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A Preliminary Report of a Study of Swan Lake, Grand Teton National Park, Teton County, Wyoming

George T. Baxter
University of Wyoming

L. Floyd Clarke
University of Wyoming

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A PRELIMINARY REPORT OF A STUDY OF SWAN LAKE,
 GRAND TETON NATIONAL PARK,
 TETON COUNTY, WYOMING
 George T. Baxter and L. Floyd Clarke
 University of Wyoming
 Project Number 75

A study was made of Swan Lake, Grand Teton National Park, Wyoming from mid-June through August, 1955. Swan lake is an elongate, 33.5 acre lake with maximum depth 10 feet, minimum depth 4.9 feet, and volume 164 acre feet. The basin is of glacial origin situated on a rolling morainal plain just east of Jackson lake in Range 115 W, Township 45 N of the Grand Teton quadrangle, U.S.G.S. 1899. The water supply is from a single small intermittent stream, possible underground seepage and primarily water which backs in from Third Creek which flows past the south end of the lake.

The light penetration averaged about 5.5 feet during 1955; the water was colored dark brown presumably by humic materials. No thermal stratification occurred in 1955. The maximum surface temperature was 71° F on July 21, maximum bottom temperature 69° F on July 21. The mean of the surface and bottom temperatures rose from 61.0° F on June 17 to 68.5° F on July 21 and then decreased to 65.0° F by August 25. Dissolved oxygen content was relatively low, varying between 41% and 87% saturated at the two sampling stations. O₂ was relatively higher (average 74.5% saturated) at the south end than at the north end (56% saturated), probably because of the effect of fresh water backing in from Third Creek. Free CO₂ varied between 3.2 and 1.1 ppm., total alkalinity between 51 and 66 ppm.,² and the pH from 6.8 to 7.4. On June 17 the conductivity of the water was 40 reciprocal megohms at 25° C, the total phosphates .04 ppm.

A relatively dense and quite stable plankton population existed during the summer of 1955. Ceratium, Dinobryon and, later in the summer, Mallomonas were the conspicuous unicellular organisms. Bosmina longirostris and Cyclops bicuspidatus were two of the more conspicuous Crustacean plankters. Quantitative enumeration of the plankton has not been completed at the present time. The benthos averaged 216.6 organisms per square foot at the south end of the lake (six samples) and 138.4 per square foot at the north end (five samples). Benthos included midge larvae (Tendipedidae), bristle-worms (Oligochaeta), phantom midge larvae (Chaoborus), and molluscs (Planorbidae and Sphaeridae), of which the bristle-worms were predominant, making up, on the average, about 50% of the number of organisms in the samples.

An overnight set of a 200 foot gill net in the lake caught 98 Utah chubs, 44 rosieside suckers, and one brook trout at the south end of the lake on August, 16-17. A similar set the next night at the north end of the lake caught 14 Utah chubs and one rosieside sucker. The distribution of the fish was apparently related to the oxygen content of the water. A variety of invertebrate animals and a large number of rooted aquatic plants were collected and preserved. Their identification has not yet been completed.

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