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RECONNAISSANCE DATA ON LAKES IN THE ALPINE LAKES WILDERNESS AREA, WASHINGTON

By David P. Dethier, Paul L. Heller, and
Sally A. Safioles

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U.S. Forest Service and the
Washington Department of Game

This report is preliminary and has
not been edited or reviewed for
conformity with Geological Survey
standards and nomenclature.

Seattle, Washington
1979

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ILLUSTRATIONS

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Factors for conversion from units used in this report to traditional units.

From Unit	Abbreviation	Multiply by	To obtain Unit	Abbreviation
centimeters	cm	.394	inches	in
meters	m	3.28	feet	ft
kilometers	km	.621	miles	mi
cubic meters	m^3	35.31	cubic feet	ft^3
cubic hectometers	hm^3	811.0	acre-feet	
square kilometers	km^2	.386	square miles	mi^2
hectares	ha	2.47	acres	

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ABSTRACT

Sixty lakes in the Alpine Lakes Wilderness Area have been sampled from rubber rafts or helicopter to obtain information on their physical setting and on present water-quality conditions. The lakes are located near the crest of the Cascade Range in Chelan and King Counties, Washington. Basic data from these lakes will be useful for planners concerned with lake and wilderness management, and of interest to hikers and other recreationists who use the lakes.

INTRODUCTION

The Alpine Lakes Wilderness Area, established by Congress in 1976, includes hundreds of lakes located in a 1500 km^2 (575 mi^2) area which straddles the crest of the Cascade Range between Snoqualmie Pass and Stevens Pass in Chelan, King, and Kittitas Counties, Washington (fig.1). Recreational use of the lakes and lakeshore areas is considerable at present and is expected to increase as urban populations grow, posing special problems for management of the wilderness resource. Management plans for waste disposal, trail and campsite development, fish-stocking programs, and protection of lake water-quality can be aided by information on present water-quality conditions and the nature of geologic deposits in the lakeshore area.

This report presents limnologic data gathered from a reconnaissance study of 60 lakes located in the Alpine Lakes Wilderness Area (hereafter referred to as "the Wilderness area"). Bortleson and others (1976) and Dion and others (1976) sampled 15 lakes in the area in 1974 as part of a cooperative program between the Washington Department of Ecology and the U.S. Geological Survey; 45 lakes were sampled in the summer of 1978 during a cooperative study by the U.S. Geological Survey, the U.S. Forest Service, and the Washington Department of Game. The investigation was led by the U.S. Geological Survey's Puget Sound Earth Sciences Applications Project, which has a goal of assisting in the application of earth-sciences information for land-use planning, resource development, and environmental protection. An interpretive map showing lake susceptibility to degradation and a report stressing planning applications of the study are in preparation.

Acknowledgements

The authors gratefully acknowledge the cooperation of the U.S. Forest Service and the Washington Department of Game. Bathymetric maps and lake-data sheets for 15 lakes were reproduced from reports by Bortleson and others (1976) and Dion and others (1976); dissolved oxygen and temperature profiles for these lakes were determined from unpublished data of Bortleson and Dion.

Lakes in the Alpine Wilderness Area

About 700 lakes are located in the Wilderness area, most of them smaller than one hectare (2.47 acres). Some 300 lakes are shown and named on the 1:100,000 scale Skykomish River, Chelan, Wenatchee, and Snoqualmie Pass topographic maps. A report by the University of Washington (1972) presents detailed information on size and distribution of the lakes.

Almost all the lakes in the Wilderness area were formed by glacial processes; a few lie in valleys which have been dammed by landslides. Most of the glacially-formed lakes lie in steep rock-walled ampitheater-like depressions called cirques. Although these cirque lakes are most

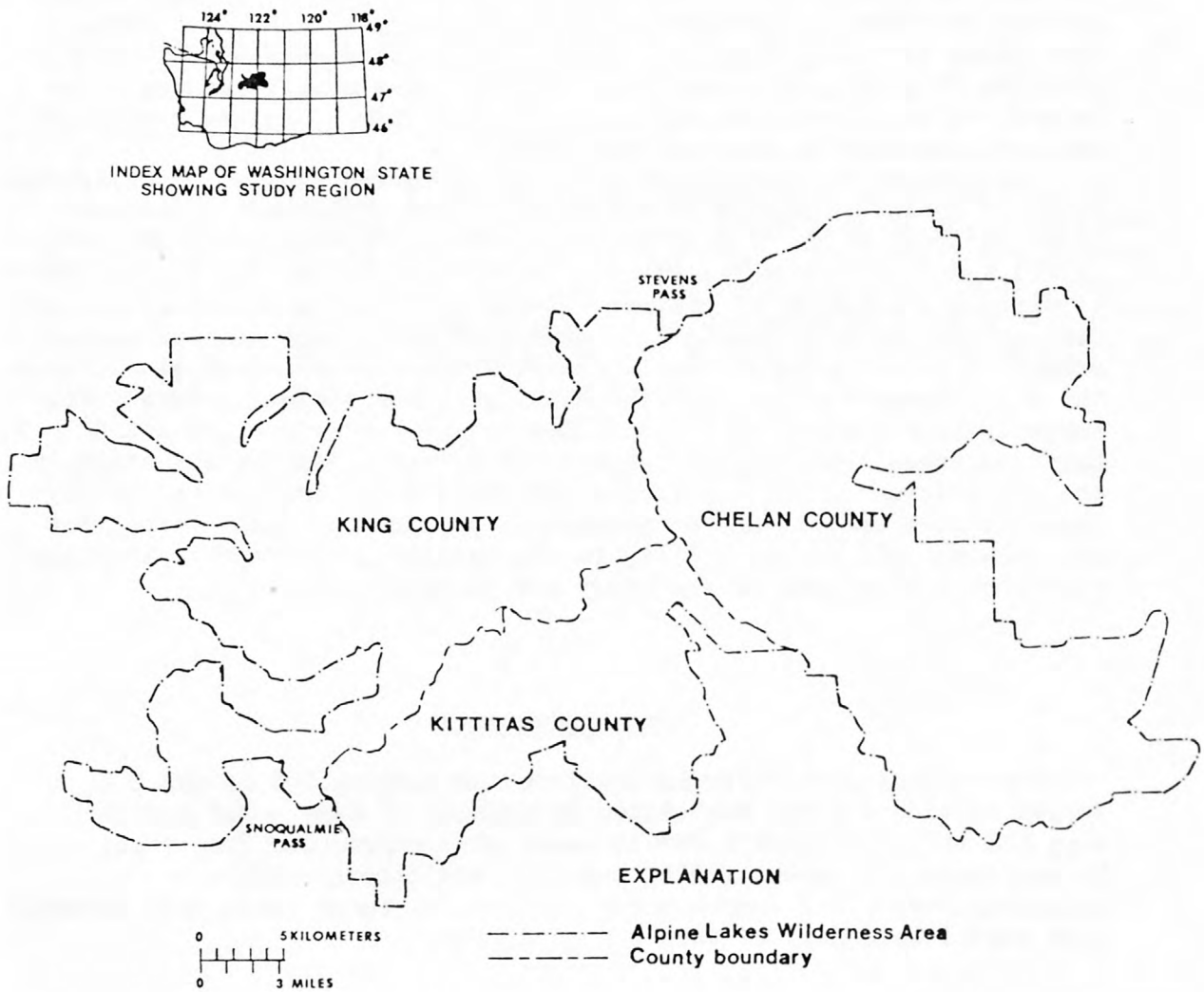

Figure 1.--Location of Alpine Lakes Wilderness Area showing portions of Chelan, King, and Kittitas Counties.

common, lakes also lie in valleys over-deepened by glacial action or dammed by glacial debris. Many of the smaller lakes lie in bedrock hollows scoured by glacial action. Except for irrigation diversions from a few lakes in the eastern part of the Wilderness area, the lakes remain in virtually their natural state. More detailed information concerning the lakes may be found in the University of Washington (1972) report and in the publications by Wolcott (1964; 1965).

Explanation of Data Collected

The data collected and the variables used in describing individual lakes are explained here, prior to presentation of the data for each lake. The information is discussed in the sequence in which it appears on the data sheets. The lake data are grouped by county and listed alphabetically by lake name. Data from lakes in Chelan County are listed from p.13 to p.93 , while King County lakes are listed from p.94 to p.194 . The definition of additional limnological and hydrological terms used throughout the report are found in the glossary (p. 9).

Information from most of the lakes was collected during the period August-September 1978. Lakes sampled by helicopter (Bortleson and others, 1976; Dion and others, 1976) were visited in July-September of 1974. All water samples were collected and analyzed according to accepted standard procedures (American Public Health Association and others, 1971; Brown and others, 1970; and Slack and others, 1973).

Lake name. The name was taken from USGS topographic maps. Only the proper name of the lake is given; in common usage the term "lake" may either precede or follow the proper name. When a lake has two names, both are given, but priority is given to the name shown on the topographic maps. The lake names and respective data are listed alphabetically by counties.

Location. Latitude, longitude, township, range, and section location were determined from USGS quadrangle maps. The location point is the lake outlet, or, for lakes without outlets, the southernmost shoreline point. The lakes are presented in the report according to the county in which the location point occurs.

Drainage basin. The major river-drainage basin in which the lake is located is listed first, followed by the name of the local drainage system.

Physical data. Physical characteristics were determined from topographic and bathymetric (bottom-contour) maps of the lakes. Most of the lakes were sounded and charted by use of a rubber raft and a continuous-recording fathometer. For the 15 lakes sampled in 1974, a helicopter equipped with fathometer, pontoons, and a conventional outboard motor was used to chart the lake. The

bathymetric data were digitized using aerial photographs, and a computer program was used to calculate lake morphometric data such as lake volume, surface area, and length of shoreline.

Drainage area.--The surface-drainage area that contributes water to the lake is given in square kilometers (km^2). These areas were delineated on USGS topographic maps.

Altitude.--A single altitude, in meters (m) above mean sea level (msl), obtained from USGS topographic maps, is given for each lake surface. Altitudes not specifically shown on the topographic map were interpolated from the contour lines.

Lake surface.--The surface area of the lake, in hectares, was measured from topographic maps using digitizer techniques.

Lake volume.--Lake volume, in cubic hectometers, was obtained by computing and summing the volumes of each stratum of water between successive contours on the bathymetric map. Because lake volume can vary between seasons and from year to year, the volumes reported (as well as other morphometric data) describe only the general size of the lake.

Mean depth.--The mean depth, in meters, for a specified lake stage was obtained by dividing the volume of the lake by its surface area.

Maximum depth.--The difference in elevation, in meters, between the bottom and the surface of the lake. The maximum depth obtained from field surveys is generally not shown on the bathymetric maps.

Shoreline length (L).--The perimeter, in kilometers, of the lake at the altitude shown in the listing. It was measured from topographic maps using digitizer techniques. The shoreline length depends somewhat on the fineness of detail of the shore outline on the bathymetric maps.

Shoreline configuration (D_L).--A dimensionless ratio of the length of shoreline to the circumference of a circle having an area equal to that of the lake, given as:

$$D_L = \frac{L}{2\sqrt{\pi A}} .$$

This quantity may be regarded as an index of the geological and littoral processes affecting the shape of the lake. Nearly circular lakes have values near unity, subcircular lakes have

slightly greater D_L values, and elongate lakes have the highest D_L values. High D_L values are common to lakes formed along drainage ways or by the artificial damming of streams to form valley impoundments.

Basin geology. The predominant geology of the lake's drainage basin was obtained from a geologic map of the State of Washington (Huntting and others, 1961). The drainage basin is indicated as being mainly underlain by sedimentary, metamorphic, or igneous rocks.

Inflow. Perennial or intermittent surface inflow is noted, if known. Some lakes have only minor visible inflow, and water gain to them occurs mostly by direct precipitation on the lake and by ground-water seepage.

Outflow. The presence or absence of a surface-water outflow channel is noted. Some lakes have no surface-water outflow, and water loss is through evaporation, transpiration, and (or) ground-water flow.

Water-quality data. Vertical profiles of temperature and of DO (dissolved oxygen) concentration were measured in the deepest part of each lake from rubber rafts or from helicopters equipped with pontoons. Lakes with areas greater than 400 hectares and certain irregularly-shaped lakes were sampled at more than one site. Secchi-disc visibility was also determined. Water samples were collected for pH, nutrient, and specific-conductance analyses at depths 1 meter below the water surface and, where possible, 1-2 meters above the lake bottom. Deeper lakes were sampled to a maximum depth of 60 meters, due to equipment limitations. Waters from deeper layers of 15 lakes were collected for chemical analyses. Lakes less than 3 meters deep were sampled at the surface. For most lakes, estimates of the percentage of both lake area and lake shoreline covered by emersed and (or) floating rooted aquatic plants were made by a visual inspection of the lake.

Nutrients.--A nutrient is any chemical element, ion, or compound that is required by an organism for the continuation of growth, reproduction, and other life processes. Many elements and compounds act as nutrients to supply the food for aquatic plants and algae. However, nitrogen and phosphorus usually are considered the limiting nutrients to plant growth and, as such, received the most emphasis in this study. No matter what nutrient is limiting aquatic plant growth, the concentrations of nitrogen and phosphorus are useful in evaluating the trophic conditions of a lake (Lee, 1970). The nutrient concentrations that were determined at top and bottom sampling depth included total nitrate, nitrite, ammonia, organic nitrogen, total phosphorus and, on selected lakes, kjeldahl nitrogen and total orthophosphate.

Specific conductance.--Specific conductance is a measure of the

water's ability to conduct an electric current and is expressed in micromhos per centimeter at 25°C (Celsius). Because the specific conductance is related to the amount of ions in solution, it can be used for approximating the dissolved-solids concentration in the water.

Water temperature.--Temperature, which varies in lakes with depth and time of year, is an important controlling factor for life processes and chemical-reaction rates, as well as many physical events that occur in the aquatic environment.

For most lakes, the water temperatures listed for the upper, near-surface waters were probably close to the maximum for the year when sampled. Temperature profiles in lakes during midsummer, when thermal stratification is marked, generally follow one of two common patterns. In shallow lakes that are well exposed to the wind, temperatures will be found to be practically constant from top to bottom. This uniformity of temperature indicates that the waters are well mixed throughout. The other common pattern occurs in deeper lakes, where three characteristic thermal layers are present: (1) an upper zone (epilimnion) of generally warmer water in which temperature is more or less uniform throughout; (2) an intermediate zone (metalimnion) in which temperature decreases rapidly with depth; and (3) a lower zone (hypolimnion) of colder water in which temperature is again more or less uniform throughout.

The temperature of the deep-water layer (hypolimnion) during midsummer is of biological significance because: (1) Temperature stratification and water circulation affect the vertical distribution of nutrients, and (2) water temperatures affect the potential for cold-water fisheries resources.

Secchi-disc visibility.--Secchi-disc visibility is the depth at which a black and white disc (20 centimeters in diameter) disappears from view when lowered into the water. Secchi-disc visibility is a measure of water transparency or clarity. Because changes in biological production can cause changes in the color and turbidity of a lake, Secchi-disc visibility often is used as a gross measure of the quantity of plankton in the water. Secchi-disc depths preceded by the symbol ">" indicate the disc was resting on the bottom of the lake and was still visible.

Dissolved oxygen.--The concentration of DO in a lake varies with time of year and depth of water and is a function of many factors, including the water temperature, atmospheric pressure, and dissolved-solids concentration of the water. Oxygen concentration in water is continually being altered by life processes, such as photosynthesis and respiration, and by complex chemical reactions. Of special biological significance is the amount of DO in the hypolimnion during midsummer. The plant organisms in the lighted upper layers of water produce organic matter which eventually settles to the bottom, where

bacteria consume oxygen to degrade the organic materials, thereby reducing the DO concentration in the hypolimnion. The hypolimnion-oxygen deficit frequently is related to the biomass or plant growth in the upper waters (Hutchinson, 1957). For good growth and general health of trout, salmon, and other species of cold-water biota, the DO concentrations should not be less than 6.0 mg/L (milligrams per liter) according to the Federal Water Pollution Control Administration (1968).

Hardness, alkalinity, and major chemical constituents (selected lakes only).-- Hardness, alkalinity, and the concentrations of dissolved ions provide a measure of the overall chemical character of lake water. Water quality in these unpolluted lakes is dependent on total runoff in the lake basin, basin geology, and to a lesser extent, the amount of vegetation present. Major dissolved constituents include silica, calcium, bicarbonate, sulfate, sodium, magnesuim, chloride, and potassium. All these ions are present in very low concentrations in the lakes. "Dissolved solids" represents the sum, in mg/L, of these dissolved constituents.

Emersed plants.--These are large plants that can be seen without magnification; plant leaves or other structures extend above the water surface. Examples of emersed plants include cattails and sedges. In this report, rooted floating aquatic plants such as waterlilies and watershield are considered emersed. The rooted aquatic-plant growth was assessed according to the percentage of the lakeshore and water surface covered by emersed and (or) floating plants.

Remarks. This includes other useful lake information that was obtained during the reconnaissance. Such topics as the following might be included:

1. Surficial geology.
2. Qualifying statements
3. Availability of additional information.
4. Unusual lake or drainage-basin characteristics.
5. Zooplankton abundance, estimated when water-quality samples were collected.

Bathymetric maps. A bathymetric map is given for each lake with bottom configuration shown by depth-contour lines. The map source, contour interval, and date of the survey are indicated. Bathymetric maps from Bortleson et al (1976) and Dion et al (1976) used traditional units and are reproduced in this report. All other information is given in metric units.

Temperature and dissolved-oxygen profiles. A graph showing profiles of dissolved oxygen and temperature with depth is given for all except the most shallow lakes. Two profiles are given for lakes sampled both in 1974 and 1978.

GLOSSARY

Algae. Simple plants, many microscopic, contain chlorophyll and lack roots, stems, and leaves. Most algae are aquatic and may become a nuisance when environmental conditions are suitable for prolific growth.

Algal bloom. A large number of particular algal species. A condition when water looks green because of the abundance of planktonic algae.

Alluvium. A general term for sorted or semisorted sediment (sand, gravel, silt, and clay) deposited by a stream or other body of running water.

Bathymetric. Relating to the measurement of water depths, as for a lake.

Cirque. A deep, steep-walled, gently floored amphitheater, crescent shaped in plan, and situated high on the side of a mountain. Cirques are commonly located at the head of glacial valleys and are produced by the erosive activity of mountain glaciers.

Colluvium. A general term applied to loose, poorly sorted deposits of soil material or rock fragments transported and deposited chiefly by mass-wasting processes on steep slopes.

Emersed plant. These are large plants that can be seen without magnification; plant leaves or other structures extend above the water surface. Examples of emersed plants include cattails and sedges. In this report, rooted floating aquatic plants such as waterlilies and watershield are considered emersed.

Hydrogen sulfide. A gas with a distinctive "rotten-egg" odor which can be detected in water containing only a few tenths of a milligram per liter of sulfide.

Intermittent or seasonal stream. Flows only at certain times of the year when it receives water from some surface source, such as precipitation or melting snow.

Littoral. The shoreward region of a body of water.

Macrophyte. A plant that can be seen with the unaided eye.

Moraine. A mound or ridge of nonsorted, nonstratified glacial material, predominantly till, deposited chiefly at and by the margins of glacier ice.

Morphometry. The measurement of the shape characteristics of lakes and lake basins.

Muck. A mixture containing highly decomposed organic material in which the original plant parts are not recognizable. Contains more mineral matter, and is usually darker than peat.

Periphyton. Aquatic algae attached to rock or other stable material in lakes or rivers.

Plankton. Suspended or floating organisms that drift with the water currents.

Production. The total amount of living matter produced in an area per unit time, regardless of the fate of the living matter.

Submersed plant. A rooted aquatic plant that completes its life cycle entirely below the surface of the water. Examples of submersed plants include water milfoil, pondweed, and elodea.

Talus. A mass of loose rock fragments derived from and lying at the base of a cliff or rocky slope.

Thermal stratification. The layering of water masses owing to different densities in response to temperature.

Till. Nonsorted, commonly nonlayered sediment (clay to boulders in size) carried or depostied by a glacier without significant reworking by water from the glacier.

Zooplankton. The animal part of the plankton community.

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_____1965, Western Washington, v. 1 *of* Lakes of Washington: Washington Division Water Resources Water-Supply Bulletin 14, 2nd ed., 619 p.

BASIC DATA

CHIWAUKUM LAKE CHELAN COUNTY

Latitude 47°43'18" Longitude 120°52'4" T26N-R16E-S29
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	8.89 km^2	Shoreline length	2.58 km
Altitude	1588 m	Shoreline configuration	1.5
Lake area	23.5 ha	Basin geology	Igneous
Lake volume	5.06 hm^3	Inflow	Intermittent
Mean depth	22 m	Outflow channel	Present
Maximum depth	39 m		

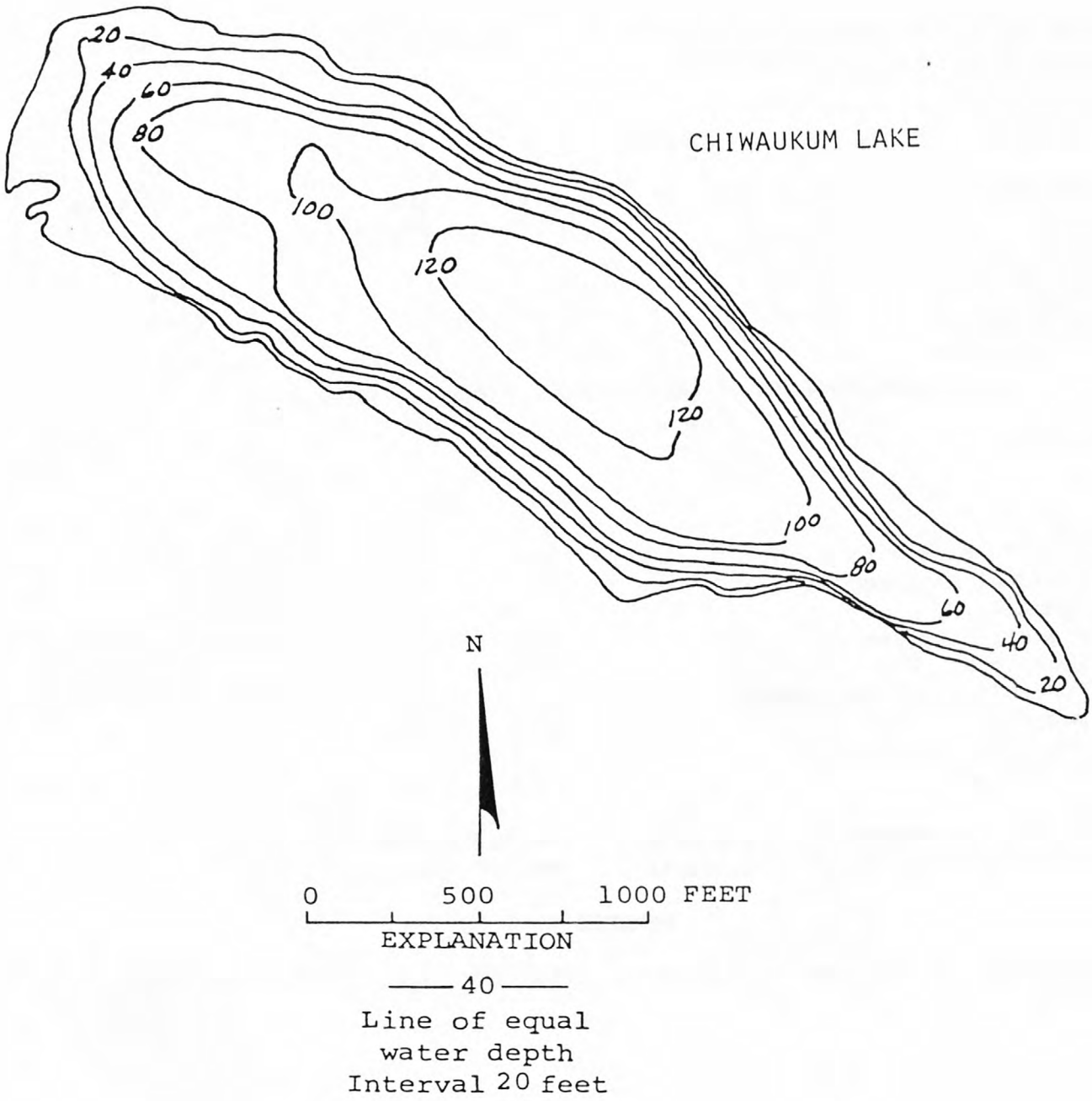
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/1/74	
Time	1330	1335
Depth (m)	1	35
Total nitrite plus nitrate (N)	0.02	0.04
Total kjeldahl nitrogen (N)	0.05	0.03
Total ammonia (N)	0.02	0.03
Total organic nitrogen (N)	0.03	0.00
Total phosphorus (P)	0.001	0.002
Specific conductance (micromhos)	13	13
Water temperature (°C)	10.3	4.0
Secchi-disc visibility (m)	10	
Dissolved oxygen	10.2	9.8

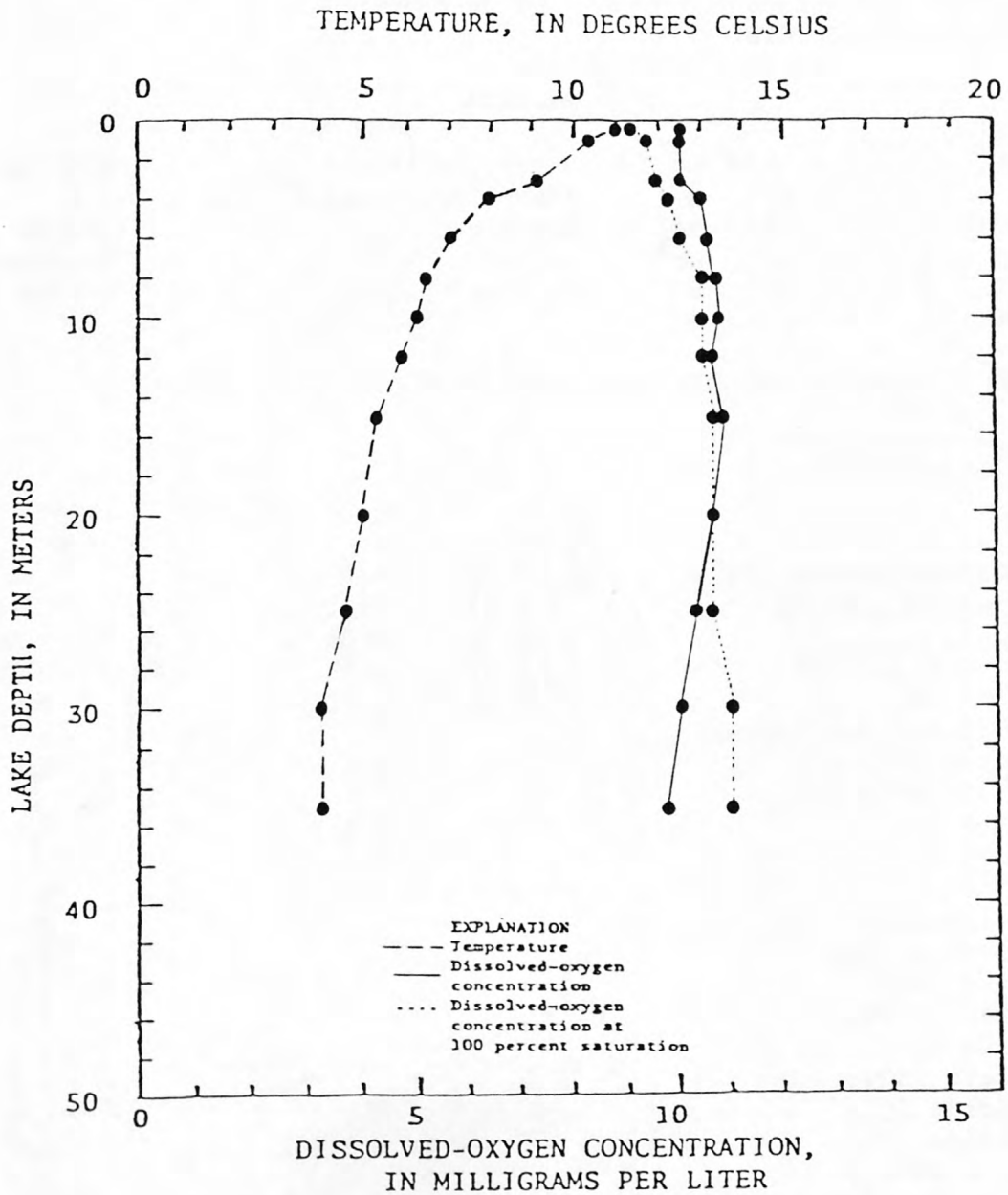
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

No aquatic macrophytes were observed. Floating logs were observed near the outlet.



