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Title

EXAMINATION OF FLOODED AREA NEAR LOCH LOMOND,
May 9 - 12, 1934.

Author

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# EXAMINATION OF FLOODED AREA

# NEAR

# LOCH LOMOND

by

A. D. Bajkov

May 9-12, 1934.

May 9th, 1934, the Stevenson's pond near Loch Lomond was visited. The water level at this time was somewhat 1½ - 2 feet lower than during the previous visit in April.

May 10th, horizontal and vertical temperatures and oxygen were taken all over the flooded area, the results are summarized in the following table. Localities of each station are given on the approximate sketch.

| Station | Time | Air T. | Sur.T | Bot.T. | Oxy.-sur. | Oxy.-bot. | Weather. |
|---|---|---|---|---|---|---|---|
| 1 | 10a.m. | 11.8°C | 11.6 | 10.(6f) | 6.56p.pm (60.2% Sat) | 6.24p.pm | Rain NW. |
| 2 | 10.20 | 11.8 | 11. | - | | " | " |
| 3 | 11. | 11.8 | 11 | - | - | - | " |
| 4 | 11.10 | 11.8 | 10.9 | - | - | - | " |
| 5 | 11.15 | 11.6 | 10.8 | 10.1(3f) | - | - | " |
| 6 | 11.20 | 11.8 | 10.8 | - | - | - | " |
| 7 | 12 | 11.8 | 10.8 | 10.1(3f) | - | - | " |
| 8 | 12.20pm | 11.8 | 10.5 | - | - | - | " |
| 9 | 4 | 11.8 | 10 | 10.(4f) | 9.8p.pm. (86% Sat) | 9.6p.pm (85.3% Sat) | " |
| 10 | 4.20 | 11.8 | 9 | 9 (2f) | - | - | " |
| 11 | 4.50 | 11.8 | 9 | 9 (2f) | 9.6p.pm. (82.7% Sat) | 9.6p.pm. (82.7% Sat) | |
| 12 | 6.00 | 12 | 6 | - | - | - | " |
| 13 | 6.10 | 12 | 9 | - | - | - | " |
| 14 | 6.15 | 12 | 9.5 | - | - | - | " |
| 15 | 6.20 | 12 | 10.5 | - | - | - | " |
| 16 | 6.30 | 12 | 10.5 | 10.5(1f) | - | - | " |

As at the time of work there w s a very strong NW wind, so no great difference has been found between surface and bottom temperatures and oxygen content. However, the temperatures were much lower in the upper and of the pond and in the inlet than near and in the outlet.

The most of the fish were gathered in the deeper portion near the dam, and no fish were observed in the upper end. A few fish have been caught just before the flood waters were released in order to have a correct idea of food available in the pond. The exzminations of the stomach contents of speckled trout show that there is not much good food in the pond. The fish were feeding on adult aquatic insects, mostly on small Diptera at the surface. On the other side some fish were taken from Loch Lomond proper near the mouth of inlet and their stomachs were filled with copepods, phyllopods and other planktonic organisms as well as with many insects larvae. The examination of the stomach contents are included in an attached table.

The average depth of the whole flooded area was estimated as $1\frac{3}{4}$ - 2 feet just before opening the dam. The total volume of water was not less than 20,000 cubic metres. The current at the outlet before opening the dam was approximately 100 litres per second. The same amount of water was observed after draining the basin. It was impossible to make correct measurements of current during the draining. After the first log was removed the water level dropped one inch per hour during the first eight hours.

Plankton of the flooded area was very poor. As a matter of fact, no planktonic organisms were observed in the stomachs of fish caught in the pond. The following species were identified from the sample: Diatoma elongatum, Tabellaria fenestrata, Aphanocapsa elachista var. planctonica, Aphanothece sp., Chroococcus turgidus, Anabaena sp., Plectonema sp., Spirogyra sp., Ankistrodesmus falcatua, Closterium acerosum, Netrium digitus, Dinobryon sertularia, Anurae cochlearis, Cathypha luna, Dinocharis pocillum, Notholca Acuminata, Cyclops sp., Bosmina sp. (remains). There are of course many species of Protozoa, identification of which is impossible after fixation.

Bottom fauna is very poor, only a few small Pisidium and small larvae of caddis and dragon flies were observed.

The samples of submerged vegetation were collected and the list of species will be submitted after the identification.

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It was impossible even approximately to estimate the number of fish in the pond due to the imperfect construction of screen. The majority of fish escaped fron the pond during the removing of the logs, the procedure of cutting the logs with an axe took, in some cases, several hours. However, on account of a very limited number of dead fish (about sixty), there is every reason to believe that most of them thrived throughout the winter. The average length of trout was 5.12 inchs. Quite a few kingfishers were seen in the vicinity of the pond.

