate the fish productivity of the lakes. For Maritime waters we have data from four lakes: Jesse, Boar's Back, Tedford and Trefry's. The average production from these four lakes was 22.5 pounds of fishe per acre. This is the best information we have available, particularly in regard to Maritime lakes. Accordingly, we have considered that this production might be a fair average for the Charlotte county lakes.

(b) In the Nova Scotian lakes the production of each of the so-called predators averaged 4.1 pounds per acre, or roughly twenty per cent of the total average fish production for each lake. Trout are predators. On this basis, therefore, we have estimated the possible trout production for the Charlotte county lakes as approximately 4.5 pounds per acre.

(c) The data of Hazzard and Eschmeyer show that for some lakes a three-year old trout weighs six to seven ounces. The trout from lake Jesse averaged about five ounces. It may be expected, upon the basis of these data, that three-year old trout would run about three to the pound in the Charlotte county lakes. Kendall and Dence for New York streams and Ricker

for Ontario waters found that three-year old trout weighed considerably less. Hatchery records, as those of Titcomb et al and others, show greater growth, reaching a pound or more at three years of age. For these calculations, however, we have adopted the figure secured for lakes, namely about three to the pound. Thus from the estimation made under (b) we arrive at a production of 13.5 three-year old trout per acre (4.5 pounds per acre x three to the pound).

(d) As indicated above, stocking may be done with three size groups: number 2 fingerlings, number 5 fingerlings and yearlings. We have considered number 2 fingerlings about 1.25 inches long and number 5 fingerlings about 2.5 inches. Adopting Embody's mortality figures as a basis, we estimate that 90 per cent of the number 2 fingerlings, 50 per cent of the number 5 fingerlings and 0 per cent of the yearlings will be lost. Thus, to secure a production of 13.5 three-year old trout per acre in the lakes we need to stock with 13.5 yearlings, 27 number 5 fingerlings and 135 number 2 fingerlings per acre.

From the above estimations we are able to suggest a stocking schedule for the various lakes. Creey lake is not included in the schedule as its area is still unknown. The schedule follows:

Lake	Area (acres)	Number of fish		
		1.25 inch fish	2.5 inch fish	Yearlings
Welch	43	5810	1162	581
Gibson	57	7700	1540	770
Limeburner	129	17420	3484	1742
Bonaparte	105	14180	2836	1418
Johnson	34	4590	918	459
Kerr	177	23900	4780	2390
St. Patrick	77	10400	2080	1040
Crecy	--	--	--	--

4. Marking fish

To assist in evaluating the results of stocking, particularly with yearlings, the introduced fish, all or part, could be marked by fin clipping or other suitable method. Marking would also aid in determining possible migration, especially in the Bocabec river syster (Bonaparte, Johnson, Kerr, Crecy).

M. W. Smith,
February 24, 1939.