Chiwaukum Lake, Chelan County. From
U.S. Geological Survey, September 10, 1974.



Chiwaukum Lake, Chelan County. From
U.S. Geological Survey, August 1, 1974.

COLCHUCK LAKE CHELAN COUNTY

Latitude 47°29'41" Longitude 120°50'5" T23N-R16E-S10
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	3.66 km^2	Shoreline length	2.87 km
Altitude	1698 m	Shoreline configuration	1.4
Lake area	31.6 ha	Basin geology	Igneous
Lake volume	11.7 hm^3	Inflow	Perennial
Mean depth	37 m	Outflow channel	Present
Maximum depth	61 m		

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

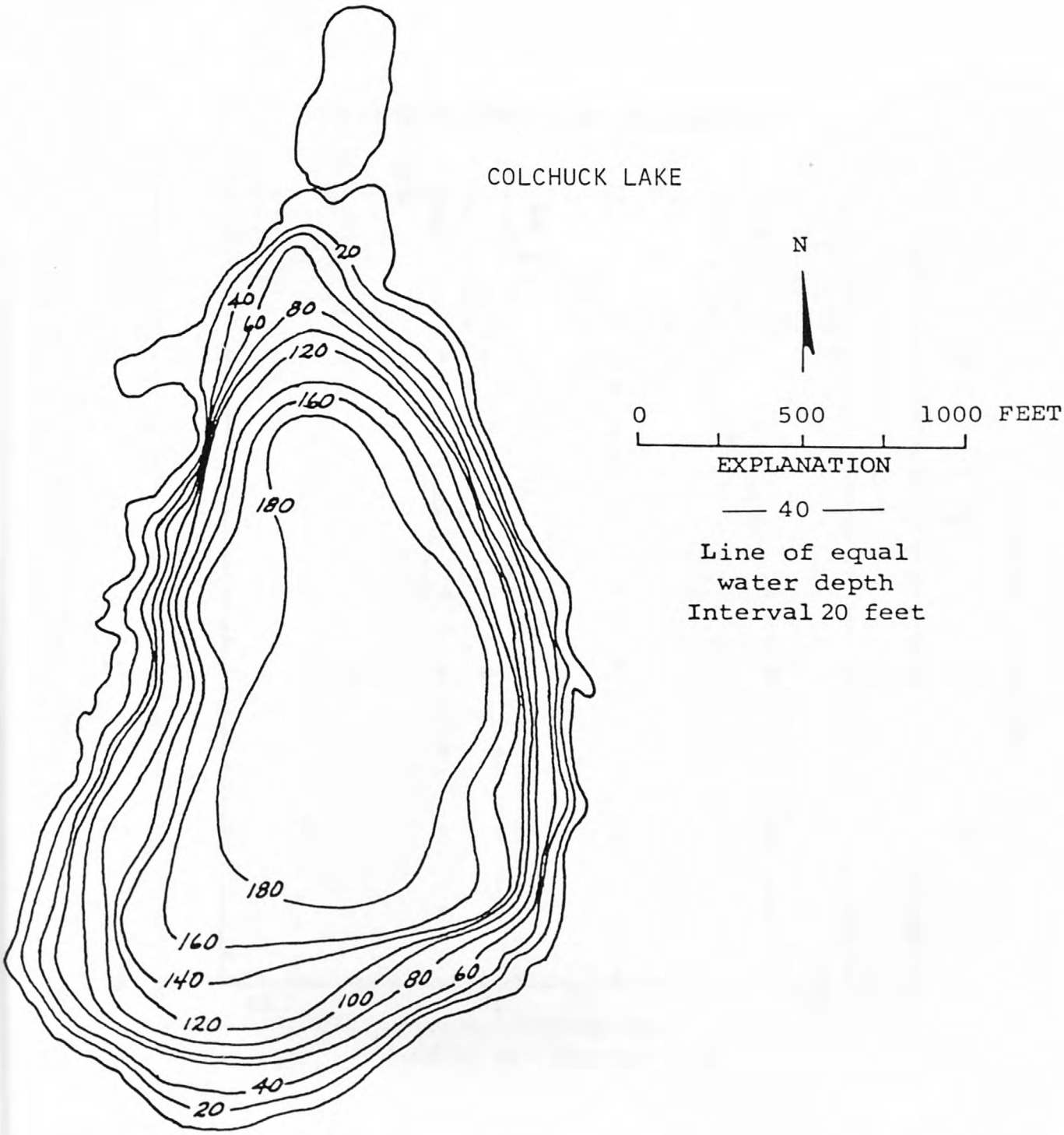
Sample site	1		2	
Date	7/31/74		8/9/78	
Time	1330	1335	1500	1505
Depth (m)	1	49	1	60
Total nitrite plus nitrate (N)	0.02	0.06	-----	-----
Total kjeldahl nitrogen (N)	0.11	0.12	0.08	0.14
Total ammonia (N)	0.04	0.04	0.02	0.04
Total organic nitrogen (N)	0.07	0.08	0.06	0.10
Total phosphorus (P)	0.002	0.007	0.007	0.017
Specific conductance (micromhos)	19	19	19	25
Water temperature (°C)	14.0	3.8	17.2	3.8
Secchi-disc visibility (m)	9		4	
Dissolved oxygen	8.7	9.4	7.1	8.2

Hardness (Ca, Mg)	9
Dissolved calcium (Ca)	2.9
Dissolved magnesium (Mg)	0.4
Dissolved sodium (Na)	2.0
Dissolved potassium (K)	1.1
Alkalinity as $CaCO_3$	11
Dissolved sulfate (SO_4)	1.4
Dissolved chloride (Cl)	1.4
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	5.1
Dissolved solids (sum of constituents)	21

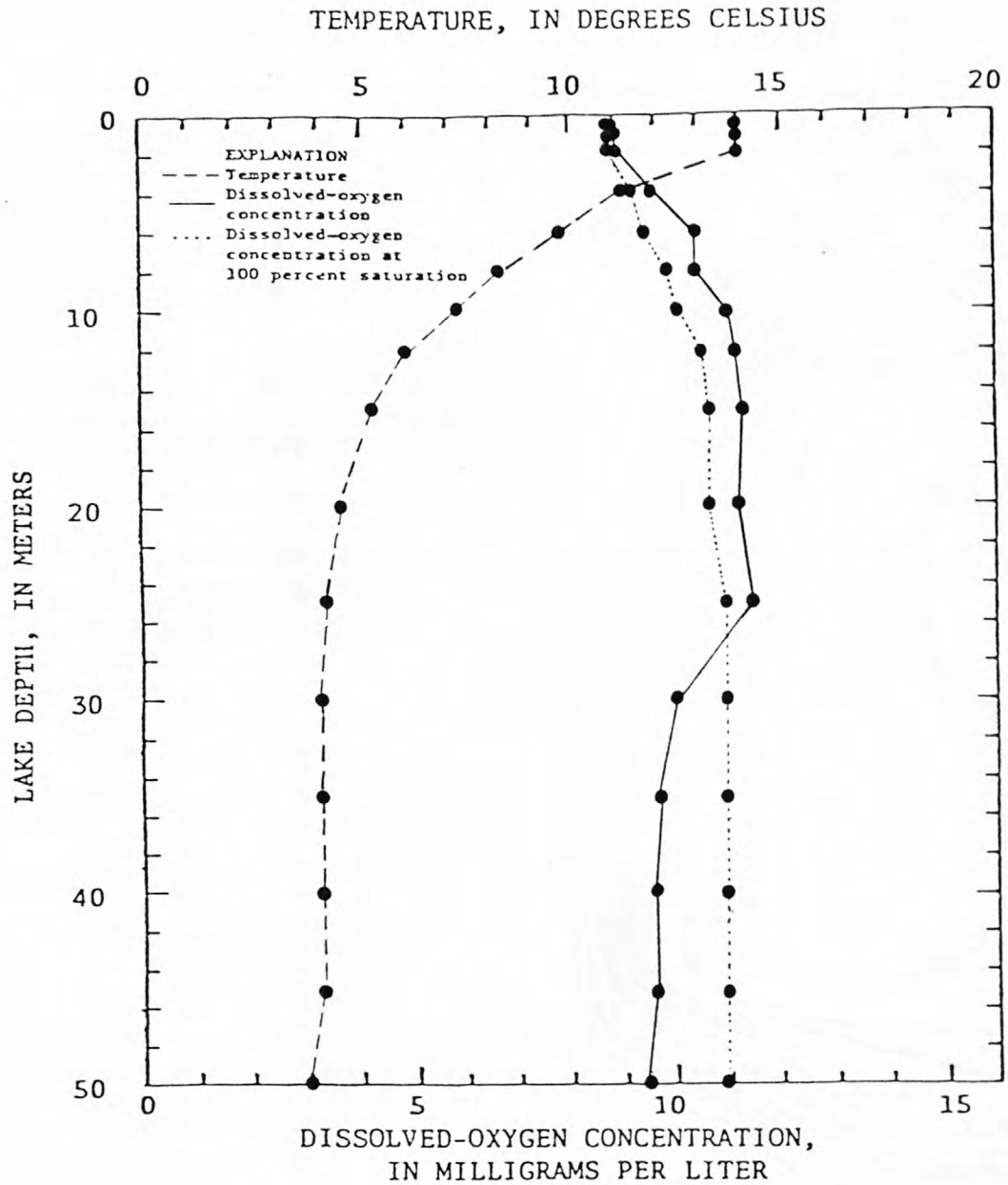
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

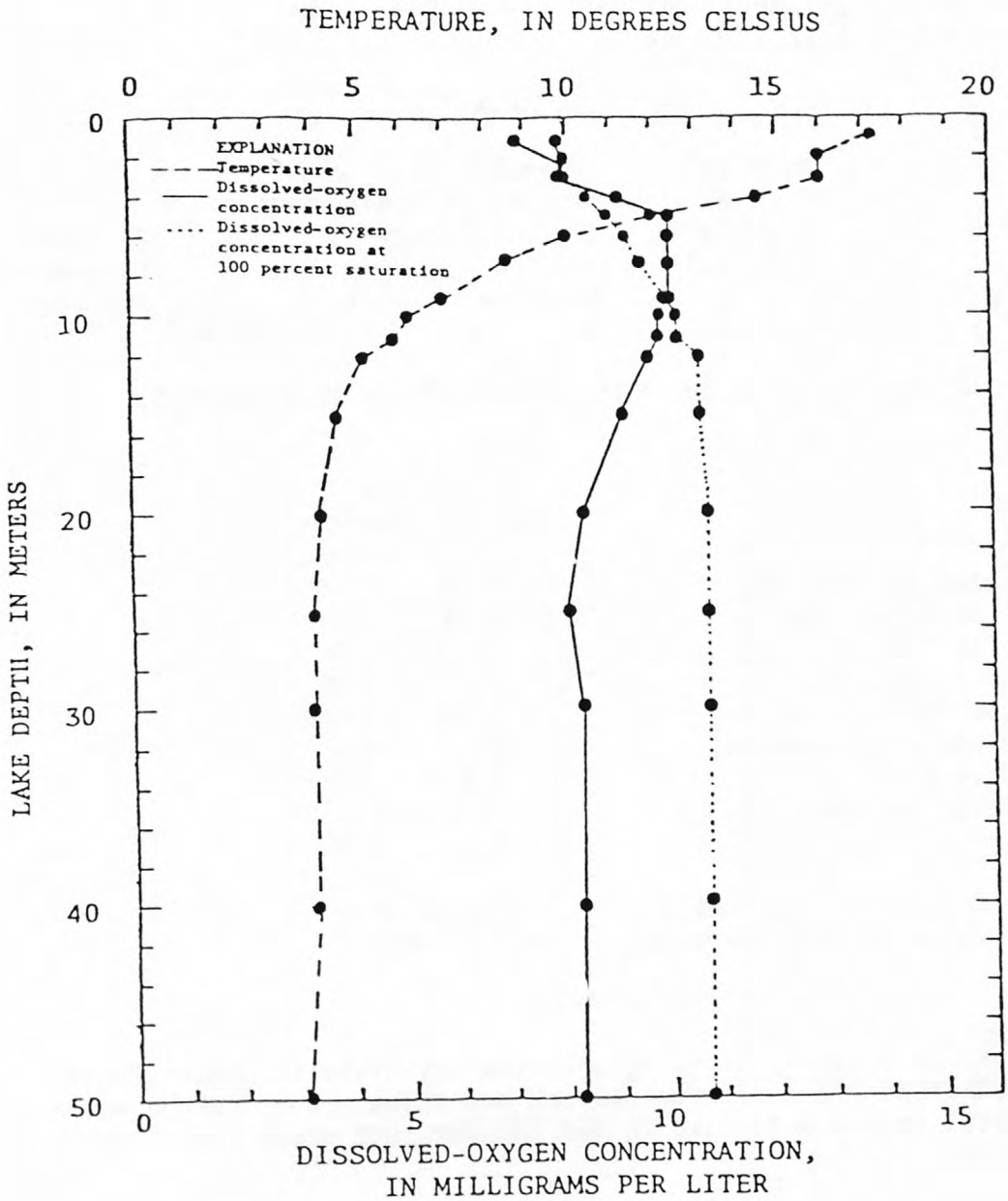
A deep lake fed by a small glacier, and stabilized by a small dam at the outlet. The shoreline is composed of talus, and forested bedrock or till. Lake water is turbid from silt produced by Colchuck glacier. Zooplankton were abunda Dissolved-oxygen concentrations were slightly depleted in the deeper waters. Floating logs were abundant on the north end of the lake.



Colchuck Lake, Chelan County. From
U.S. Geological Survey, September 11, 1974.



Colchuck Lake, Chelan County. From U.S. Geological Survey, July 31, 1974.



Colchuck Lake, Chelan County. From U.S. Geological Survey, August 9, 1978.

CRYSTAL LAKE CHELAN COUNTY

Latitude 47°28'26" Longitude 120°47'55" T23N-R16E-S23
Wenatchee River Basin, Ingalls Creek

PHYSICAL DATA

Drainage area	0.19 km^2	Shoreline length	0.66 km
Altitude	2140 m	Shoreline configuration	1.2
Lake area	2.5 ha	Basin geology	Igneous
Lake volume	0.22 hm^3	Inflow	Intermittent
Mean depth	8 m	Outflow channel	Present
Maximum depth	17 m		

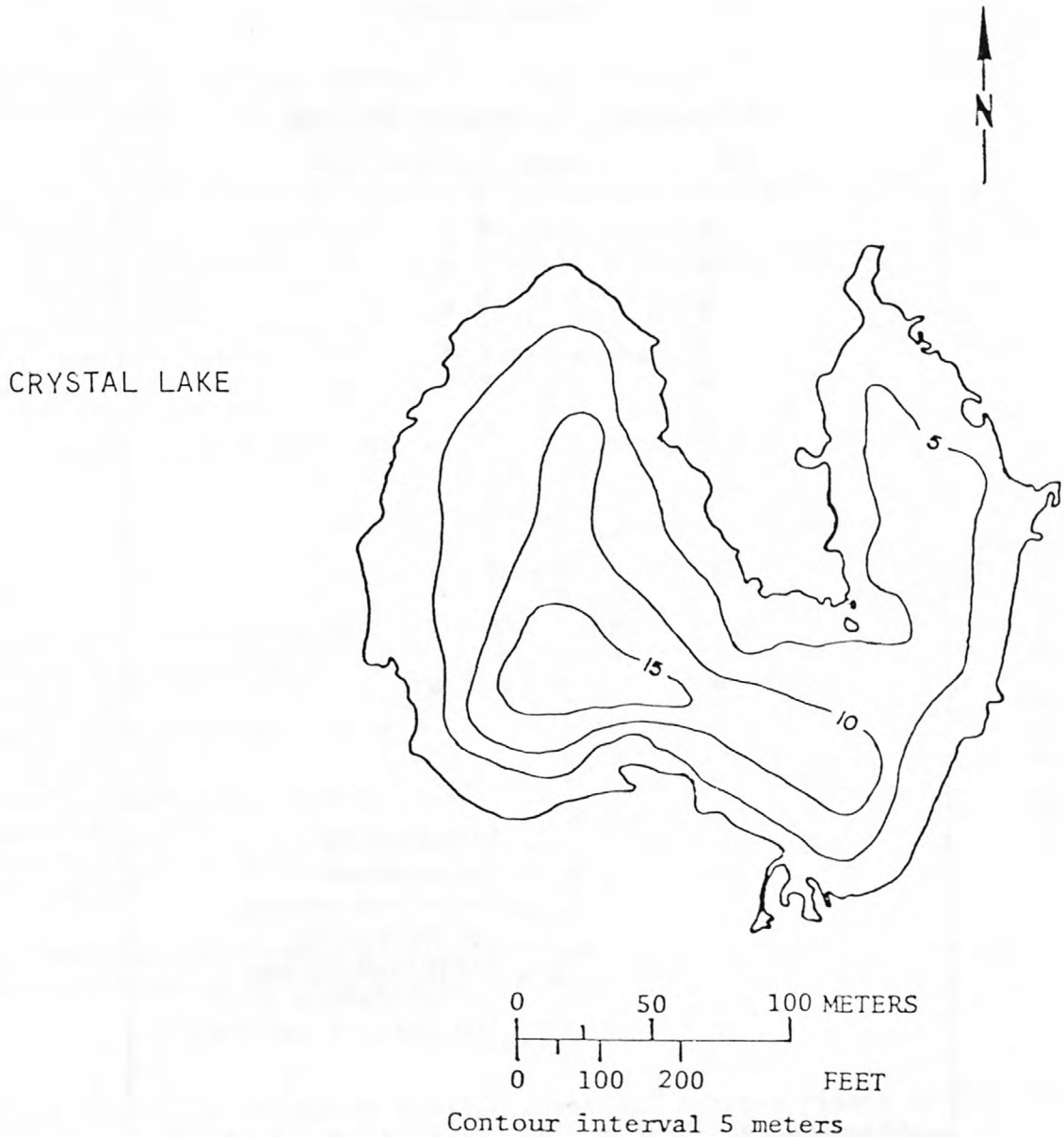
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/10/78	
Time	1500	1505
Depth (m)	1	14.5
Total nitrite plus nitrate (N)	0.00	0.00
Total kjeldahl nitrogen (N)	0.12	0.12
Total ammonia (N)	0.02	0.01
Total organic nitrogen (N)	0.10	0.11
Total phosphorus (P)	0.006	0.008
Specific conductance (micromhos)	5	4
Water temperature (°C)	5.5	5.3
Secchi-disc visibility (m)	9.5	
Dissolved oxygen	8.8	8.6

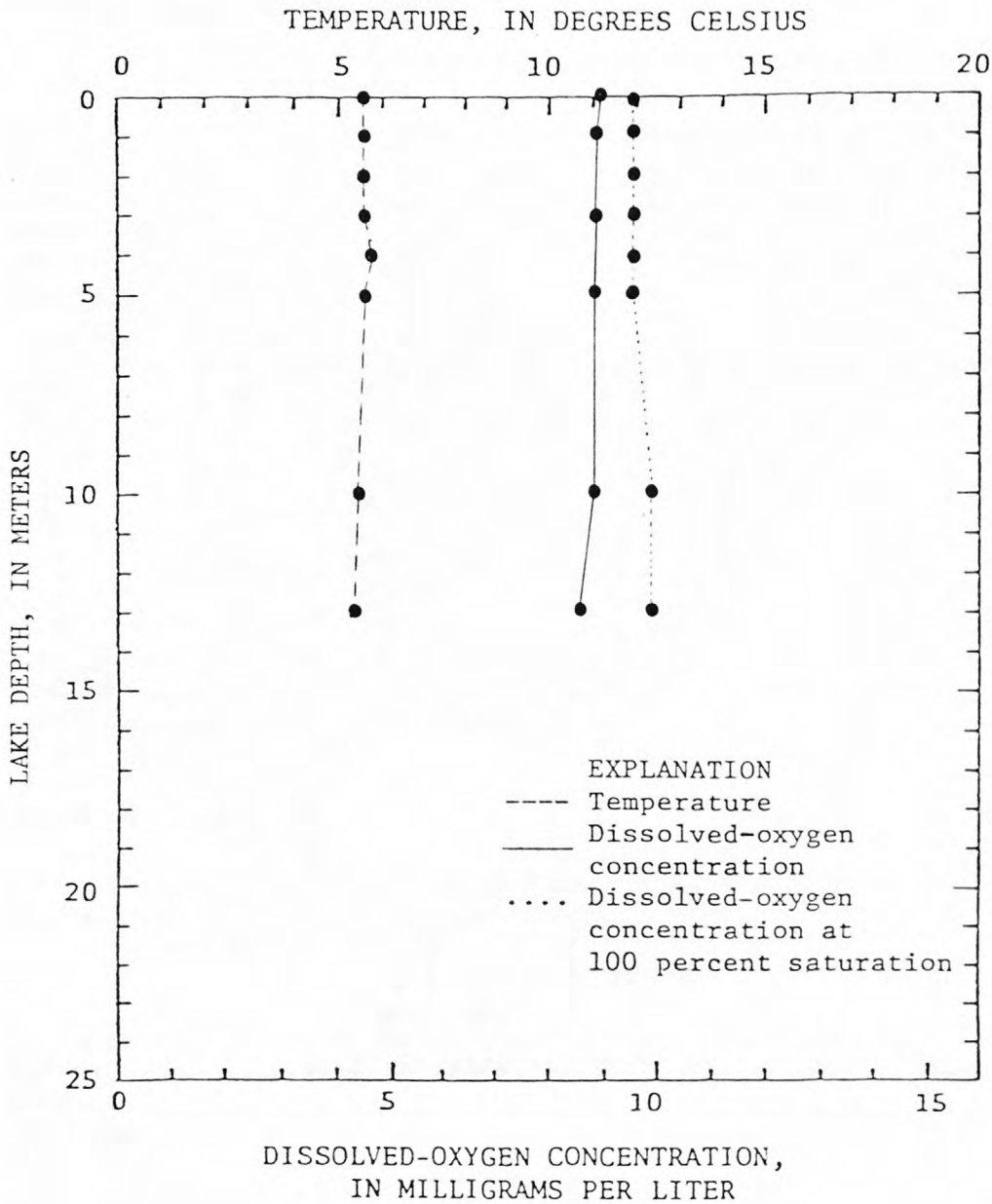
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

A small lake in a small, rocky basin. The shoreline is dominated by bedrock, and easily eroded weathered bedrock and talus. Zooplankton were abundant. Crystal is the only lake in the Enchantments group that drains into Ingalls Creek.



