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REPORT ON OBSERVATIONS MADE AT STEPHENSON'S POND

July 5th. and August 9th. 1935.

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On July 5th. a number of stations were occupied at various points on the pond, but on August 9th. since there was no boat available on the pond, observations were confined to the water at the dam and among the shrubs a short distance upstream, the latter station being reached by an improvised raft.

The temperature, pH and oxygen data secured on these two dates are presented in the following tables.

TABLE I.

Temperature, pH value and dissolved oxygen content of the water. July 5, 1935. Air Temp. 21.0°C. (10:05 A.M.). Sky clear, Water stained a deep brown.

Station	Time	Depth	Temp.°C.	pH Value	Oxygen Content	% Sat.
					c.c.Litre	
1. At dam	10:05 A.M.	Surface	21.0	6.2	2.40	37.1
		36"	16.8		1.22	17.5
		77"(Bottom)	12.9	6.0	0.75	10.0
2. 100 yds up in stream-bed	10:50	Surface	22.4		3.12	49.4
		58"(Bottom)	12.5		0.70	9.2
3. 2/3 way up in stream-bed	11:15	Surface	23.5	6.3		
		61"(Bottom)	14.0	6.0	0.45	6.1
4. 50 yds from upper end in stream-bed.	11:35	Surface	21.9	6.4	3.88	61.0
		53"(Bottom)	14.8	6.1	1.49	20.5
5. At screen in inlet	11:50		18.3	6.7	5.31	78.5
6. among strubs left at Sta.3	12:10 P.M.	Surface	23.7	6.3	2.18	35.3
		24"(Bottom)	19.3	6.1	1.08	16.3
7. Among strubs 1/3 way up Left at stream- bed.	12:30	Surface	23.8	6.3		
		32"(Bottom)	18.9	6.0	1.97	29.4

TABLE II.

Temperature, pH value and oxygen content of water,  
August 9th. 1935. Air Temp. 26.2°C. (3:30 P.M.).  
Sky clear. Water stained brown.

Station	Depth.	Temp. °C.	pH Value	Oxygen Content c.c. litre	% Sat.
1. At Dam	Surface	27.3	7.4	3.22	55.4
	3'	17.1		1.86	26.8
	4' 6"	15.95		0.42	6
	6' 6"(Bottom)	15.0	5.9	0.16	2
2. Among shrubs 25 yds up.	Surface	25.6(water stirred)		4.23	70.7
	2' 6"(Bottom)	18.0		2.20	32.3

On July 5th. 15,000 trout fry were released into the pond. About half of these were distributed at the lower end at and near the dam, while the remainder were distributed along the stream-bed up in the pond. On August 9th. one fry was seen in the surface water at the dam. In small pools left in the small dried-up stream which flows into the pond on the right side at the upper end a few fry were found trapped. The temperature of one of these pools containing fry had a temperature of 15.3°C. Also a few fry were noted in small pools left in the inlet stream-bed. Apparently the fry were attracted to these localities by a cooler water temperature and a higher dissolved oxygen content. Their presence indicates that they distributed themselves quite widely after being planted.

On July 5th. little water was coming into the pond in the inlet stream. On August 9th. this stream was completely dry except for a few small isolated pools. On the latter date a little water was leaking through the dam, which leakage was apparently not being compensated for by any inflow. The water level on August 9th. was about one inch below the top of the planking in the dam.

Only the surface water on July 5th. was suitable for trout, and even then the temperature was fairly high. The bottom waters were decidedly low in dissolved oxygen and quite unfavourable for trout. The pH values at all depths were good. It is to be noted that the temperature of the water rapidly declined from the surface downwards. This condition reflects the action of the stain in the water in cutting down the penetration of the sunlight.

On August 9th. the oxygen conditions were about the same as on July 5th. although, due to a more luxuriant growth of filamentous algae clinging to the stems of the shrubs, the oxygen values were a little higher in the shallow water amongst these shrubs, even with a higher temperature. The difference between the surface and bottom pH values and oxygen content at the dam indicates the decomposition taking place in the pond and the stagnant condition of the water (no overturning or mixing vertically). On both dates the waters exhibited what might be termed border-line conditions as regards their suitability for trout. The surface waters had sufficient oxygen but a high temperature, while the bottom waters had a favourable temperature but insufficient oxygen.

Qualitative plankton samples showed on both dates a good supply of food organisms (cladocerans, copepods, insect larvae). Observations showed a higher plant growth in the form of rooted aquatics and filamentous algae on August 9, and these, as already noted, were no doubt responsible for the higher pH values and oxygen content found at certain levels.

The shrubs (Spiraea, Myrica, Kalmia) appeared to be showing the effects of their submergence in the water by a yellowing of the leaves. They may, however, have been partly a result of the advancing season.

M. W. Smith.

August 20, 1935.