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INVESTIGATION OF PONDS, GRAND MANAN, N. B.

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INVESTIGATION OF PONDS, GRAND MANAN, N. B., AUGUST 21, 1936.

On October 10,1935,three Grand Manan ponds,Bradford Cove, Eel Brook and Miller,were investigated to determine, if possible, their suitability for planting trout fry or fingerlings. The dissolved oxygen conditions in Bradford Cove pond were at that time indicative of a marked reduction of this gas during the summer months. Moreover the quantity of plankton was prro. As a result of these findings this pond was considered unsuitable for trout. The waters of Eel Brook pond had favourable oxygen contents,as well as an abundant plankton crop. Since this pond already had a trout population,it was considered that stocking might improve the fishing conditions. Miller pond presented rather peculiar conditions. Plankton was almost entirely absent from the pond at that time although the water conditions appeared suitable for planktonic forms.

On August 21,1936,Miller pond was again visited. The following data were secured upon the water conditions during the morning beginning at 9:35. The sky was clear and a light south wind.

	Temperature °C.	O_2,c.c.per litre	% sat.	pH value
Surface	19.9	5.46	83.0	7.2* B.T.B.
2 metres	19.5	5.74	86.6	
4 metres (bottom)	19.4	5.74	86.4	7.2*
Air	21.0			

*It was determined that this sample of Bromthymol Blue gave readings 0.2 or 0.3 too low. The corrected readings would be 7.4

The quantity of plankton secured in Miller's pond on August 21 was decidedly greater than that obtained in 1935. Comparative counts of the zooplankton for October 10,1935, and August 21,1936,are given in the accompanying table. In addition to the zooplanktonts listed in this table,the cladoceran,Latona

setifera (skeleton) and the rotifers, Notholca longispina, Anuraea cochlearis and Conochilus unicornis were recorded.

The phytoplankton of Miller's pond was dominated by a dinoflagellata, Ceratium sp., There were lesser quantities of representatives of the following genera, Aphanocapsa, Dinobryon, Synura, Mallomonas, Dictyosphaerium, Gloeocystopsis, Kirchneriella, Scenedesmus, Zanthidium, Staurastrum, Micrasterias, Tabellaria, Surirella, etc. Diatoms were rare.

It was reported that trout were planted in Miller's pond in the past, but none had ever been recaptured.

Indications are that the average quantities of plankton in this pond during the year would be small. If such proved to be the case, possibly this pond would serve as a good location to carry out a fertilizing experiment on a fairly large scale. With our present knowledge it is recommended that, if stocking is desired, only a moderate planting be made. A request has been made to have the area of the pond determined after it has frozen over. With the area known, the number of fry to plant could be better indicated. Very few, if any, fish are indigenous in Grand Manan ponds. Thus introduced trout should have little competition except among themselves. For this reason planting with fry should be successful as far as the competitive fish question is concerned.

Deep Cove pond was also visited on August 21, 1936. This is a small pond, less than one acre in area, formed at the mouth of brook by the sea-wall. It has a maximum depth of one metre. It was stated that with high spring tides salt water enters the pond. Samples collected showed only very small chlorine values, 0.099 gm.

per litre at the surface and 0.35 gm. per litre at the bottom. The surface temperature at 1:40 p.m. with a cloudy sky was 17.0°C.,and 13.8°C. at one metre. The water was stained brown, thus reducing materially the light penetration,and probably accounting for the lower bottom temperature. The dissolved oxygen content of the water was 6.39 cc. per litre (66.1 per cent.sat.) at the surface and 6.69 c.c. per litre (64.9 per cent.sat.) at the bottom. The pH value with Bromthymol Blue was 6.8 at surface and bottom (corrected to 7.0). The zooplankton was dominated by an abundance of Ceriodaphnia quadrangula. Chydorus sphaericus was common. Cyclops viridis and the rotifer, Notholca longispina, were taken.

A number of small trout are taken each year in the pond. It is recommended that not more than 500 trout fry be planted in this pond during any one season. A certain number of the fry could penetrate into the waters above.

A request has been made to investigate Tweller's Rolling Tier pond, which is the largest on the island, in order to determine if its waters are suitable for planting trout. Further observations are desirable in Miller's and Eel Brook ponds for comparative purposes and to follow up the plankton conditions in the former.

M. W. Smith,
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COMPARATIVE QUANTITY OF PLANKTON IN MILLER'S LAKE, GRAND MANAN

	Oct.10,1935	Aug.21,1936
Diaptomus minutus	3.3	121.0
Diaphanosoma leuchtenbergianum*		95.0
Bosmina longispina	0.05	4.5
Epischura lacustris*		7.5
Leptodora kindtii		0.8
Mesocyclops obsoletus*		0.5
Ceriodaphnia quadrangula		0.8
Hydracarina	0.05	0.5
Total	3.4	230.6

*These forms occurred in Miller's lake on October 10,1935, but in too small numbers to occur in the samples counted.