Crystal Lake, Chelan County. From
U.S. Geological Survey, September 10, 1978.



Crystal Lake, Chelan County. From U.S. Geological Survey, September 10, 1978.

EARLE LAKE CHELAN COUNTY

Latitude 47°30'25" Longitude 120°46'4" T23N-R17E-S7
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	4.41 km^2	Shoreline length	0.98 km
Altitude	2037 m	Shoreline configuration	1.5
Lake area	3.5 ha	Basin geology	Igneous
Lake volume	0.58 hm^3	Inflow	Perennial
Mean depth	17 m	Outflow channel	Present
Maximum depth	23 m		

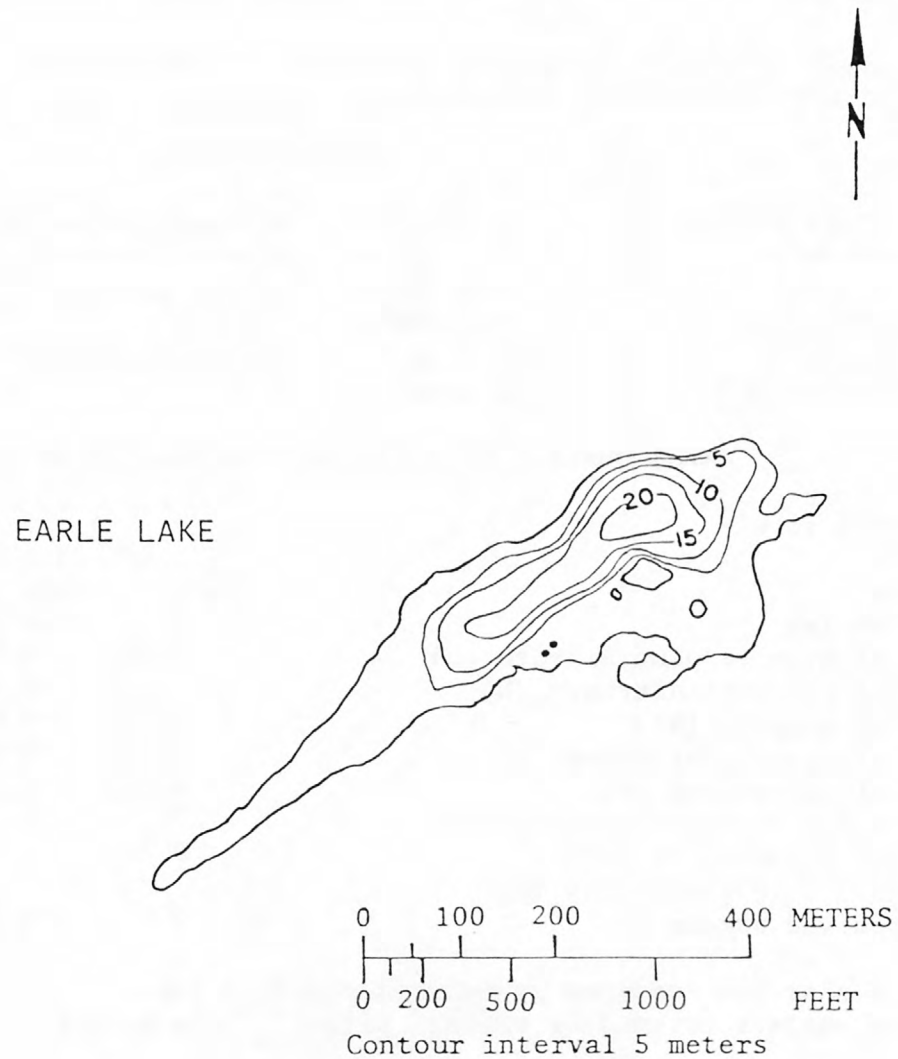
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/7/78	
Time	1400	1405
Depth (m)	1	25
Total nitrite plus nitrate (N)	0.00	0.00
Total kjeldahl nitrogen (N)	0.12	0.10
Total ammonia (N)	0.02	0.02
Total organic nitrogen (N)	0.10	0.08
Total phosphorus (P)	0.003	0.006
Specific conductance (micromhos)	7	7
Water temperature (°C)	8.2	5.8
Secchi-disc visibility (m)	16	
Dissolved oxygen	9.2	6.2

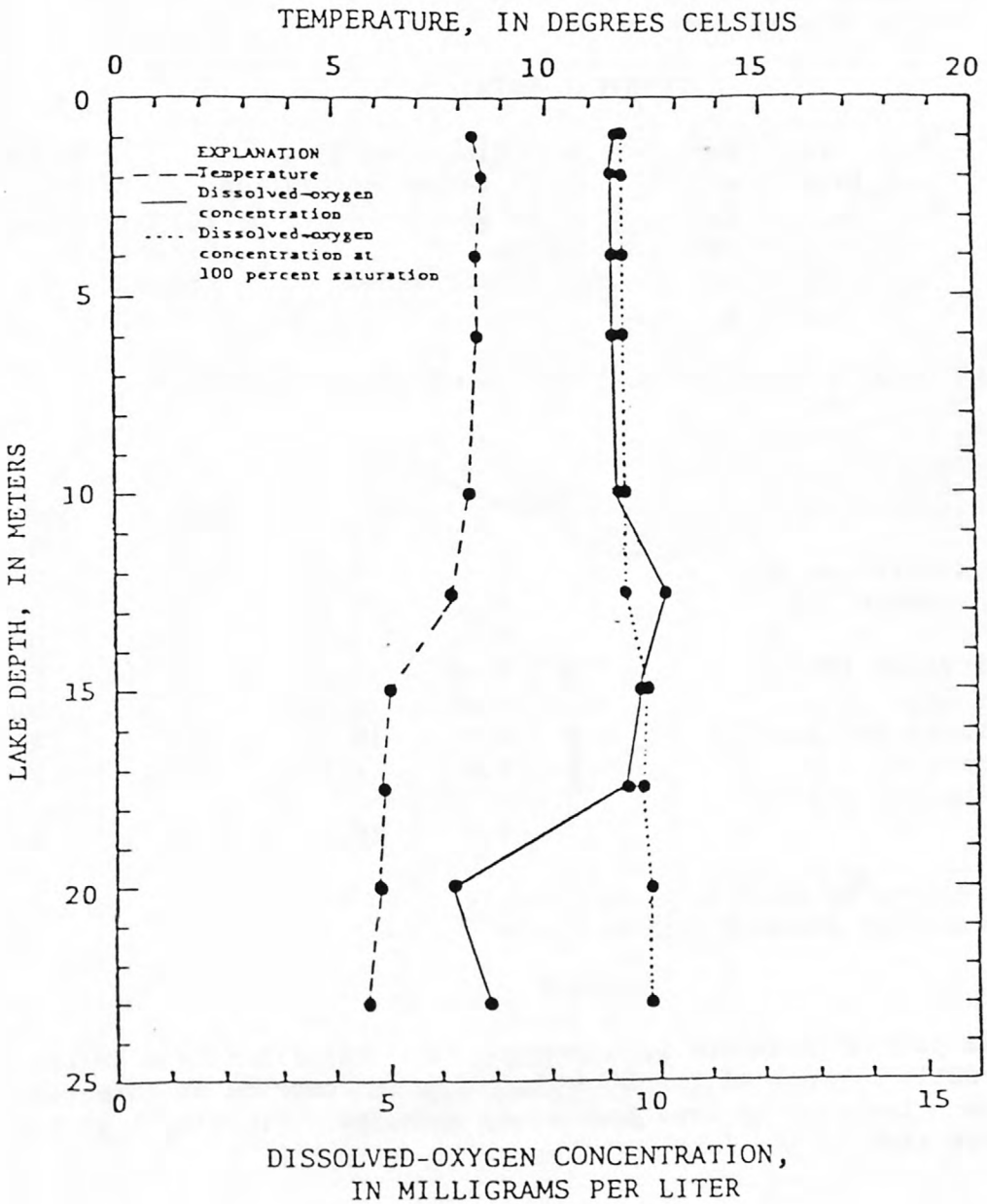
Lake shoreline covered by emersed plants 0-10%
Lake surface covered by emersed plants None or <1%

REMARKS

A narrow lake with extensive shallow areas and emersed plants on the south and west sides. There are areas of wet soils on the southwest and the southeast edges of the lake; forested bedrock and alluvium dominate the rest of the shoreline Zooplankton were moderately abundant. Dissolved-oxygen levels were slightly depleted in bottom waters.



Earle Lake, Chelan County. From
U.S. Geological Survey, September 7, 1978.



Earle Lake, Chelan County. From
U.S. Geological Survey, September 7, 1978.

EIGHTMILE LAKE CHELAN COUNTY

Latitude 47°31'15" Longitude 120°51'28" T24N-R16E-S33
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	15.2 km^2	Shoreline length	2.96 km
Altitude	1415 m	Shoreline configuration	1.7
Lake area	26.3 ha	Basin geology	Igneous/Metamorp
Lake volume	2.63 hm^3	Inflow	Perennial
Mean depth	10 m	Outflow channel	Present
Maximum depth	26 m		

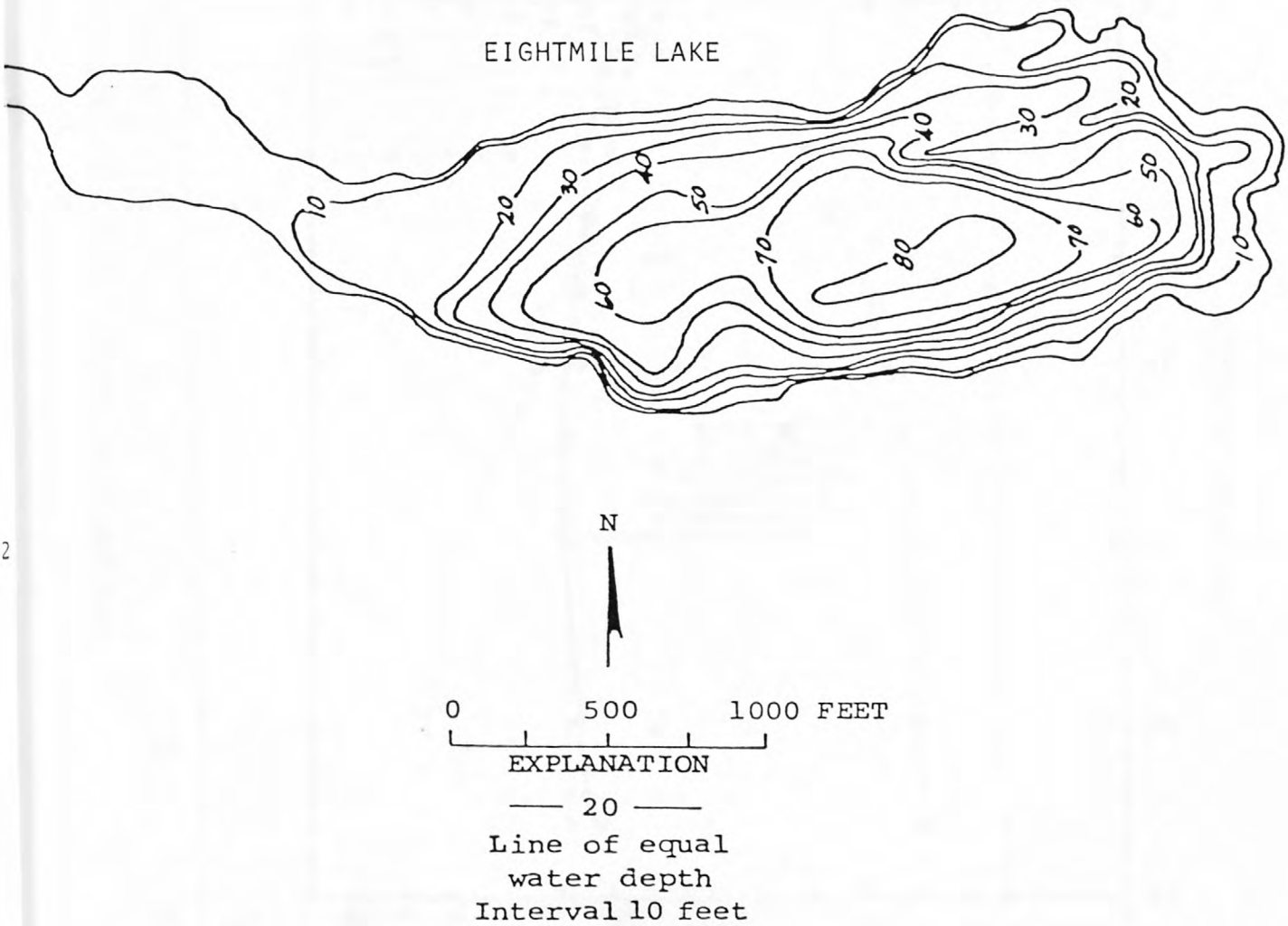
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1		2	
Date	7/31/74		8/10/78	
Time	1430	1435	1800	1805
Depth (m)	1	23	1	20
Total nitrite plus nitrate (N)	0.01	0.01	-----	-----
Total kjeldahl nitrogen (N)	0.08	0.11	0.10	0.12
Total ammonia (N)	0.05	0.03	0.02	0.02
Total organic nitrogen (N)	0.03	0.08	0.08	0.10
Total phosphorus (P)	0.003	0.005	0.007	0.012
Specific conductance (micromhos)	18	18	20	24
Water temperature (°C)	11.8	4.7	16.0	5.4
Secchi-disc visibility (m)	11		-----	
Dissolved oxygen	9.8	10.2	8.2	9.0

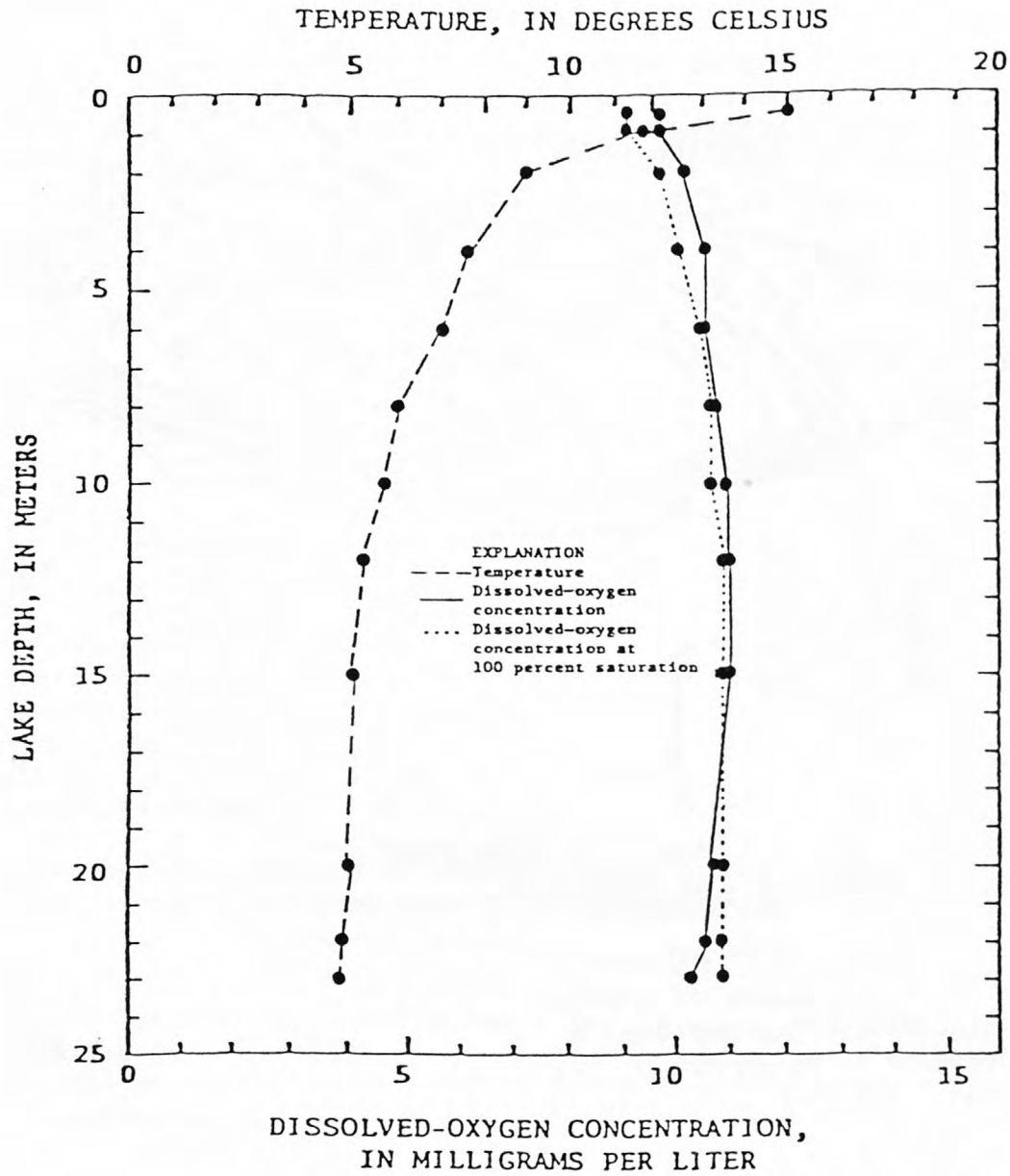
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

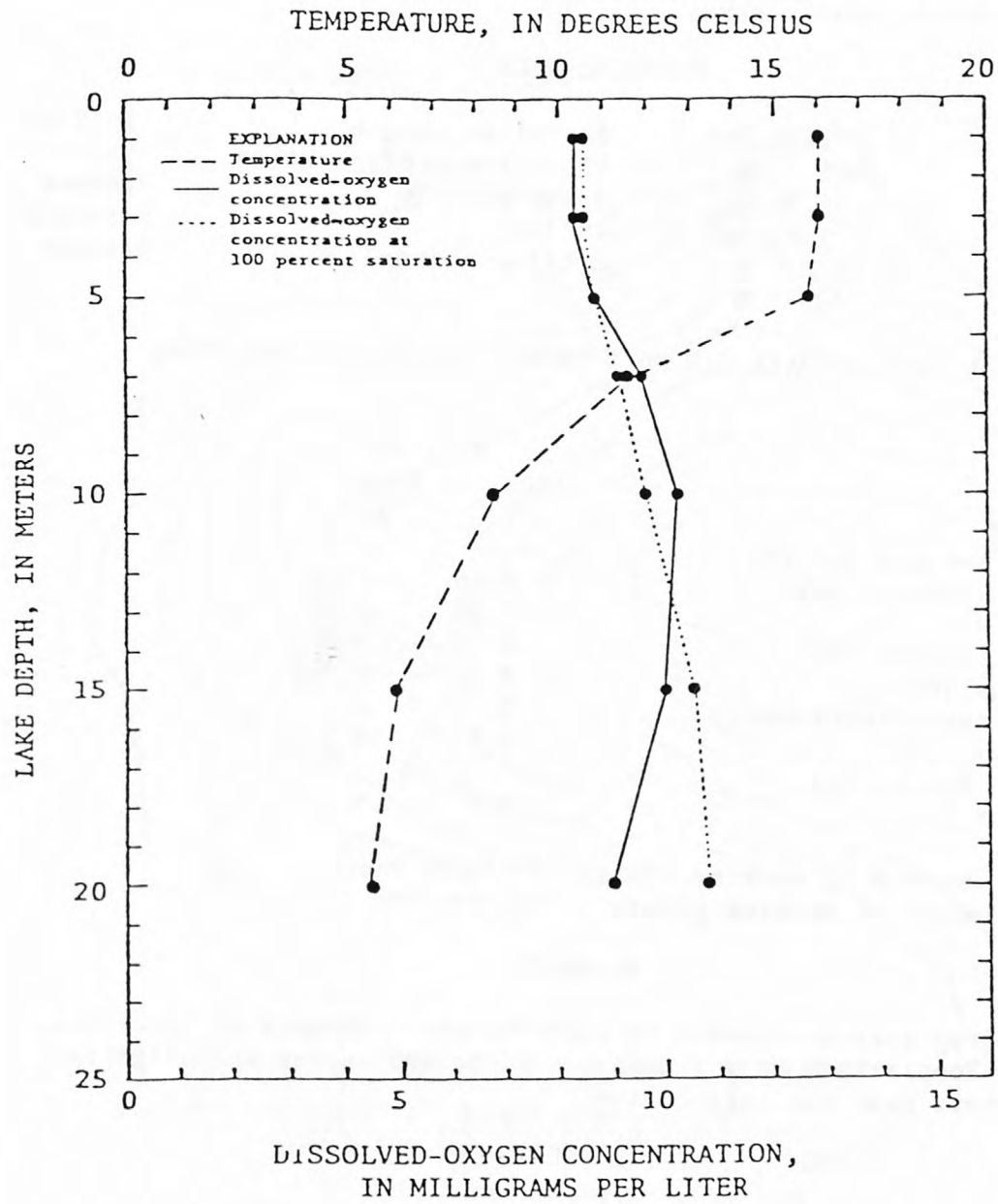
A large lake partially dammed by a moraine, and stabilized by a small rock dam at the outlet. Most of the lake shoreline is composed of forested bedrock and talus. Zooplankton were moderately abundant. Floating logs are common on the east side of the lake.



Eightmile Lake, Chelan County. From
U.S. Geological Survey, September 11, 1974.



Eightmile Lake, Chelan County. From U.S. Geological Survey, July 31, 1974.