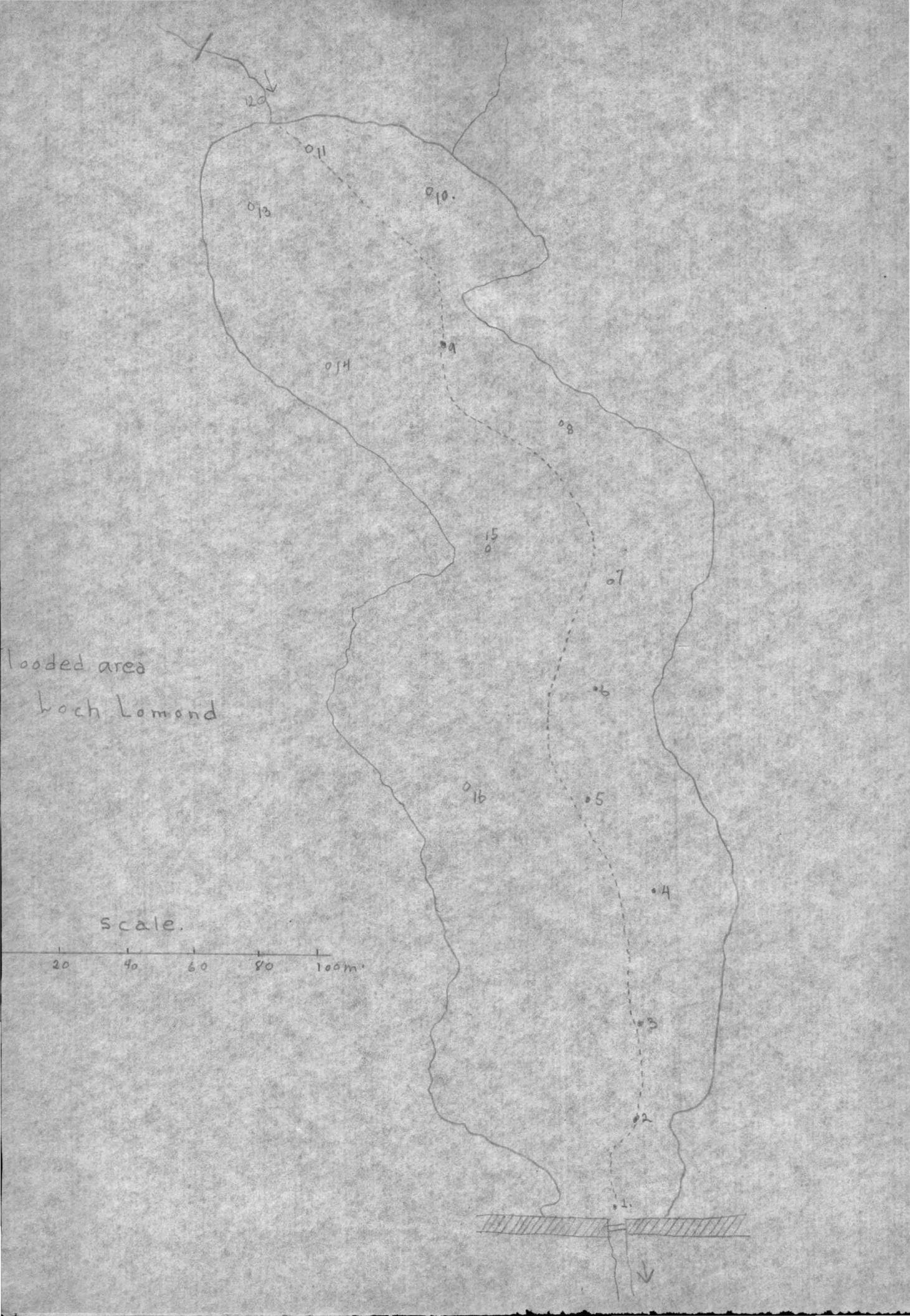
It seems that no fish perished from lack of oxygen or from other unfavourable conditions. It is quite evident, however, that there is a lack of food in the pond

Stomach contents of Salvalinus fontinalis from Stevenson's Pond 10-V-1934.

| No. | Length. | Stomach contints |
|---|---|---|
| 1 | 5½ inch. | Phryganeidae (L) small----------1<br>Simuliidae (A)----------2<br>Spruce needles (not caddis flies case) |
| 2 | 6 " | Remains of small Diptera (A)----------1<br>Spruce needles. (about 40) |
| 3 | 5 | Hydracarina small----------1<br>Simuliidae and other small Diptera (A)--58<br>Pisidium sp.---------- 4 |
| 4 | 4¾ | Phryganeidae (A) remains----------1 |
| 6 | 5 | Simuliidae (A)----------5 |
| 7 | 5¾ | Simuliidae and other small Diptera (A) 7<br>Phryganeidae (A)---------- 1 |
| 5 | 4½ | Hydracarina---------- 9<br>Planorbis sp.---------- 1<br>Simuliidae (A)----------15 |
| 8 | 5½ | Coleoptera (Terrestrial)---------- 1<br>Phryganeidae (A)---------- 1 |
| 9 | 5¼ | Cyclops sp. (remains)---------- 1<br>Adult Diptera (remains----------about 15 |
| 10 | 5½ | Remains of Diptera (A)----------about 10<br>Phryganeidae (A) (remains)---------- 1 |
| 11 | 5 | Stomach empty. |
| 12 | 5½ | Remains of adult Diptera---------- 4 |

Stomach contents of fish (S. fontinalis) from Lock Lomond proper.

| No. | Length | Stomach content. |
|---|---|---|
| 1 | 4¾ inch. | Hydracarina (large)----------5 |
| | | Chironomidae (P)----------10 |
| 2 | 5 | Helicopsyche borealis (L)---------- 15 |
| | | Molana sp.----------(L)---------- 1 |
| | | Hydracarina---------- 1 |
| | | Diptera (A)---------- 4 |
| | | Daphnia longispina----------many |
| | | Diaphanosoma leuchtenbergianum----many |
| | | Cyclops, sev. sp. ----------abundant. |
| 3 | 4½ | Copepods (mostly C.viridis var. amer.)-fille |
| | | Hydracarina---------- 3 |
| | | Chironomidae (L)---------- 2 |
| | | Dragonflies (N)---------- 1 |
| 4 | 4 | Phryganeidae (L)---------- 4 |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