Eightmile Lake, Chelan County. From
U.S. Geological Survey, August 10, 1978

ENCHANTMENT 2 LAKE CHELAN COUNTY

Latitude 47°28'55" Longitude 120°46'48" T23N-R16E-S13
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	5.24 km^2	Shoreline length	1.12 km
Altitude	2068 m	Shoreline configuration	1.2
Lake area	6.9 ha	Basin geology	Igneous
Lake volume	1.58 hm^3	Inflow	Perennial
Mean depth	23 m	Outflow channel	Present
Maximum depth	42 m		

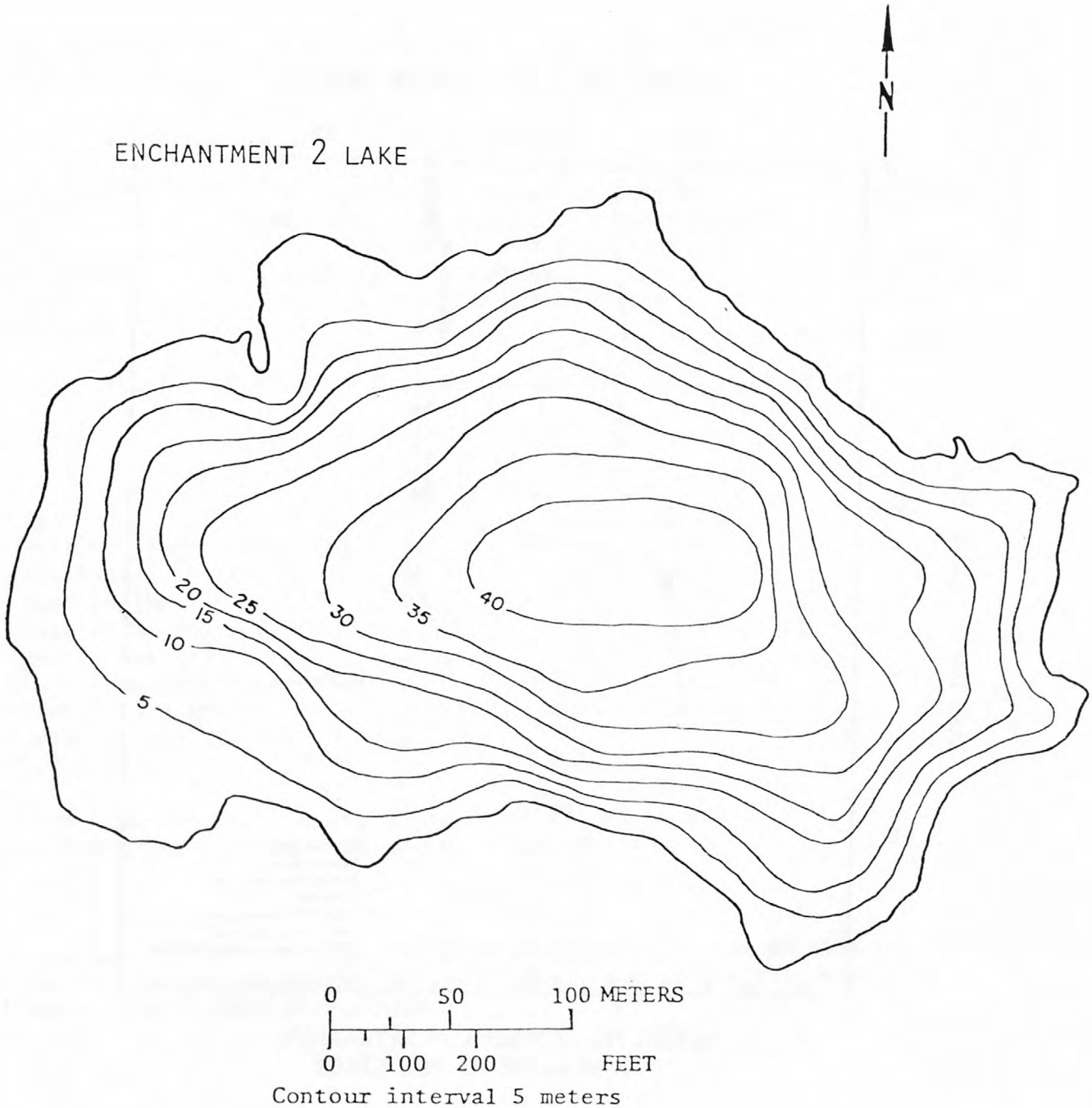
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/11/78	
Time	1300	1305
Depth (m)	1	37
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.16	0.08
Total ammonia (N)	0.03	0.02
Total organic nitrogen (N)	0.13	0.06
Total phosphorus (P)	0.006	0.006
Specific conductance (micromhos)	5	5
Water temperature (°C)	6.5	4.5
Secchi-disc visibility (m)	10	
Dissolved oxygen	9.3	8.3

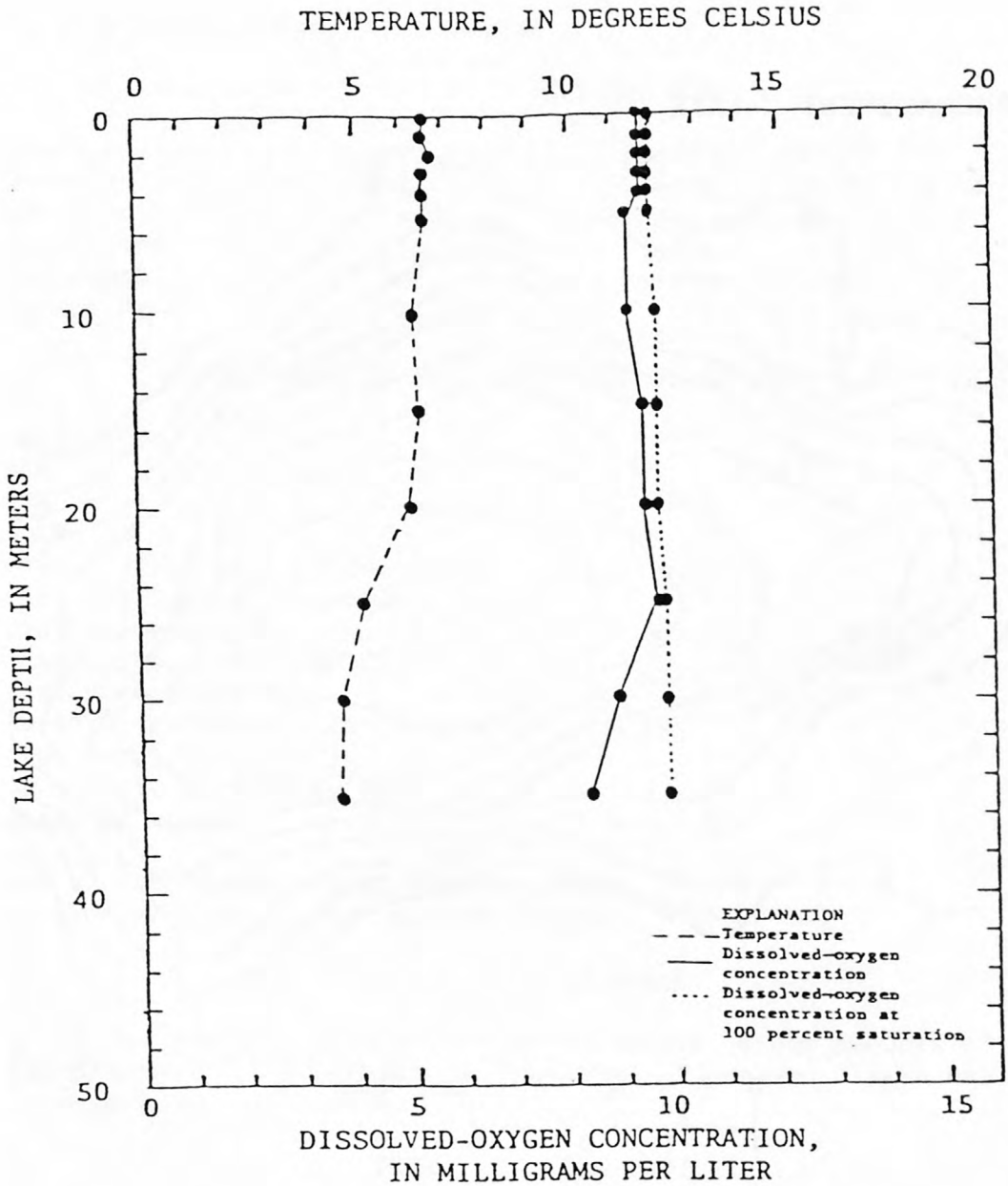
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, deep lake surrounded by bedrock; minor amounts of talus are also present. Zooplankton were abundant. Dissolved oxygen was slightly depleted in waters near the lake bottom.



Enchantment 2 Lake, Chelan County. From
U.S. Geological Survey, September 11, 1978.



Enchantment 2 Lake, Chelan County. From U.S. Geological Survey, September 11, 1978.

ENCHANTMENT 3 LAKE CHELAN COUNTY

Latitude 47°28'49" Longitude 120°46'59" T23N-R16E-S13
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	4.78 km^2	Shoreline length	1.46 km
Altitude	2096 m	Shoreline configuration	1.9
Lake area	4.8 ha	Basin geology	Igneous
Lake volume	0.38 hm^3	Inflow	Perennial
Mean depth	8 m	Outflow channel	Present
Maximum depth	19 m		

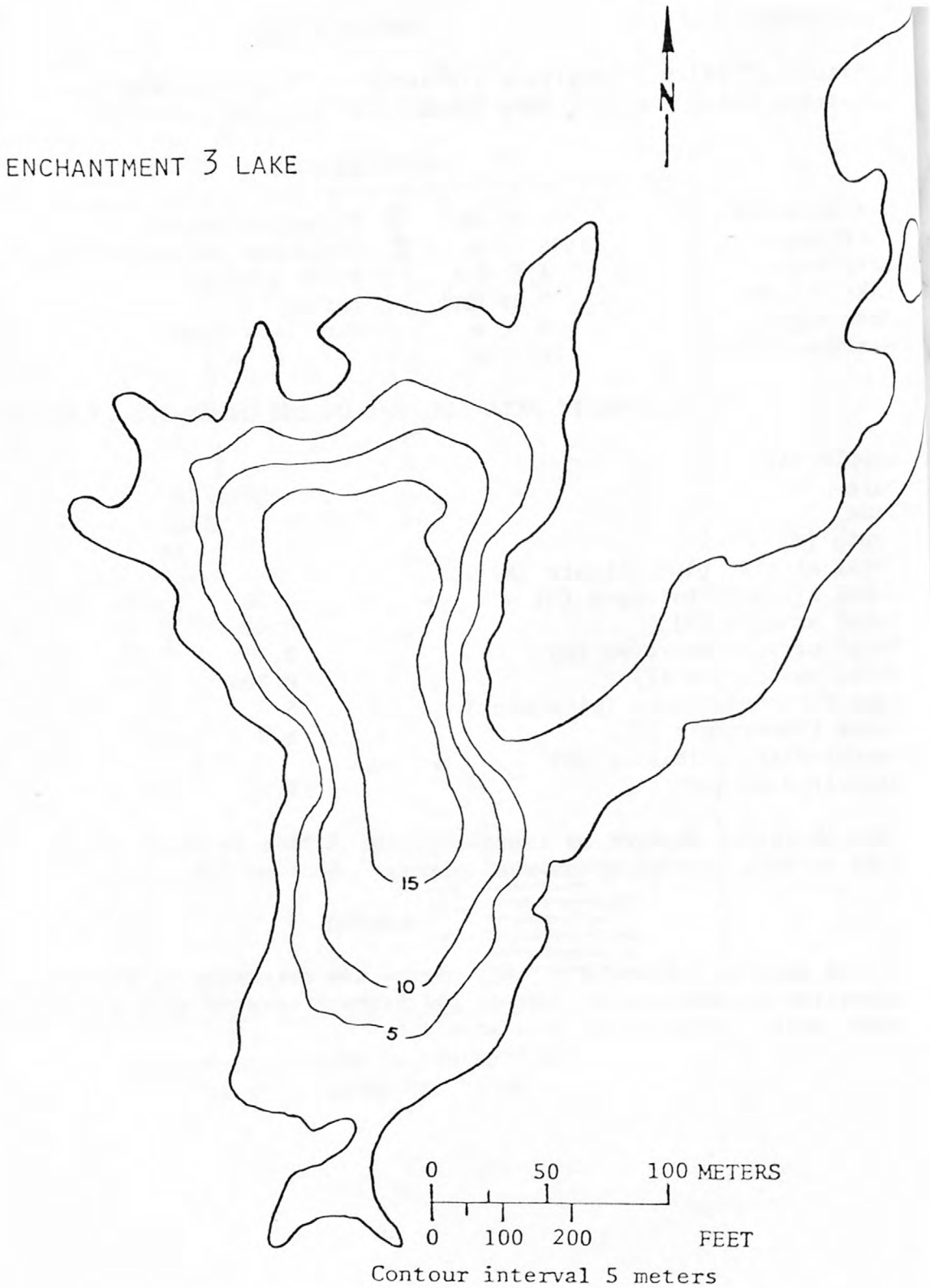
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/11/78	
Time	1130	1135
Depth (m)	1	18
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.15	0.16
Total ammonia (N)	0.02	0.01
Total organic nitrogen (N)	0.13	0.15
Total phosphorus (P)	0.005	0.013
Specific conductance (micromhos)	5	5
Water temperature (°C)	6.0	5.3
Secchi-disc visibility (m)	7.5	
Dissolved oxygen	9.3	9.6

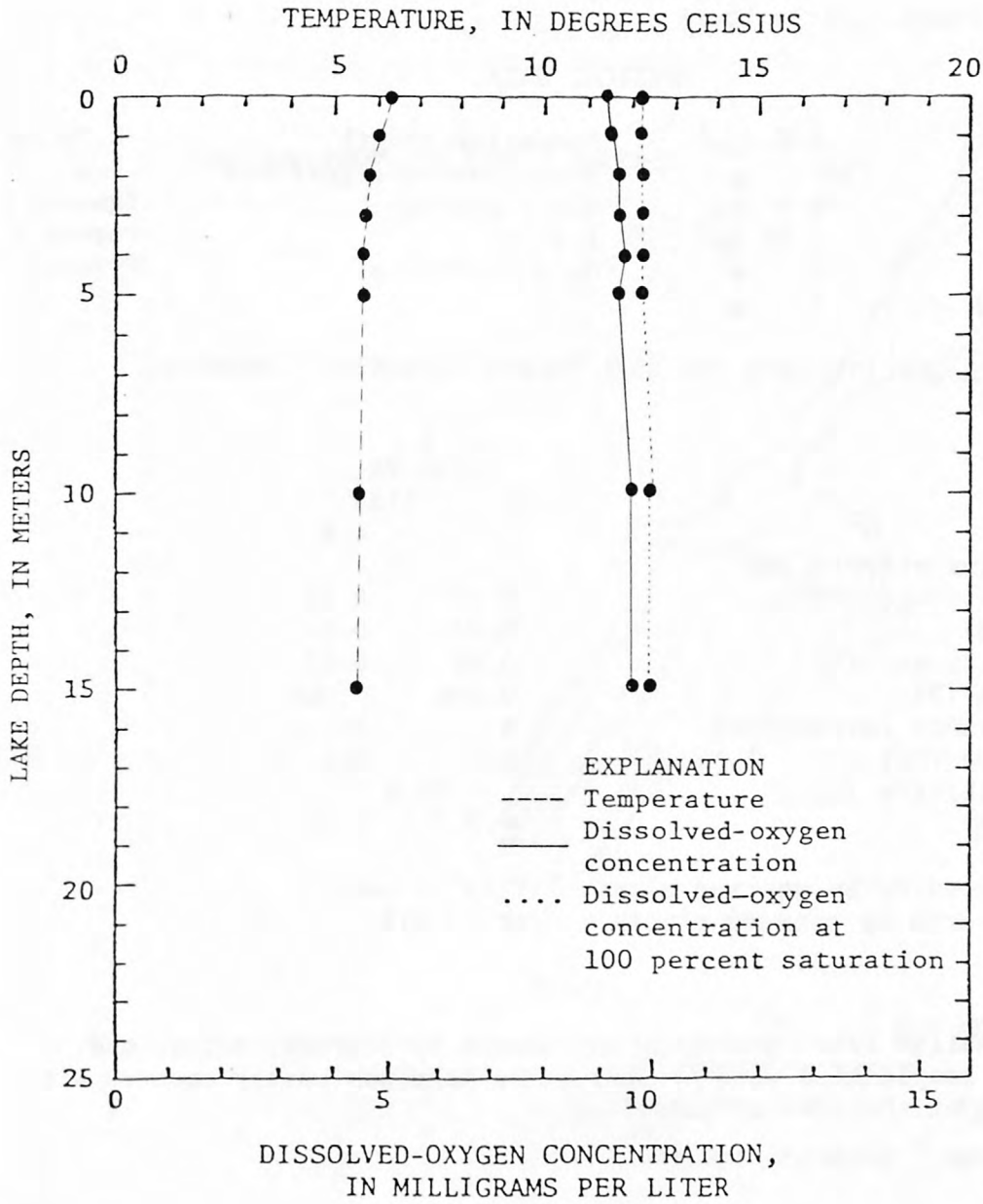
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A shallow lake with a long, narrow arm extending to the northeast. The shoreline is composed of bedrock and bedrock covered with a thin mantle of sandy soil. Zooplankton were abundant.



Enchantment 3 Lake, Chelan County. From U.S. Geological Survey, September 11, 1978.



Enchantment 3 Lake, Chelan County. From U.S. Geological Survey, September 11, 1978.

ENCHANTMENT 6 LAKE CHELAN COUNTY

Latitude 47°28'41" Longitude 120°48'41" T23N-R26E-S14
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	1.5	km^2	Shoreline length	0.29 km
Altitude	2302	m	Shoreline configuration	1.1
Lake area	0.6	ha	Basin geology	Igneous
Lake volume	0.01	hm^3	Inflow	Perennial
Mean depth	2	m	Outflow channel	Present
Maximum depth	3	m		

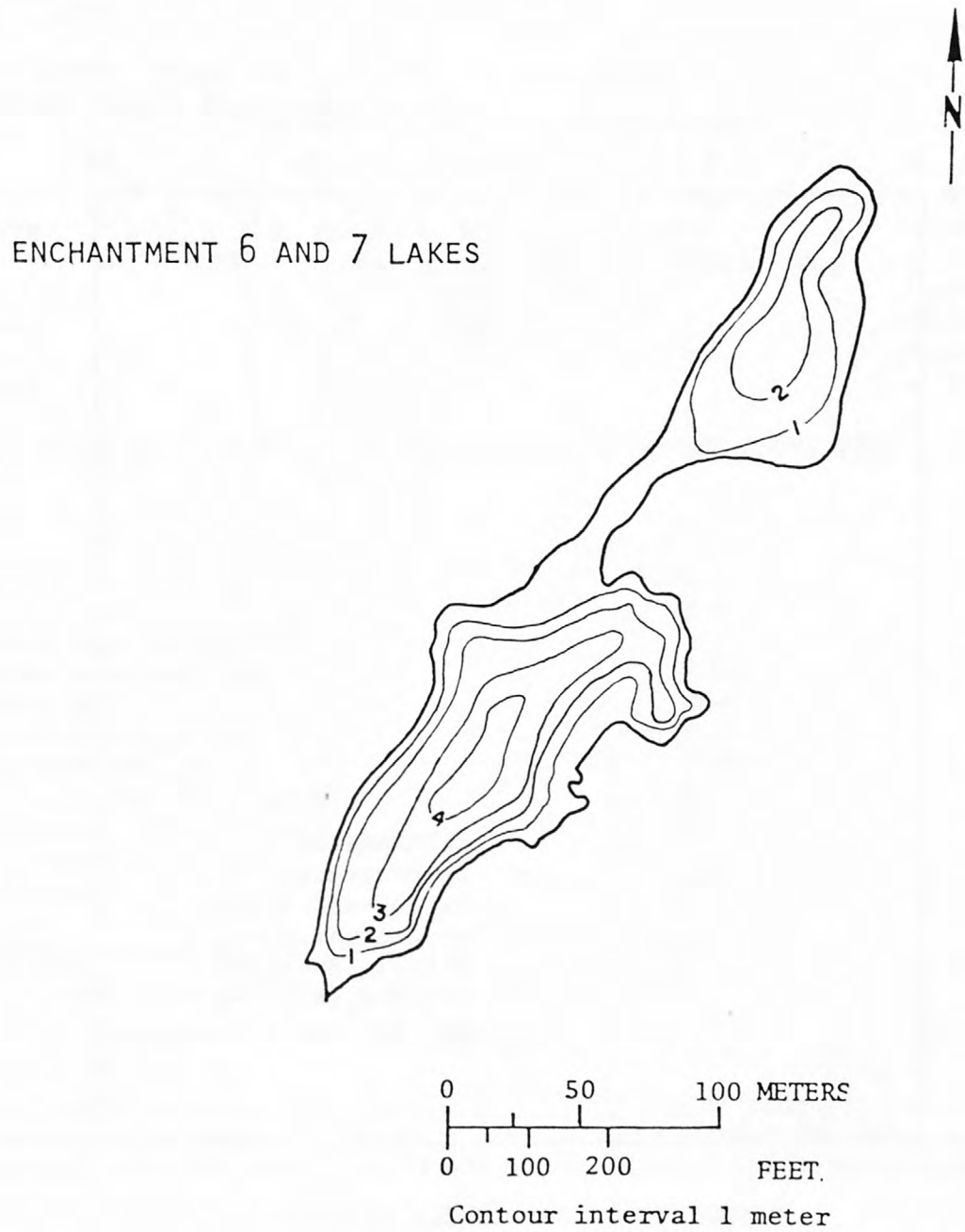
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/10/78	
Time	1130	1135
Depth (m)	1	4.4
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.10	0.08
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.09	0.07
Total phosphorus (P)	0.006	0.006
Specific conductance (micromhos)	4	4
Water temperature (°C)	2.0	2.1
Secchi-disc visibility (m)	>2.5	
Dissolved oxygen	9.7	9.8

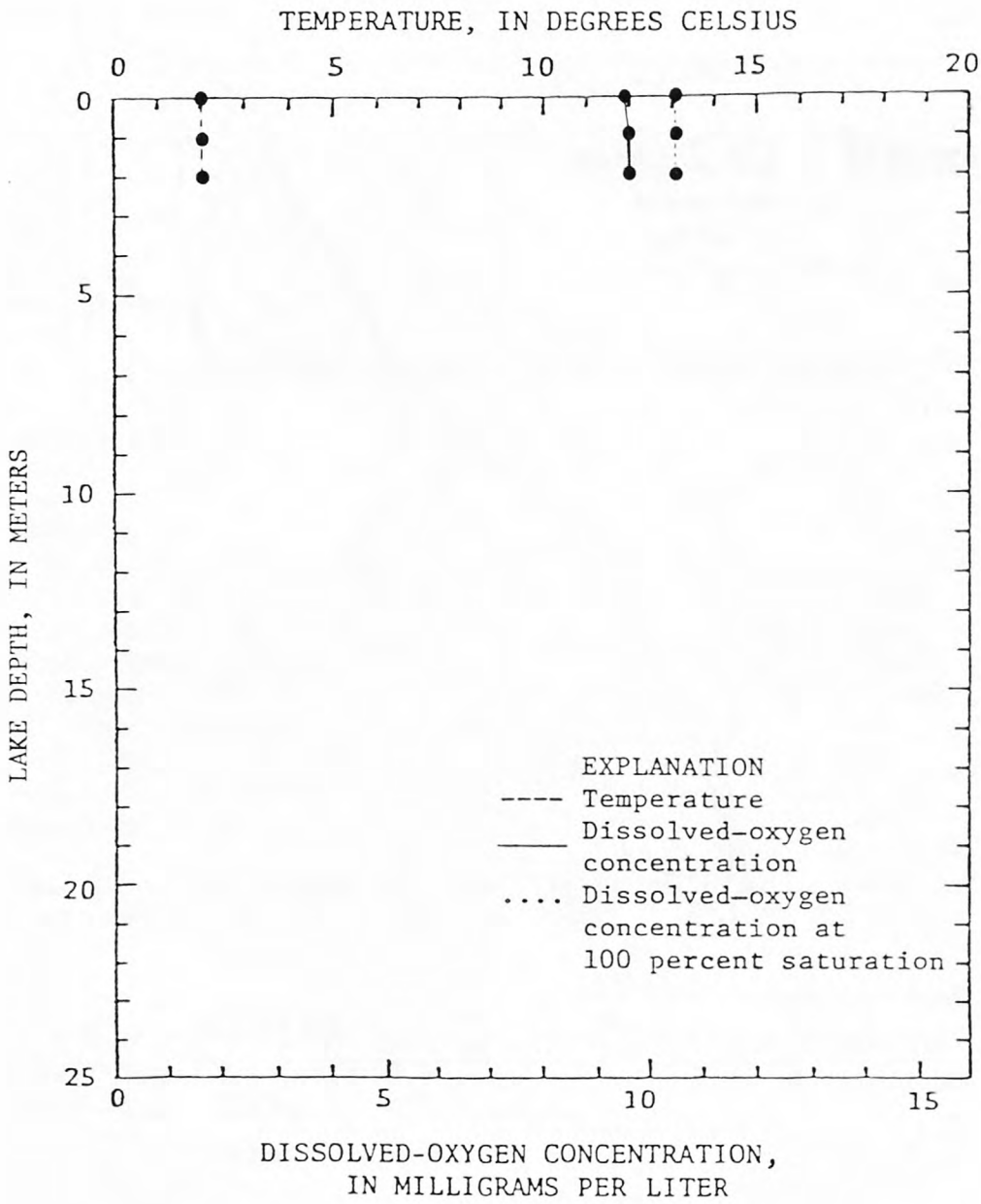
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake completely surrounded by bedrock, talus, and snowfields. No zooplankton were present. The lake was partly covered with newly formed ice at the time of sampling.



Enchantment 6 and 7 Lakes, Chelan County. From U.S. Geological Survey, September 10, 1978.



Enchantment 6 Lake, Chelan County. From U.S. Geological Survey, September 10, 1978.

ENCHANTMENT 7 LAKE CHELAN COUNTY

Latitude 47°28'37" Longitude 120°48'42" T23N-R16E-S14
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	1.5 km^2	Shoreline length	0.34 km
Altitude	2305 m	Shoreline configuration	1.1
Lake area	0.7 ha	Basin geology	Igneous
Lake volume	0.02 hm^3	Inflow	Perennial
Mean depth	3 m	Outflow channel	Present
Maximum depth	5 m		

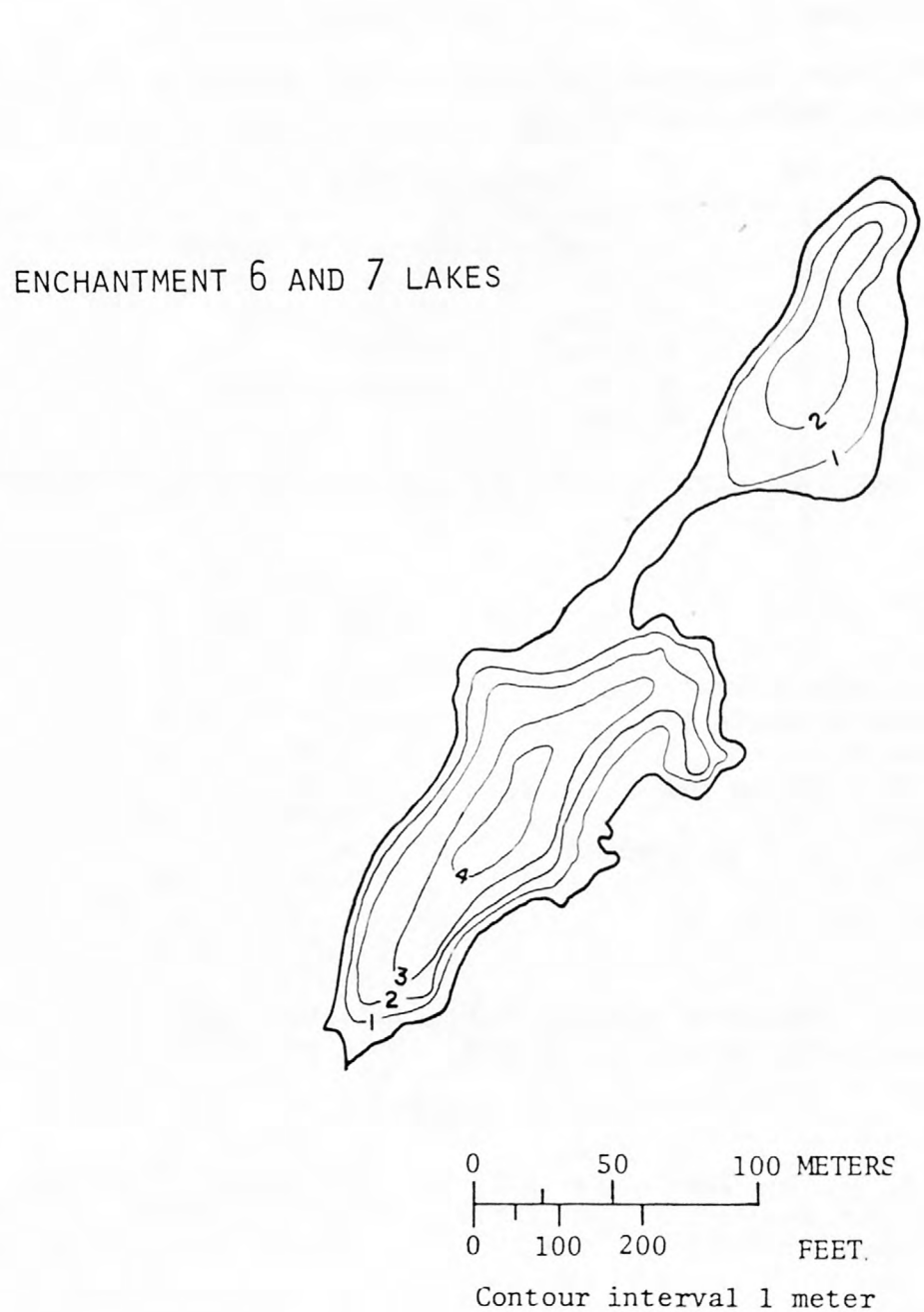
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/10/78	
Time	1000	1005
Depth (m)	1	2.4
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.07	0.09
Total ammonia (N)	0.02	0.02
Total organic nitrogen (N)	0.05	0.07
Total phosphorus (P)	0.006	0.006
Specific conductance (micromhos)	4	4
Water temperature (°C)	2.0	2.0
Secchi-disc visibility (m)	>4.5	
Dissolved oxygen	9.6	9.7

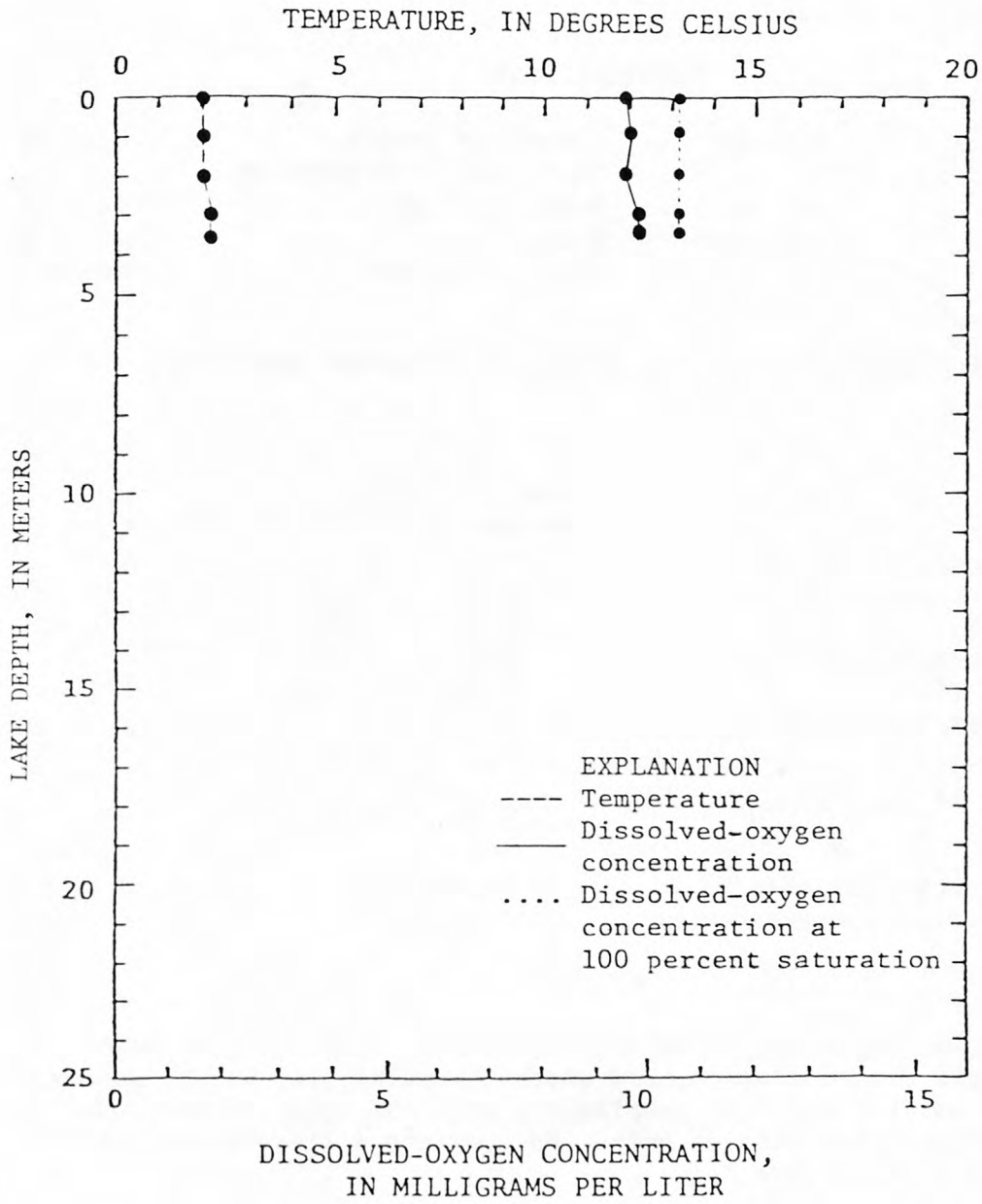
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake. The shoreline is composed of bedrock, talus, and small, permanent snowfields. No zooplankton were observed. The lake flows into Enchantment 6. Lake was partly covered with ice at the time of sampling.



Enchantment 6 and 7 Lakes, Chelan County. From U.S. Geological Survey, September 10, 1978.



Enchantment 7 Lake, Chelan County. From U.S. Geological Survey, September 10, 1978.

ENCHANTMENT 8 LAKE CHELAN COUNTY

Latitude 47°28'43" Longitude 120°48'54" T23N-R16E-S14
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	0.32 km^2	Shoreline length	0.43 km
Altitude	2354 m	Shoreline configuration	1.1
Lake area	1.1 ha	Basin geology	Igneous
Lake volume	0.03 hm^3	Inflow	Perennial
Mean depth	3 m	Outflow channel	Present
Maximum depth	3 m		

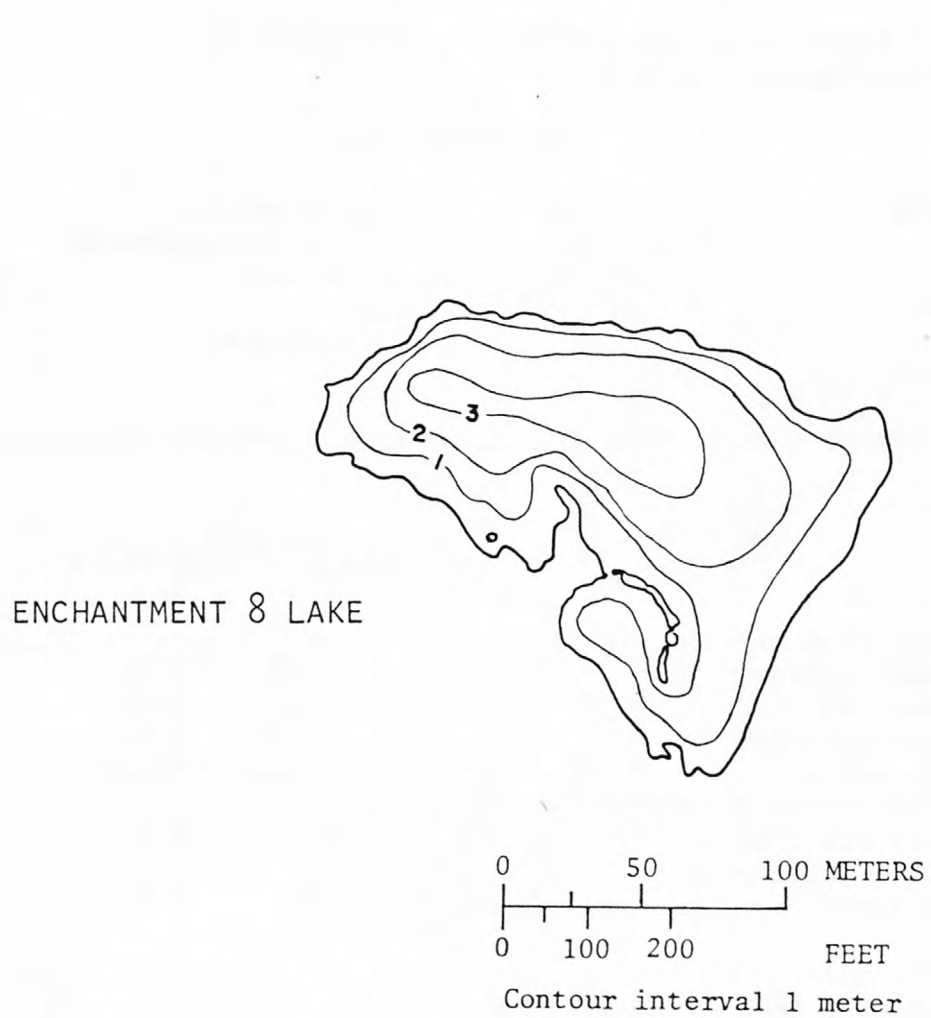
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/8/78	
Time	1400	1405
Depth (m)	surface	3
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.06	0.13
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.05	0.12
Total phosphorus (P)	0.004	0.008
Specific conductance (micromhos)	7	8
Water temperature (°C)	5.5	5.5
Secchi-disc visibility (m)	>2	
Dissolved oxygen	10.6	10.6

Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A shallow lake completely bounded by bedrock and talus. A moraine separates this lake from Isolation, and another moraine lies partly submerged in the south end of the lake. No zooplankton were observed. Dissolved-oxygen was measured on two samples only. Enchantment 8 lies immediately downstream from Isolation Lake.



Enchantment 8 Lake, Chelan County. From
U.S. Geological Survey, September 8, 1978.

ENCHANTMENT 9 LAKE CHELAN COUNTY

Latitude 47°28'50" Longitude 120°49'2" T23N-R16E-S14
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	0.11 km^2	Shoreline length	0.35 km
Altitude	2378 m	Shoreline configuration	1.5
Lake area	1.01 ha	Basin geology	Igenous
Lake volume	0.07 hm^3	Inflow	Intermittent
Mean depth	7 m	Outflow channel	Absent
Maximum depth	13 m		

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/8/78	
Time	1500	1505
Depth (m)	1	12
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.08	0.08
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.07	0.07
Total phosphorus (P)	0.006	0.006
Specific conductance (micromhos)	10	11
Water temperature (°C)	5.5	5.5
Secchi-disc visibility (m)	>11	
Dissolved oxygen	10.5	9.6

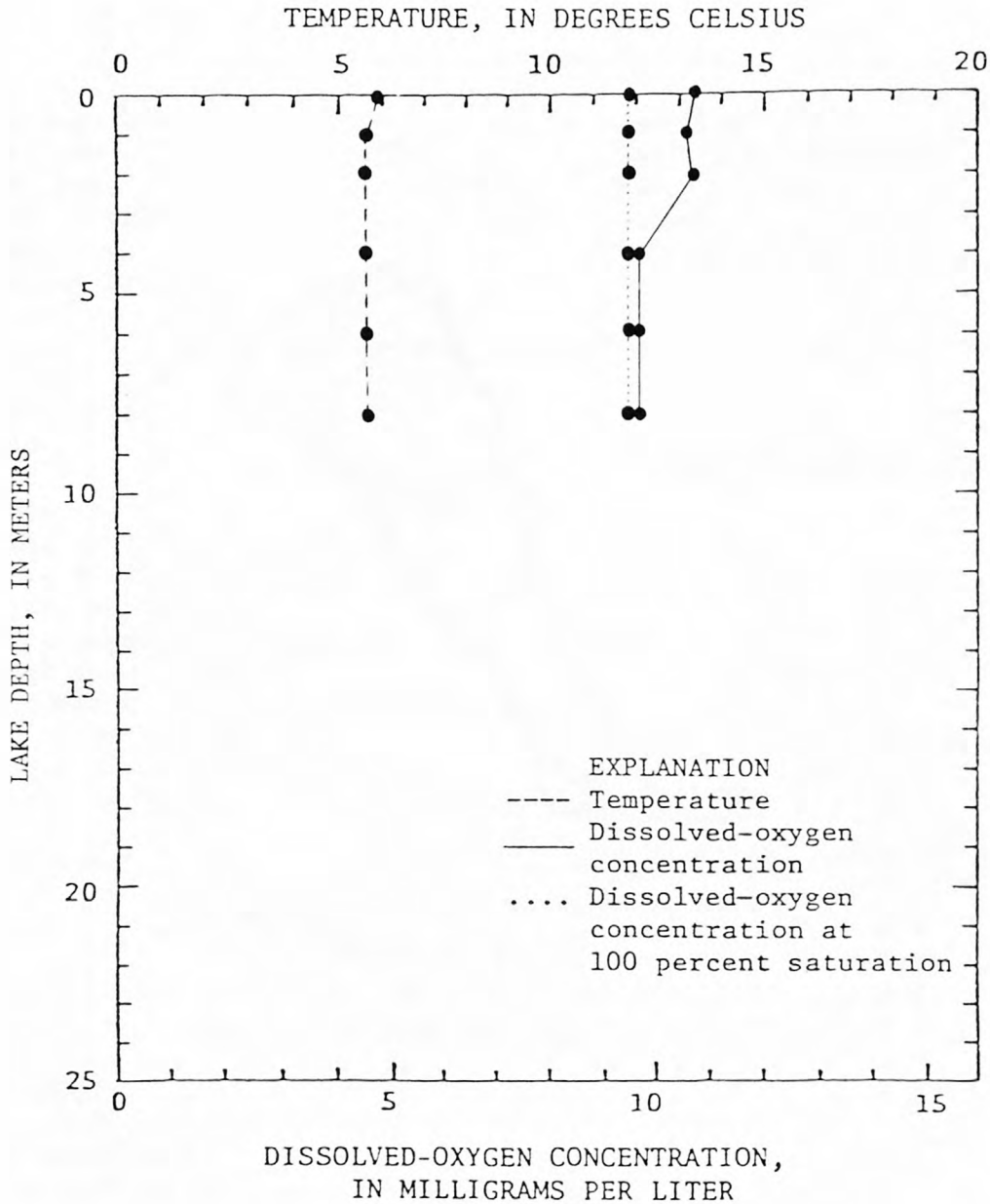
Hardness (Ca, Mg)	4
Dissolved calcium (Ca)	1.0
Dissolved magnesium (Mg)	0.3
Dissolved sodium (Na)	0.7
Dissolved potassium (K)	0.5
Alkalinity as $CaCO_3$	4
Dissolved sulfate (SO_4)	1.0
Dissolved chloride (Cl)	0.5
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	4.0
Dissolved solids (sum of constituents)	10

Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small lake surrounded by steep rock walls and snowfields. Small areas of talus and wet soils occur on the south and northeast sides of the lake. No zooplankton were observed.

Enchantment 9 Lake, Chelan County. From U.S. Geological Survey, September 8, 1978.



Enchantment 9 Lake, Chelan County. From U.S. Geological Survey, September 8, 1978.

HORSESHOE LAKE CHELAN COUNTY

Latitude 47°29'40" Longitude 120°54'14" T23N-R15E-S12
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	0.51 km^2	Shoreline length	1.0 km
Altitude	1913 m	Shoreline configuration	1.6
Lake area	3.1 ha	Basin geology	Igneous
Lake volume	0.11 hm^3	Inflow	Intermittent
Mean depth	4 m	Outflow channel	Present
Maximum depth	6 m		

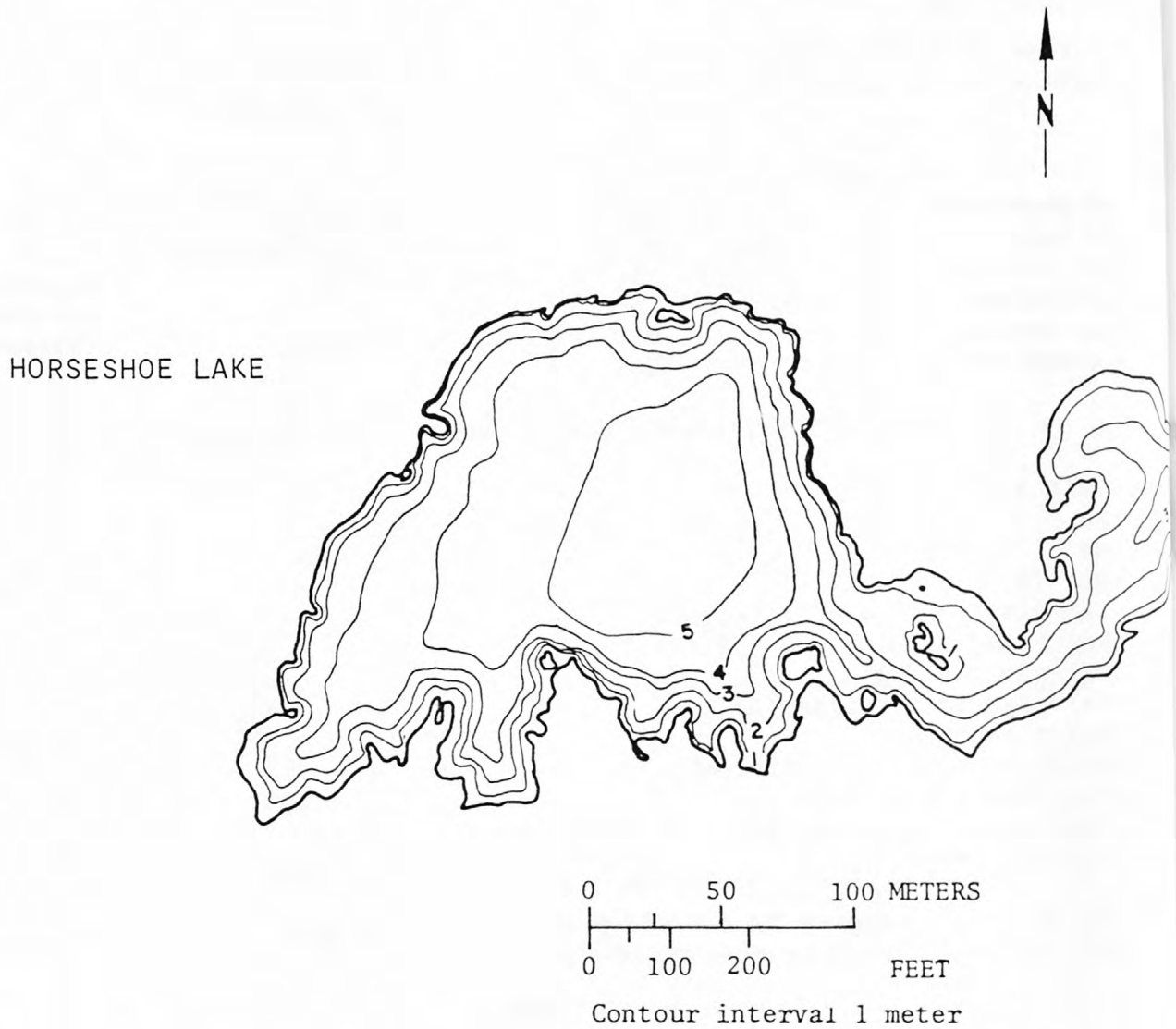
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/8/78	
Time	1300	1305
Depth (m)	1	5
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.15	0.23
Total ammonia (N)	0.03	0.06
Total organic nitrogen (N)	0.12	0.17
Total phosphorus (P)	0.018	0.016
Specific conductance (micromhos)	6	6
Water temperature (°C)	17.2	16.5
Secchi-disc visibility (m)	>5	
Dissolved oxygen	7.6	8.4

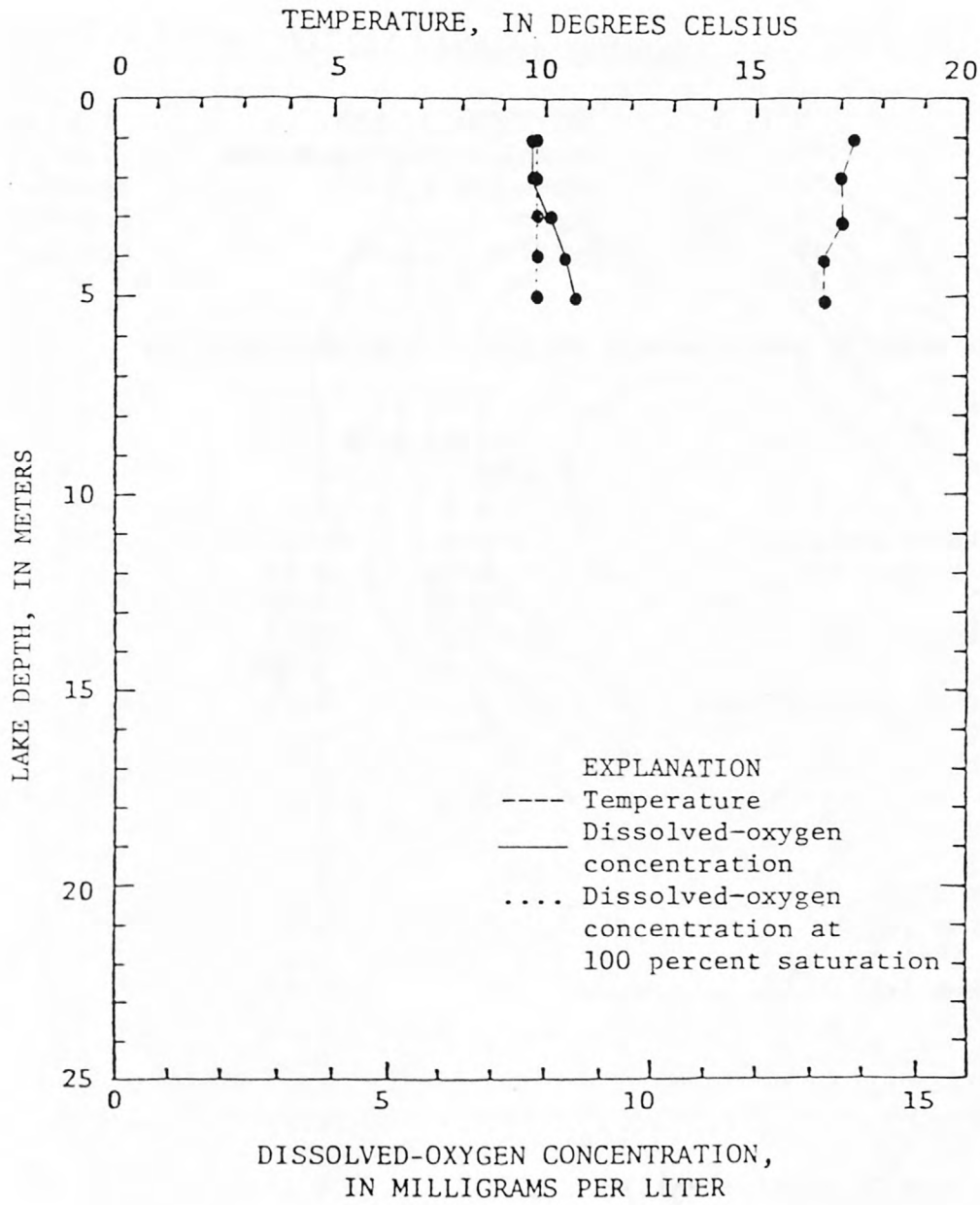
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake. The south shore of the lake is composed of bedrock, sandy glacial till, and small areas of wet soils; the north shore of the lake is composed of bedrock and talus. No zooplankton were observed, but freshwater shrimp and salamanders were abundant. The lake level drops at least 1-2 m during dry periods.



Horseshoe Lake, Chelan County. From
U.S. Geological Survey, August 8, 1978.



Horseshoe Lake, Chelan County. From U.S. Geological Survey, August 8, 1978.

INSPIRATION LAKE CHELAN COUNTY

Latitude 47°28'52" Longitude 120°47'55" T23N-R16E-S14
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	3.12	km^2	Shoreline length	1.1 km
Altitude	2192	m	Shoreline configuration	1.1
Lake area	7.3	ha	Basin geology	Igneous
Lake volume	1.34	hm^3	Inflow	Perennial
Mean depth	18	m	Outflow channel	Present
Maximum depth	32	m		

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

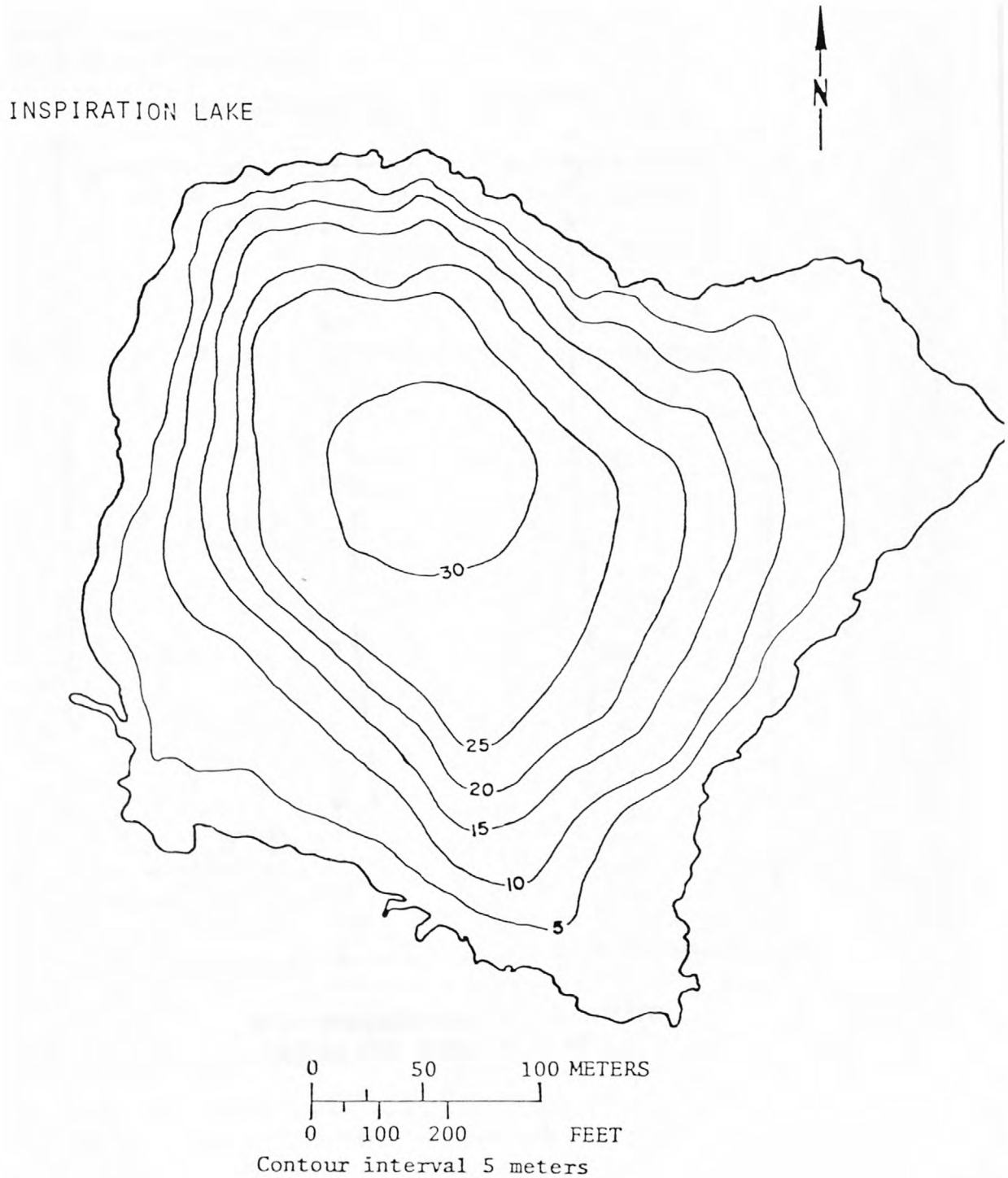
Sample site	1	
Date	9/10/78	
Time	1300	1305
Depth (m)	1	23
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.14	0.12
Total ammonia (N)	0.02	0.02
Total organic nitrogen (N)	0.12	0.10
Total phosphorus (P)	0.003	0.010
Specific conductance (micromhos)	5	5
Water temperature (°C)	5.2	5.0
Secchi-disc visibility (m)	5.5	
Dissolved oxygen	9.3	5.5

Hardness (Ca, Mg)	2
Dissolved calcium (Ca)	1.0
Dissolved magnesium (Mg)	0.3
Dissolved sodium (Na)	0.3
Dissolved potassium (K)	0.2
Alkalinity as $CaCO_3$	2
Dissolved sulfate (SO_4)	0.6
Dissolved chloride (Cl)	0.3
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	1.5
Dissolved solids (sum of constituents)	5

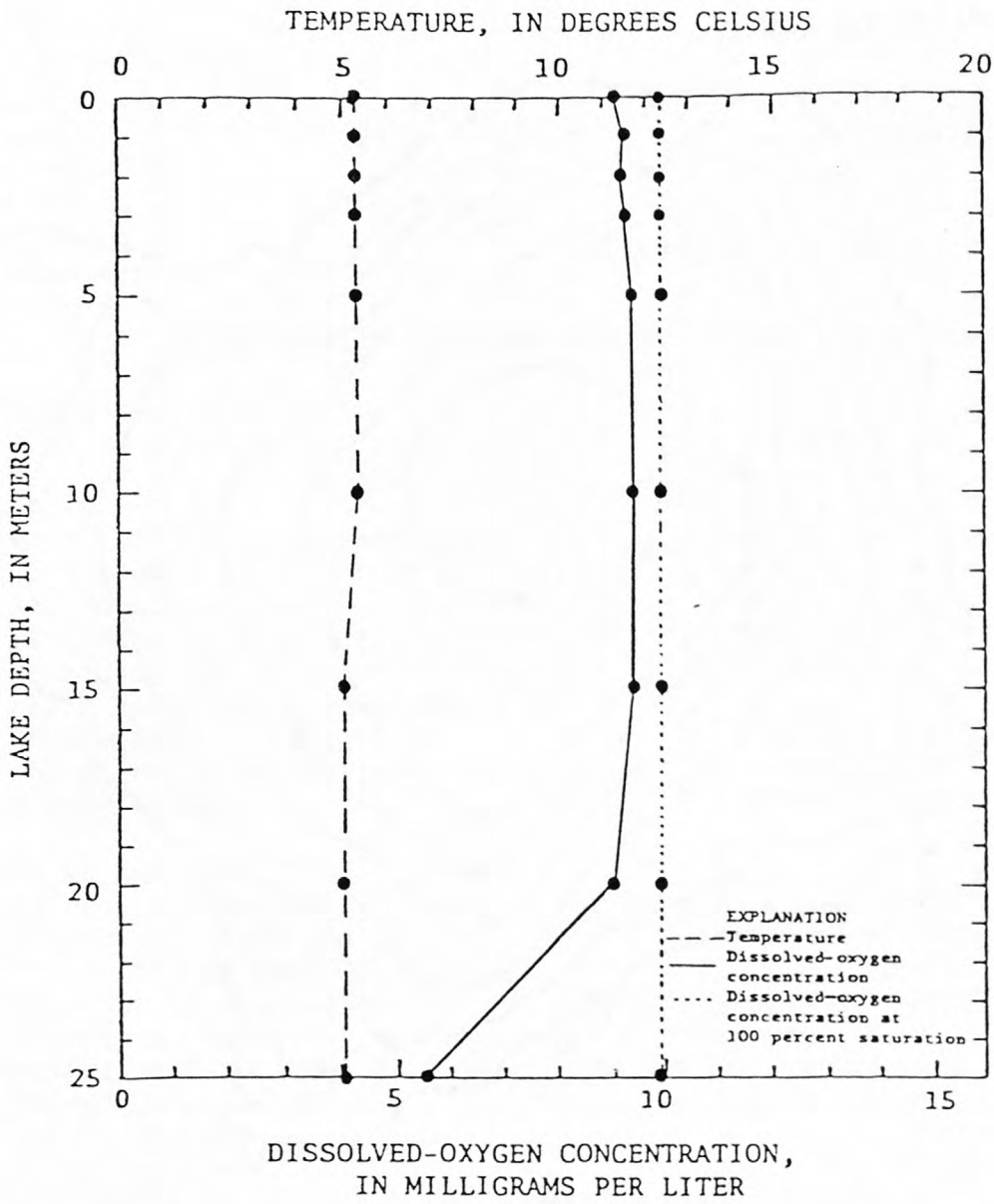
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, deep lake chiefly surrounded by bedrock, with minor areas of talus on the north side, and thin, vegetated soils developed on bedrock on the south side. Zooplankton were very abundant, and perhaps are responsible for the limited Secchi-disc visibility in otherwise clean waters. The dissolved-oxygen concentration was depleted in waters near the lake bottom.



Inspiration Lake, Chelan County. From
U.S. Geological Survey, September 10, 1978.



Inspiration Lake, Chelan County. From
U.S. Geological Survey, September 10, 1978.

ISOLATION LAKE CHELAN COUNTY

Latitude 47°28'39" Longitude 120°48'55" T23N-R16E-S14
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	1.22 km^2	Shoreline length	1.18 km
Altitude	2348 m	Shoreline configuration	1.1
Lake area	8.4 ha	Basin geology	Igneous
Lake volume	1.35 hm^3	Inflow	Perennial
Mean depth	16 m	Outflow channel	Present
Maximum depth	38 m		

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

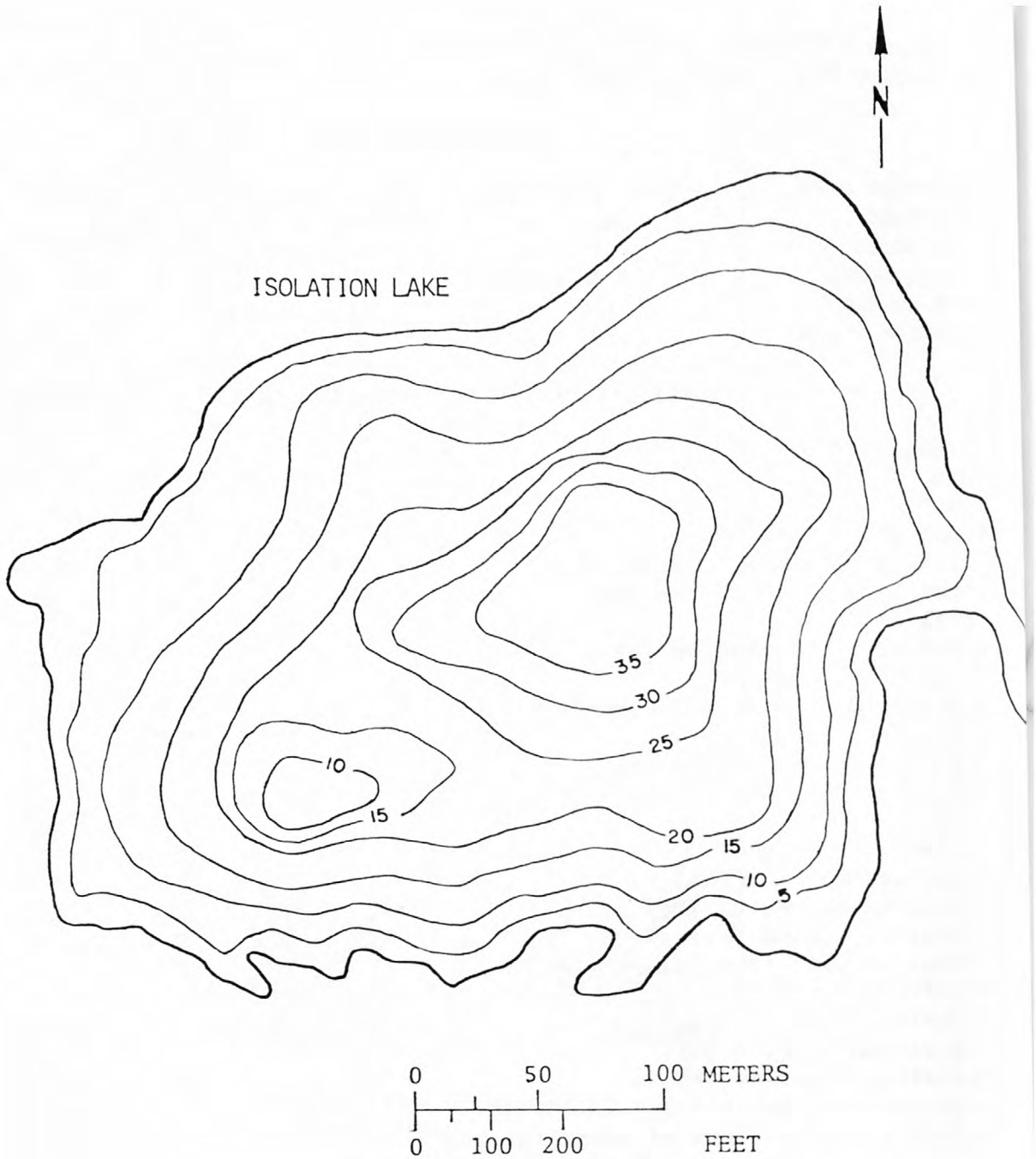
Sample site	1	
Date	9/8/78	
Time	1100	1105
Depth (m)	1	15
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.10	0.11
Total ammonia (N)	0.02	0.01
Total organic nitrogen (N)	0.08	0.10
Total phosphorus (P)	0.006	0.008
Specific conductance (micromhos)	5	13
Water temperature (°C)	3.2	3.0
Secchi-disc visibility (m)	15	
Dissolved oxygen	11.1	10.7

Hardness (Ca, Mg)	2
Dissolved calcium (Ca)	1.0
Dissolved magnesium (Mg)	0.3
Dissolved sodium (Na)	0.4
Dissolved potassium (K)	0.3
Alkalinity as $CaCO_3$	2
Dissolved sulfate (SO_4)	0.7
Dissolved chloride (Cl)	0.5
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	1.3
Dissolved solids (sum of constituents)	6

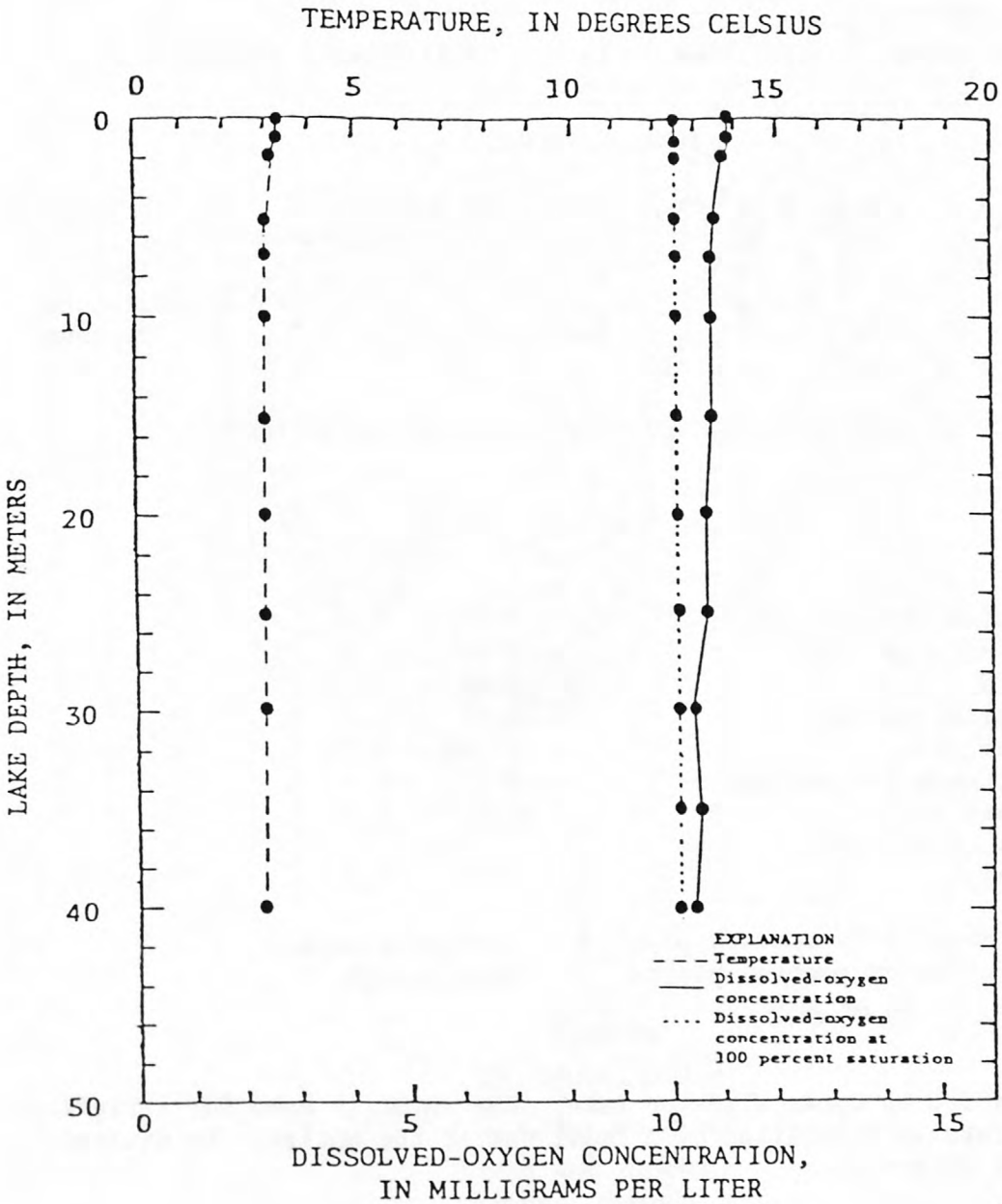
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A deep, moraine-dammed lake with a glacier located at the south end. The lakeshore is composed of bedrock, coarse morainal material, and permanent snow and ice. The water is slightly cloudy from glacial silt. No zooplankton were observed. The lake contained a large number of icebergs.



Isolation Lake, Chelan County. From
U.S. Geological Survey, September 10, 1978.



Isolation Lake, Chelan County. From U.S. Geological Survey, September 10, 1978.

KLONAQUA, LOWER LAKE CHELAN COUNTY

Latitude 47°35'49" Longitude 121°3'50" T24N-R14E-S3
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	3.21	km^2	Shoreline length	2.25	km
Altitude	1552	m	Shoreline configuration	1.3	
Lake area	25.5	ha	Basin geology	Igneous	
Lake volume	5.8	hm^3	Inflow	Intermittent	
Mean depth	23	m	Outflow channel	Present	
Maximum depth	49	m			

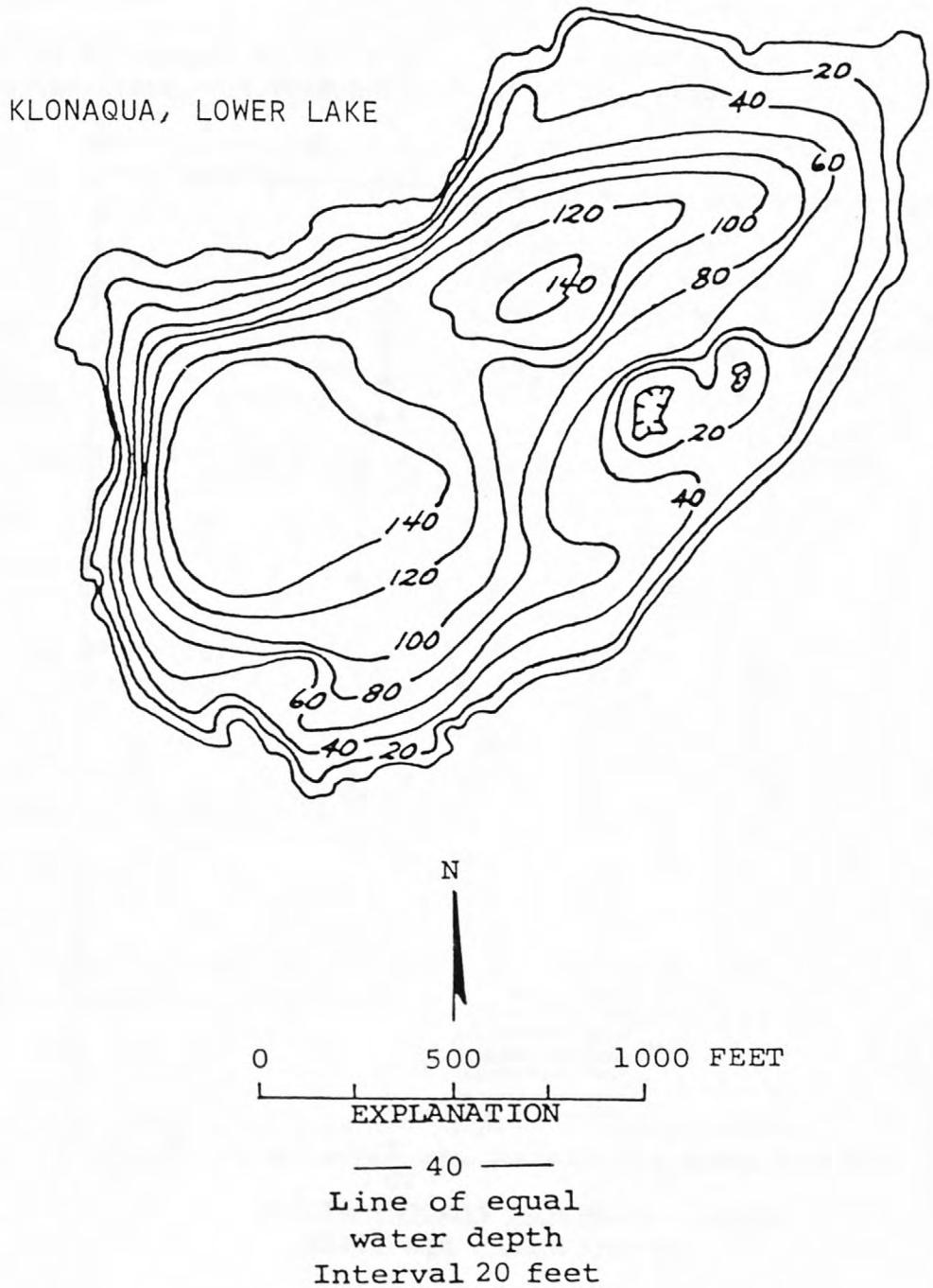
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/1/74	
Time	1200	1205
Depth (m)	1	31
Total nitrite plus nitrate (N)	0.02	0.02
Total kjeldahl nitrogen (N)	0.04	0.05
Total ammonia (N)	0.03	0.03
Total organic nitrogen (N)	0.01	0.02
Total phosphorus (P)	0.002	0.002
Specific conductance (micromhos)	9	9
Water temperature (°C)	11.5	3.8
Secchi-disc visibility (m)	16	
Dissolved oxygen	9.6	7.6

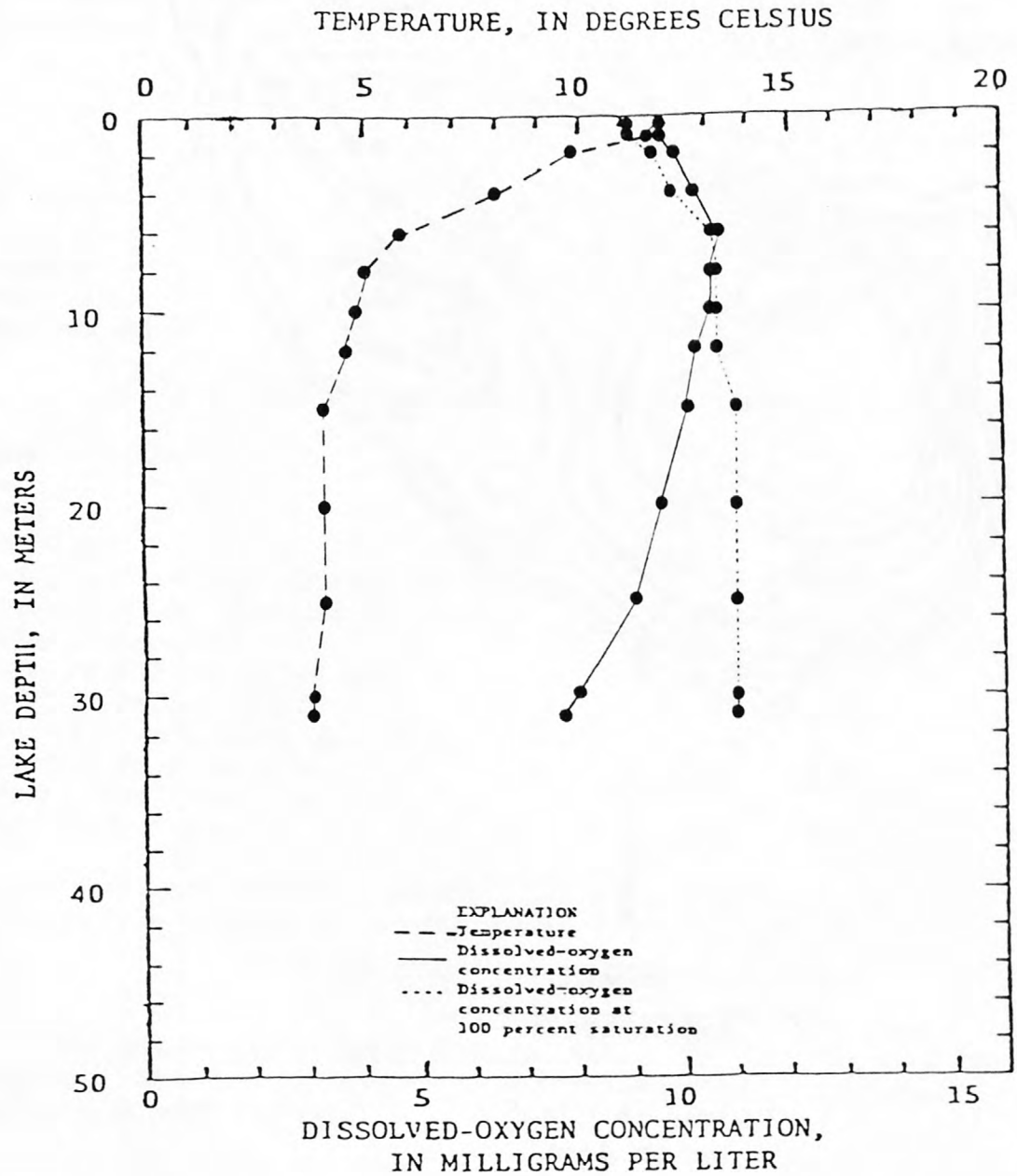
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

The lake is fed by Upper Klonaqua Lake. The water is used for irrigation purposes. The lake is stabilized by a small dam at the outlet. No aquatic macrophytes were observed.



Klonaqua, Lower Lake, Chelan County. From U.S. Geological Survey, September 11, 1974.



Klonaqua, Lower Lake, Chelan County. From U.S. Geological Survey, August 1, 1974.

KLONAQUA, UPPER LAKE CHELAN COUNTY

Latitude 47°35'42" Longitude 121°4'28" T24N-R14E-S3
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	2.0	km^2	Shoreline length	2.9	km
Altitude	1581	m	Shoreline configuration	1.6	
Lake area	25.1	ha	Basin geology	Igneous	
Lake volume	5.3	hm^3	Inflow	Intermittent	
Mean depth	21	m	Outflow channel	Present	
Maximum depth	49	m			

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

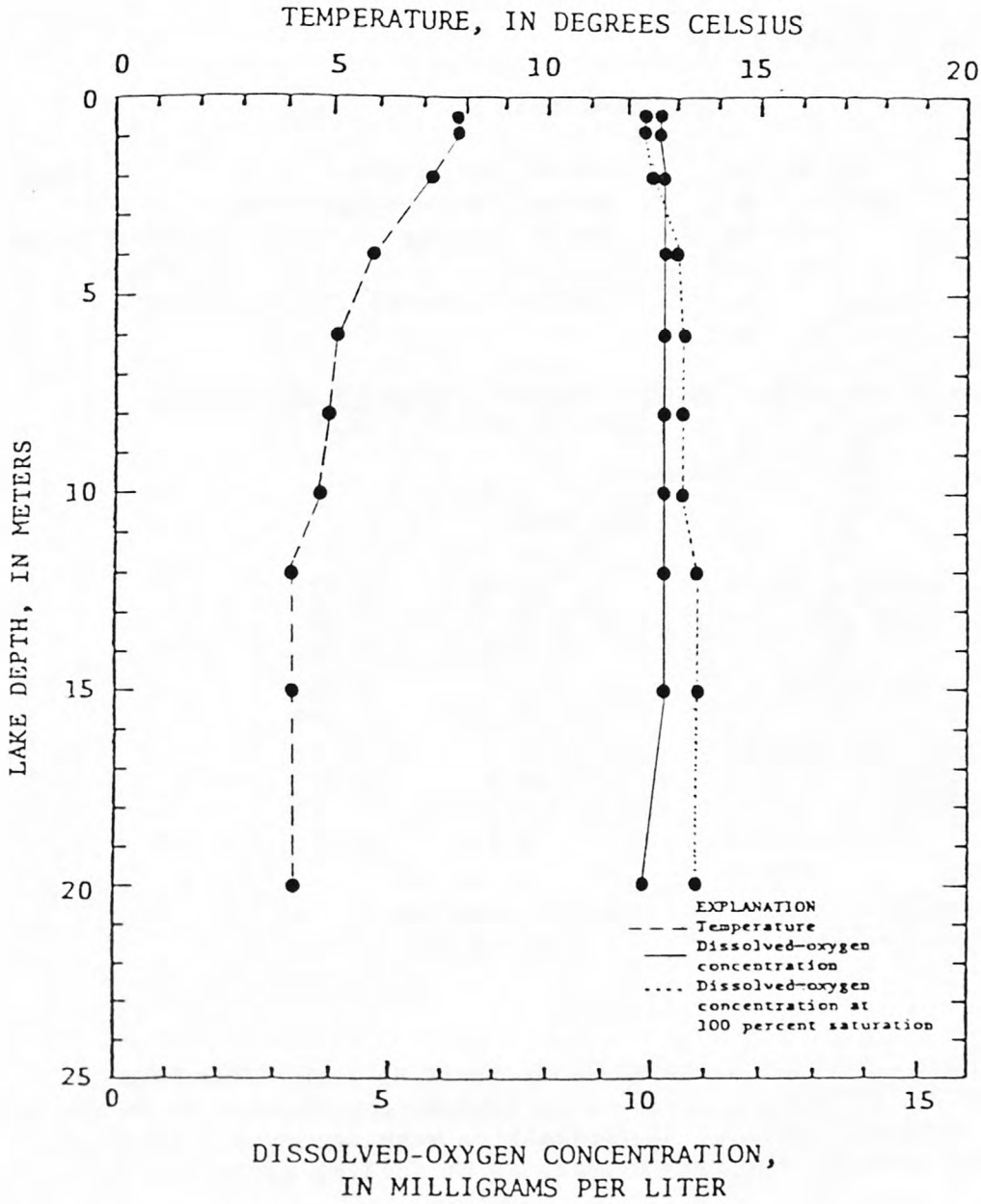
Sample site	1	
Date	8/1/74	
Time	1100	1105
Depth (m)	1	20
Total nitrite plus nitrate (N)	0.02	0.02
Total kjeldahl nitrogen (N)	0.06	0.05
Total ammonia (N)	0.02	0.03
Total organic nitrogen (N)	0.04	0.02
Total phosphorus (P)	0.001	0.002
Specific conductance (micromhos)	8	8
Water temperature (°C)	7.8	4.0
Secchi-disc visibility (m)	18	
Dissolved oxygen	10.1	9.8

Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

The water is used for irrigation purposes. The DO concentration was high throughout the entire water column. No aquatic macrophytes were observed.

Klonaqua, Upper Lake, Chelan County.
From U.S. Geological Survey, September 9, 1974.



Klonaqua, Upper Lake, Chelan County. From U.S. Geological Survey, August 1, 1974.

LITTLE EIGHTMILE LAKE CHELAN COUNTY

Latitude 47°31'24" Longitude 120°50'58" T24N-R16E-S33
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	17.87	km^2	Shoreline length	0.50 km
Altitude	1343	m	Shoreline configuration	1.2
Lake area	1.4	ha	Basin geology	Igneous/Metamorph
Lake volume	0.01	hm^3	Inflow	Perennial
Mean depth	1	m	Outflow channel	Present
Maximum depth	3	m		

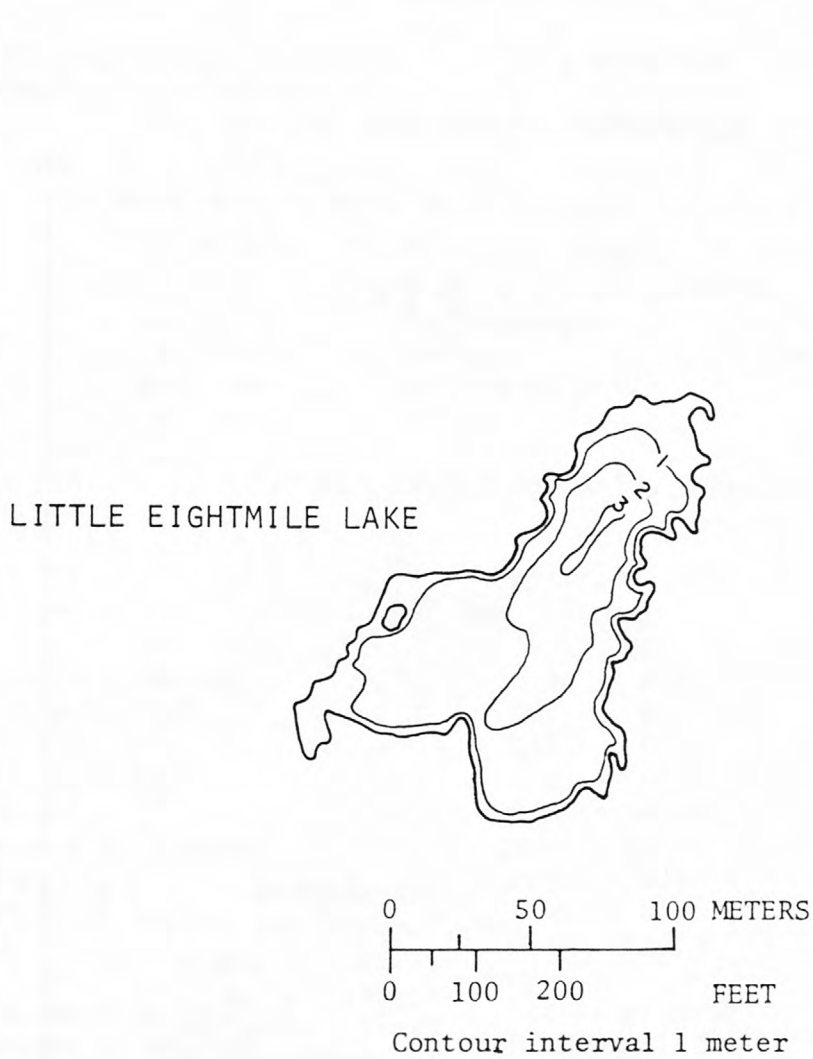
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/11/78	
Time	1300	1305
Depth (m)	1	2.5
Total nitrite plus nitrate (N)	0.02	0.03
Total kjeldahl nitrogen (N)	0.06	0.06
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.05	0.05
Total phosphorus (P)	0.004	0.004
Specific conductance (micromhos)	25	21
Water temperature (°C)	13.2	12.2
Secchi-disc visibility (m)	>3	
Dissolved oxygen	8.6	8.6

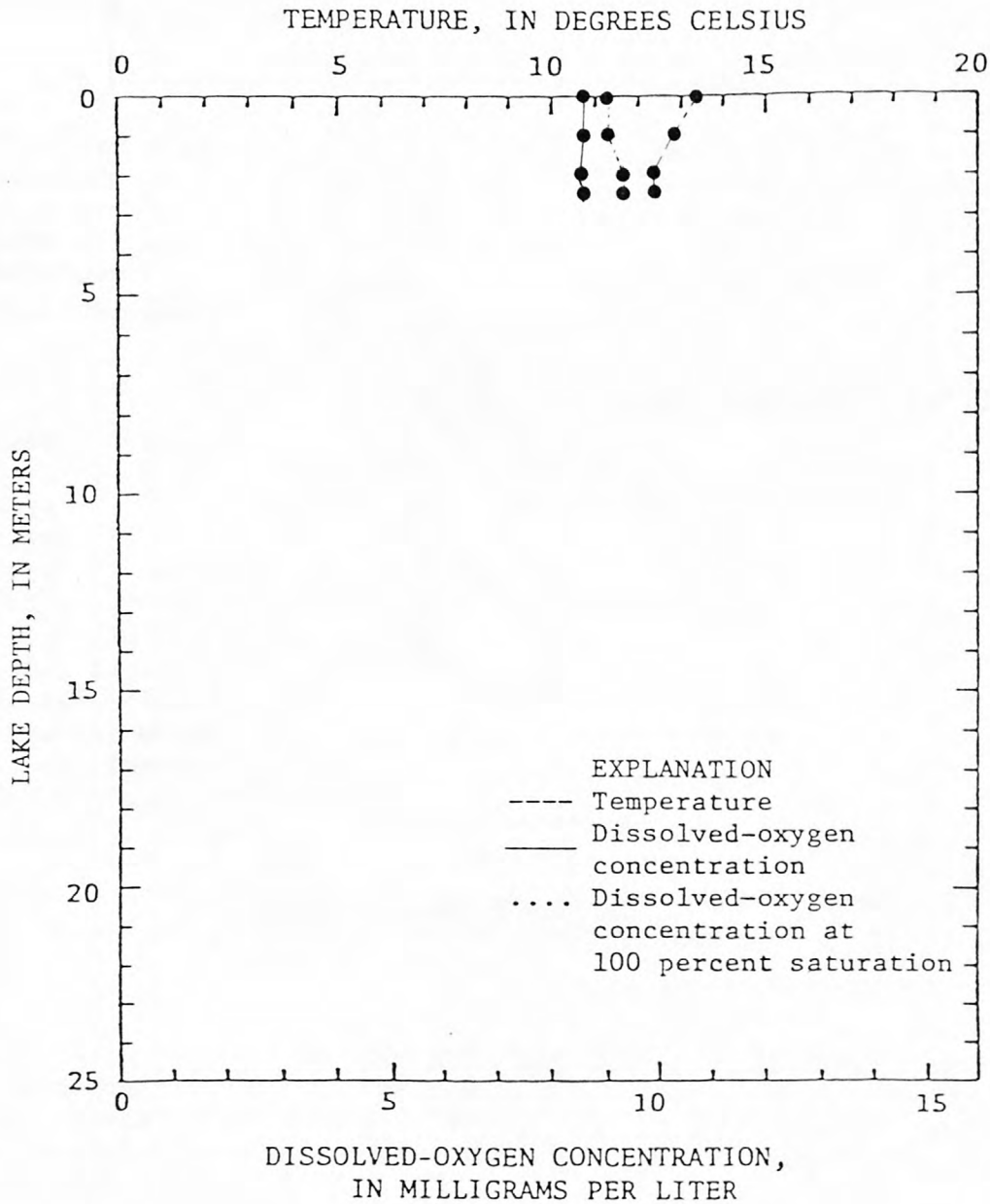
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake that contained many floating logs. The lake is surrounded by forested colluvium, till, and alluvium, and appears to be dammed by a landslide or morainal debris. No zooplankton were observed. Lake level drops 1-2 m by late summer. The lake appears to be filling rapidly with sediment.



Little Eightmile Lake, Chelan County. From U.S. Geological Survey, August 11, 1978.



Little Eightmile Lake, Chelan County. From U.S. Geological Survey, August 11, 1978.

LOCH EILEEN LAKE CHELAN COUNTY

Latitude 47°44'24" Longtitude 120°53'12" T26N-R16E-S19
Wenatchee River Basin, Nason Creek

PHYSICAL DATA

Drainage area	1.79	km^2	Shoreline length	1.24	km
Altitude	1679	m	Shoreline configuration	1.1	
Lake area	10.1	ha	Basin geology	Igneous	
Lake volume	1.22	hm^3	Inflow	Intermittent	
Mean depth	13	m	Outflow channel	Present	
Maximum depth	23	m			

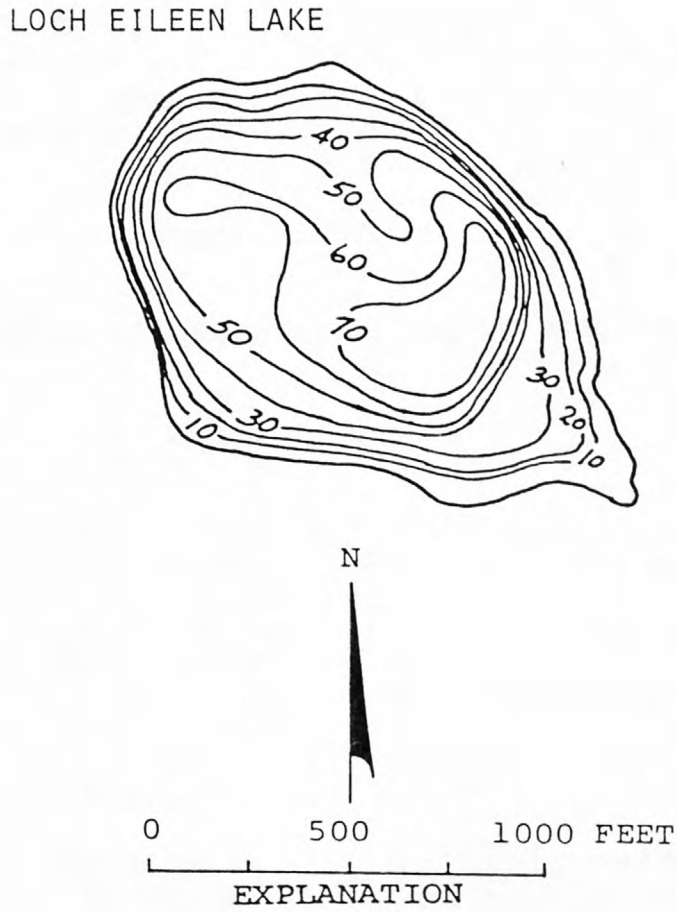
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/1/74	
Time	1500	1505
Depth (m)	1	19
Total nitrite plus nitrate (N)	0.02	0.03
Total kjeldahl nitrogen (N)	0.03	0.07
Total ammonia (N)	0.03	0.04
Total organic nitrogen (N)	0.00	0.03
Total phosphorus (P)	0.003	0.005
Specific conductance (micromhos)	10	10
Water temperature (°C)	10.3	5.1
Secchi-disc visibility (m)	12	
Dissolved oxygen	9.4	10.1

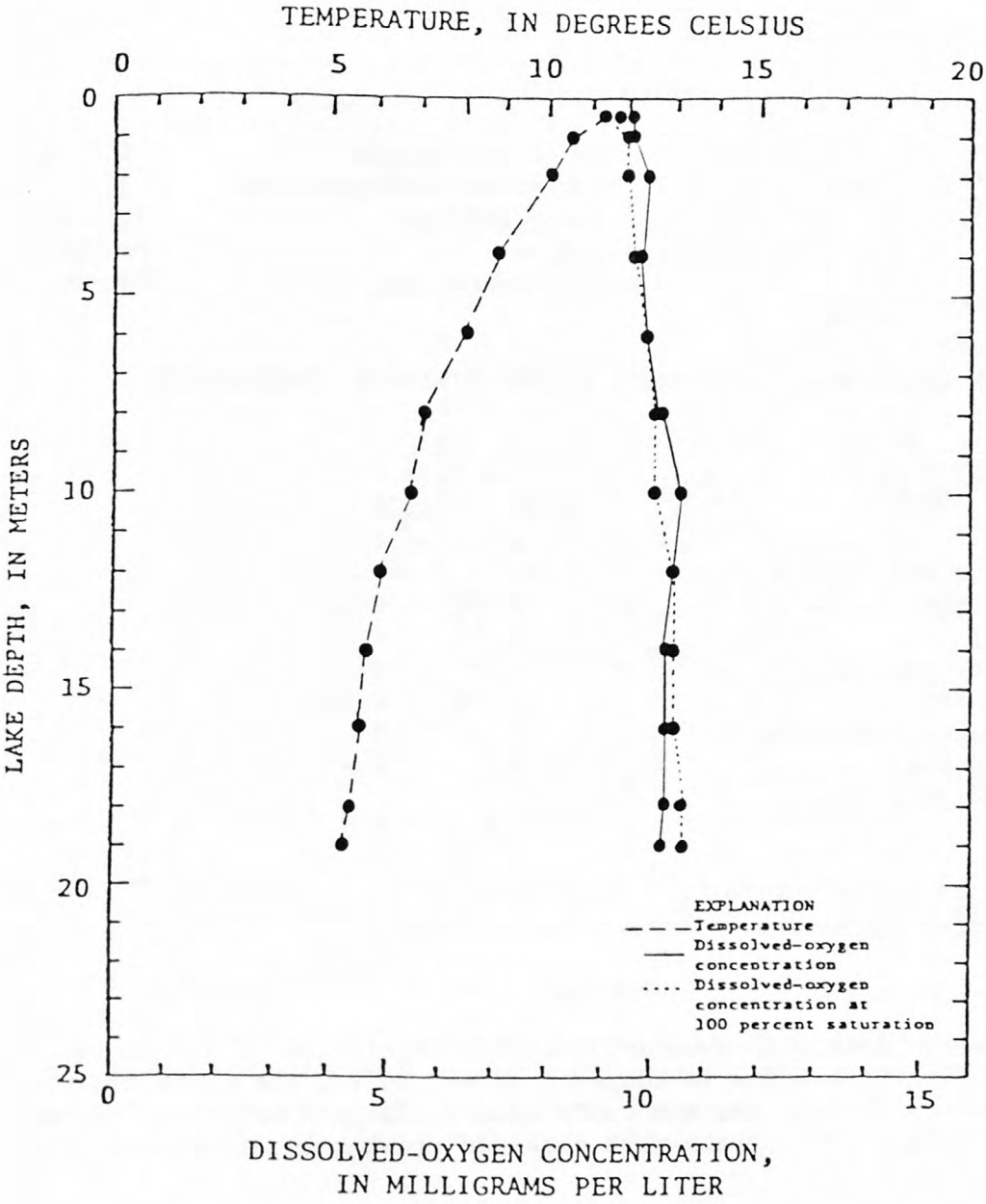
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

The DO concentration was high throughout the entire water column. No aquatic macrophytes were observed.



Loch Eileen Lake, Chelan County. From
U.S. Geological Survey, September 10, 1974.



Loch Eileen Lake, Chelan County. From U.S. Geological Survey, August 1, 1974.

MESA LAKE CHELAN COUNTY

Latitude 47°30'31" Longitude 120°45'49" T23N-R17E-S7
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	4.55 km^2	Shoreline length	0.5 km
Altitude	2033 m	Shoreline configuration	1.2
Lake area	1.4 ha	Basin geology	Igneous
Lake volume	0.04 hm^3	Inflow	Perennial
Mean depth	3 m	Outflow channel	Present
Maximum depth	8 m		

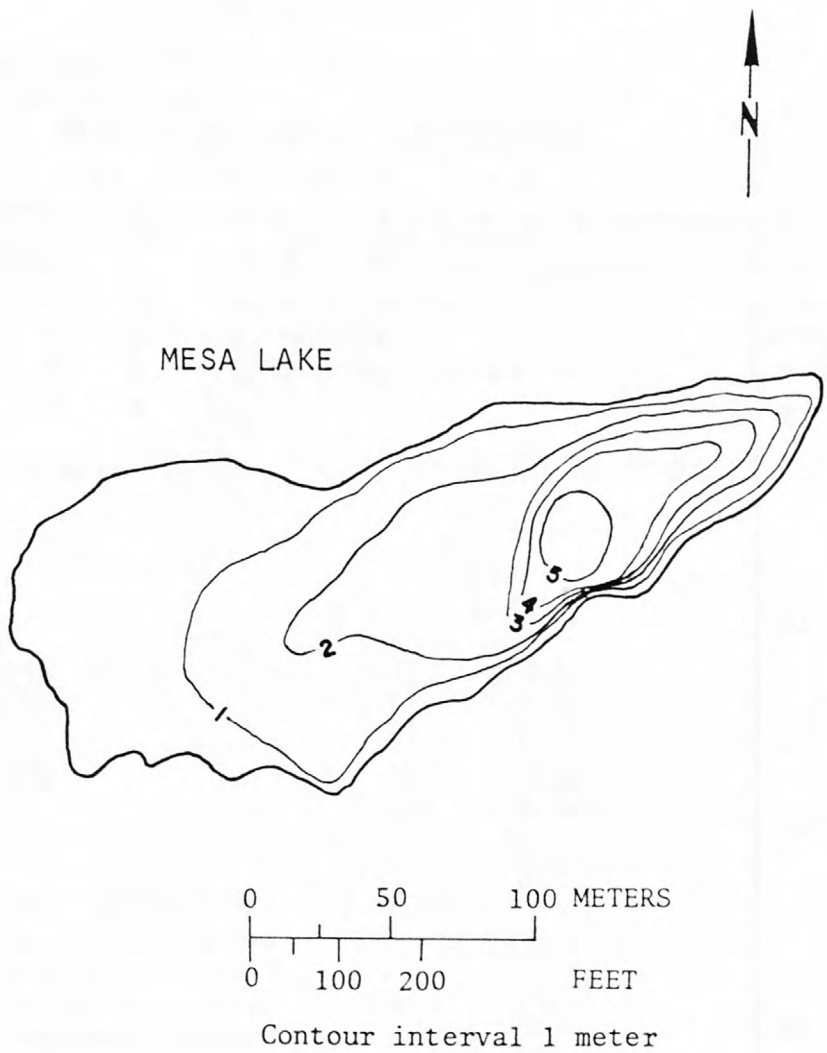
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/7/78	
Time	1130	1135
Depth (m)	1	4.5
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.08	0.30
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.07	0.29
Total phosphorus (P)	0.002	0.032
Specific conductance (micromhos)	7	8
Water temperature (°C)	8.5	8.4
Secchi-disc visibility (m)	>7	
Dissolved oxygen	8.4	8.5

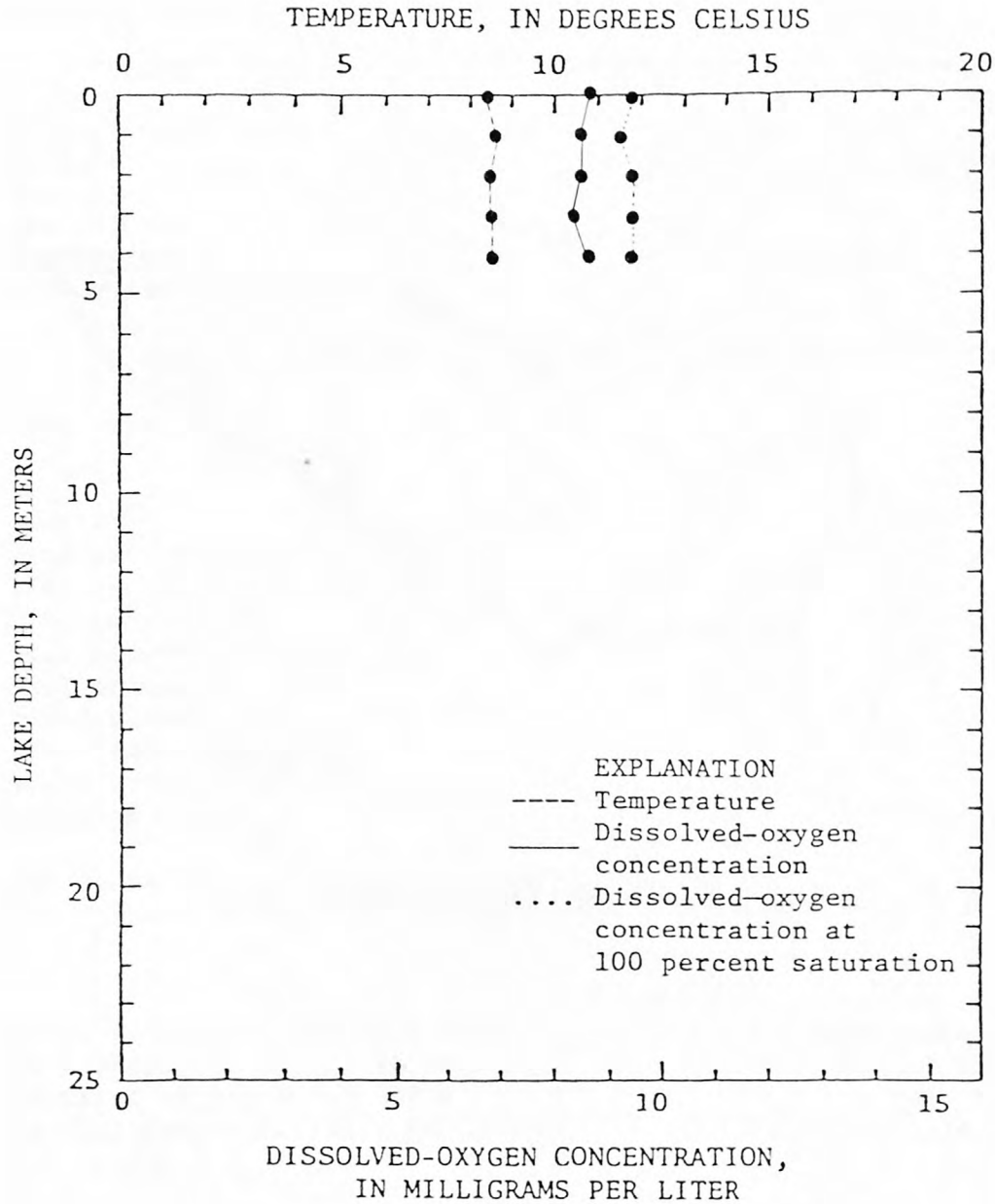
Lake shoreline covered by emersed plants 26-50%
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake with abundant emergent vegetation on the shoreline The western end of the shoreline is composed of wet soils, the north side is vegetated till and colluvium, and the south side is largely bedrock. No zooplankton were observed. Periphyton were observed growing in clusters on the lake bottom.



Mesa Lake, Chelan County. From
U.S. Geological Survey, September 7, 1978.



Mesa Lake, Chelan County. From
U.S. Geological Survey, September 7, 1978.

NADA LAKE CHELAN COUNTY

Latitude 47°29'50" Longitude 120°44'1" T23N-R17E-S17
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	4.28 km^2	Shoreline length	2.14 km
Altitude	1500 m	Shoreline configuration	2.1
Lake area	8.2 ha	Basin geology	Igneous
Lake volume	0.75 hm^3	Inflow	Perennial
Mean depth	9 m	Outflow channel	Present
Maximum depth	21 m		

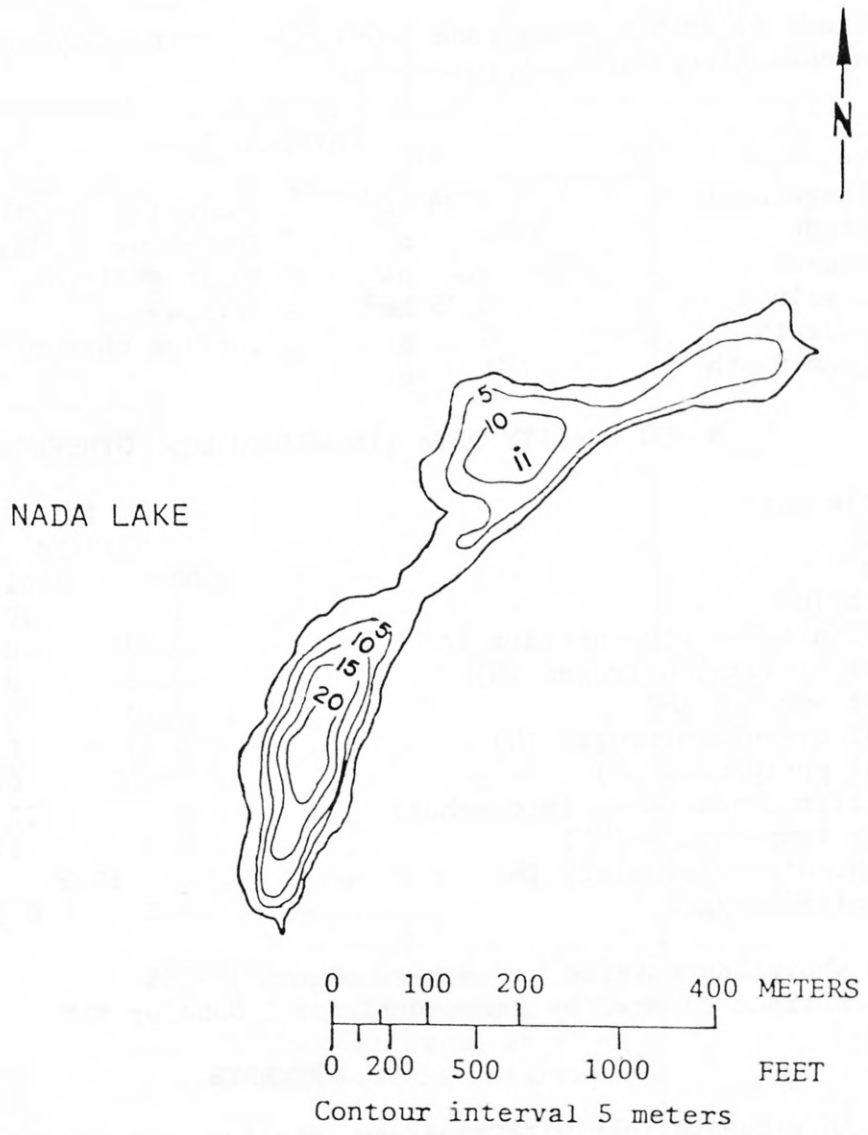
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/12/78	
Time	1500	1505
Depth (m)	1	20
Total nitrite plus nitrate (N)	0.01	0.01
Total kjeldahl nitrogen (N)	0.12	0.34
Total ammonia (N)	0.01	0.20
Total organic nitrogen (N)	0.11	0.14
Total phosphorus (P)	0.002	0.016
Specific conductance (micromhos)	14	27
Water temperature (°C)	11.4	5.0
Secchi-disc visibility (m)	10.5	
Dissolved oxygen	8.5	0.2

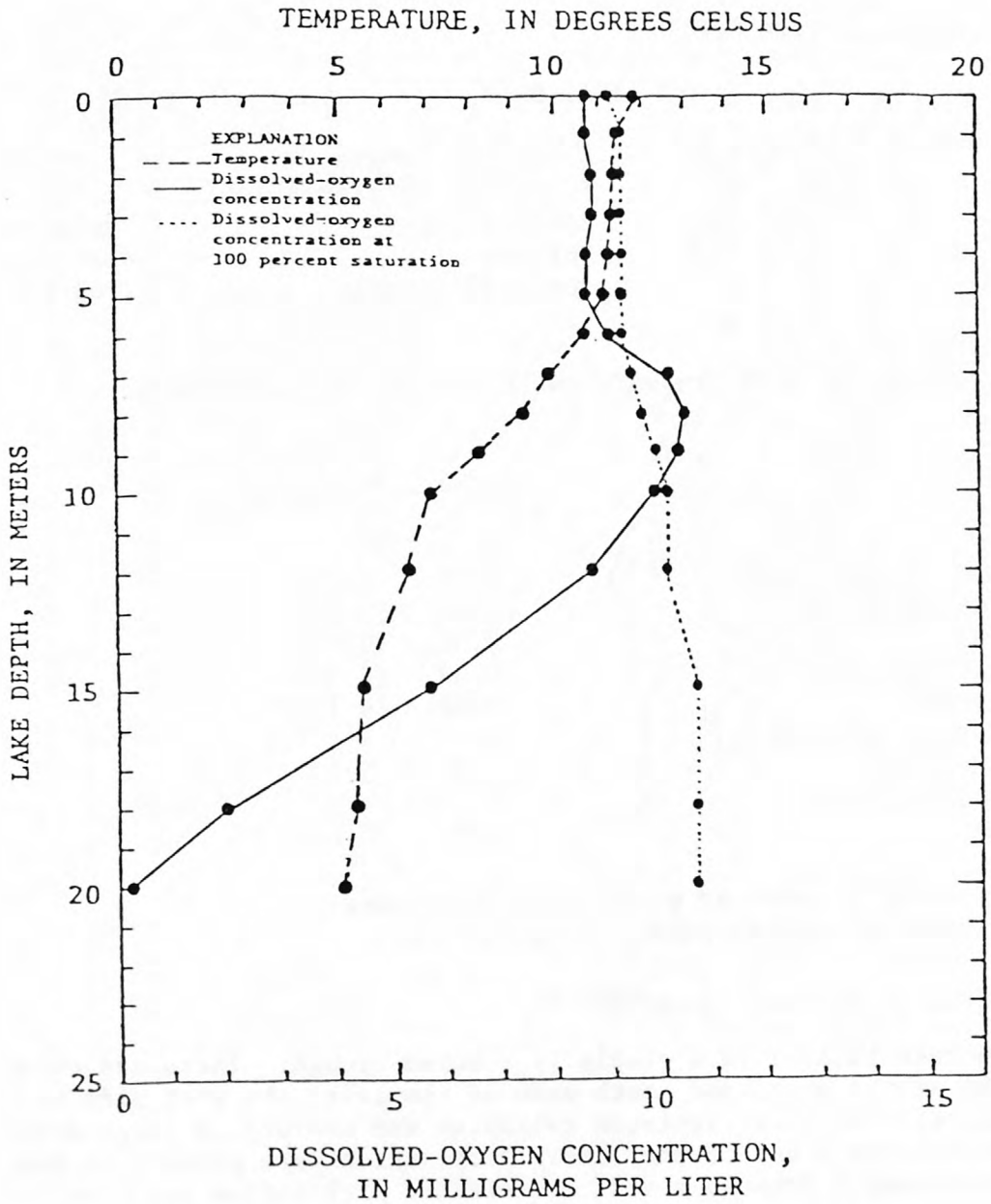
Lake shoreline covered by emersed plants 11-25%
Lake surface covered by emersed plants None or <1%

REMARKS

An elongate lake with a narrow, shallow area separating two deeper pools. The lake shore is composed of vegetated till and colluvium, with minor amounts of bedrock and talus. Zooplankton were abundant and a variety of species were observed. The poor clarity of the lake may in part be due to the presence of an algal bloom. Dissolved-oxygen levels were depleted in deeper lake waters.



Nada Lake, Chelan County. From
U.S. Geological Survey, September 12, 1978.



Nada Lake, Chelan County. From
U.S. Geological Survey, September 12, 1978.

PERFECTION LAKE CHELAN COUNTY

Latitude 47°28'44" Longitude 120°47'38" T23N-R16E-S13
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	3.82 km^2	Shoreline length	1.48 km
Altitude	2146 m	Shoreline configuration	1.5
Lake area	7.5 ha	Basin geology	Igneous
Lake volume	1.28 hm^3	Inflow	Perennial
Mean depth	17 m	Outflow channel	Present
Maximum depth	33 m		

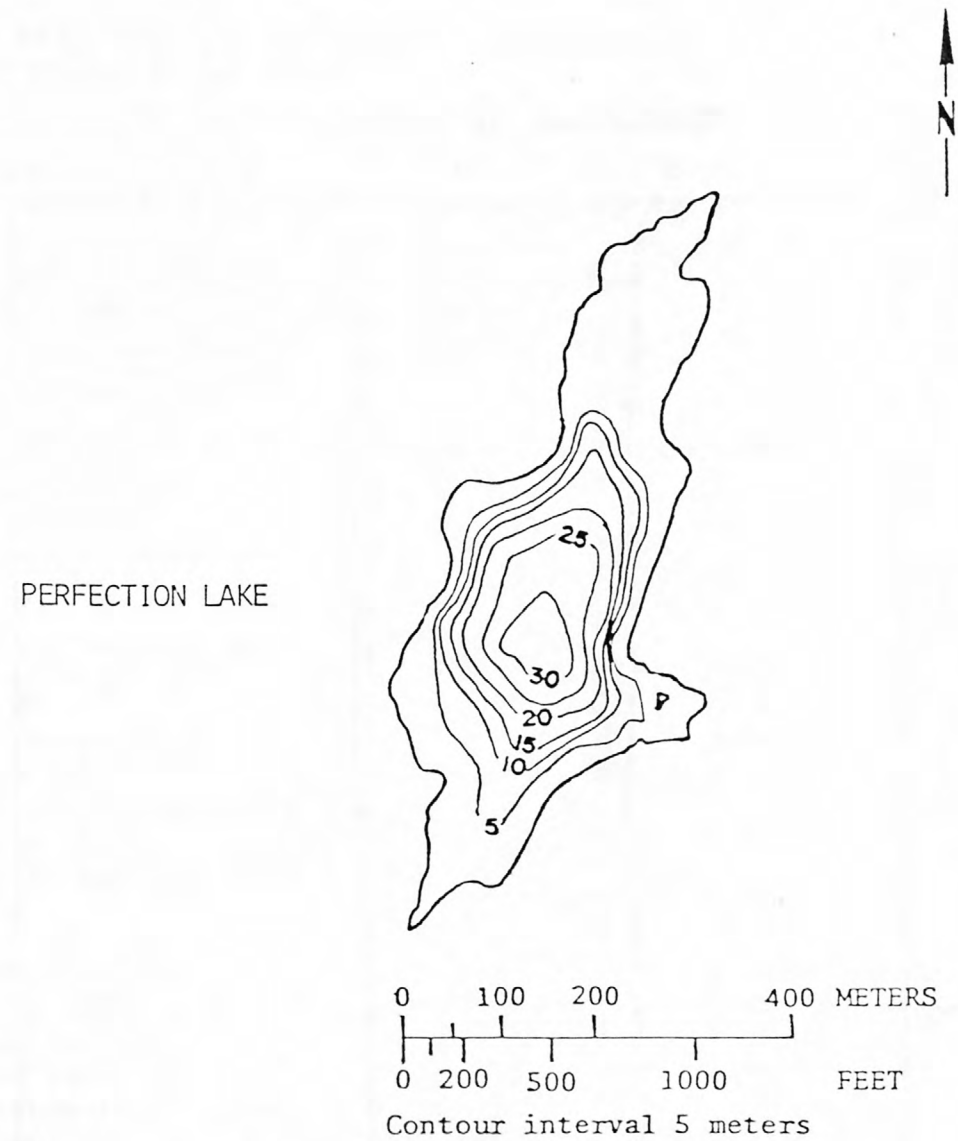
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/10/78	
Time	1700	1705
Depth (m)	1	30
Total nitrite plus nitrate (N)	0.00	(0.01)
Total kjeldahl nitrogen (N)	0.10	(0.44)
Total ammonia (N)	0.01	(0.05)
Total organic nitrogen (N)	0.09	(0.39)
Total phosphorus (P)	0.004	(0.120)
Specific conductance (micromhos)	5	5
Water temperature (°C)	5.8	5.6
Secchi-disc visibility (m)	10.5	
Dissolved oxygen	9.8	9.6

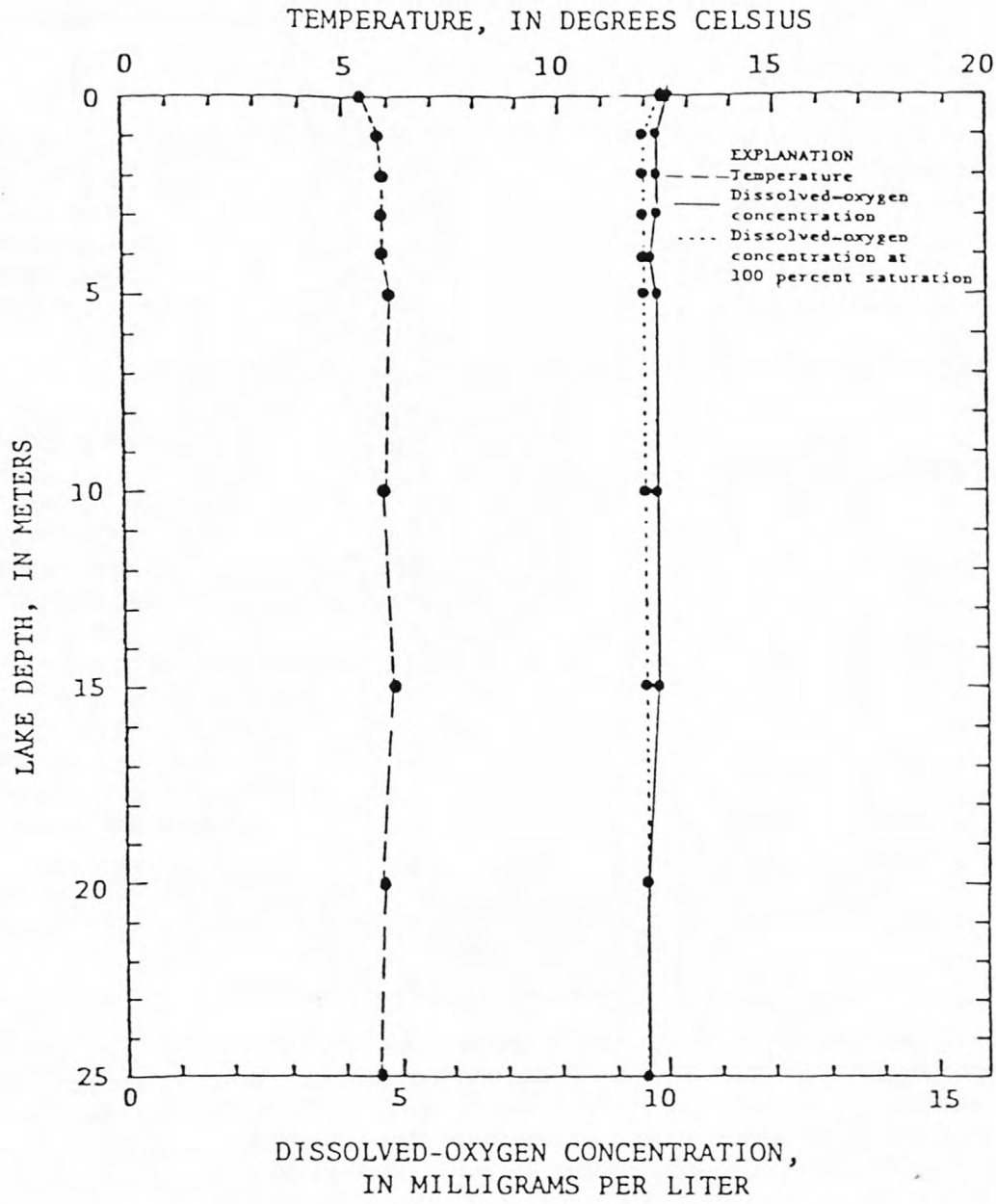
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

An elongate lake located in a glacially scoured trough. There are extensive wet areas located at the north and south ends of the lake; the west side is largely bedrock while the east side is vegetated colluvium and bedrock. A large delta occupies much of the north end of the lake. Zooplankton were present in moderate numbers. The water sample from 30 m was contaminated with bottom sediment.



Perfection Lake, Chelan County. From
U.S. Geological Survey, September 10, 1978.



Perfection Lake, Chelan County. From
U.S. Geological Survey, September 10, 1978.

SHIELD LAKE CHELAN COUNTY

Latitude 47°29'53" Longitude 120°46'40" T23N-R16E-S12
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	2.94 km^2	Shoreline length	1.4 km
Altitude	2034 m	Shoreline configuration	1.2
Lake area	10.4 ha	Basin geology	Igneous
Lake volume	1.37 hm^3	Inflow	Intermittent
Mean depth	13 m	Outflow channel	Present
Maximum depth	25 m		

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

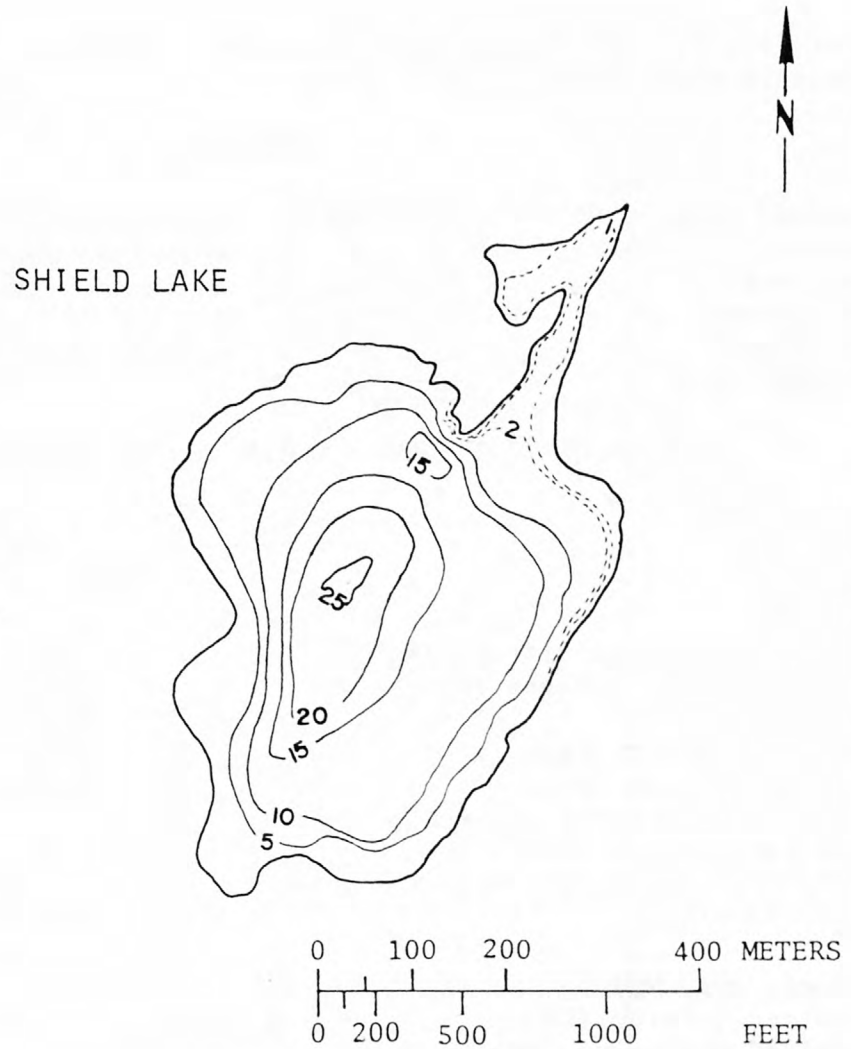
Sample site	1	
Date	9/7/78	
Time	1700	1705
Depth (m)	1	15
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.08	0.07
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.07	0.06
Total phosphorus (P)	0.003	0.002
Specific conductance (micromhos)	6	6
Water temperature (°C)	8.0	8.1
Secchi-disc visibility (m)	15	
Dissolved oxygen	9.6	8.0

Hardness (Ca, Mg)	2
Dissolved calcium (Ca)	1.1
Dissolved magnesium (Mg)	0.2
Dissolved sodium (Na)	0.3
Dissolved potassium (K)	0.2
Alkalinity as $CaCO_3$	2
Dissolved sulfate (SO_4)	1.2
Dissolved chloride (Cl)	0.3
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	2.6
Dissolved solids (sum of constituents)	7

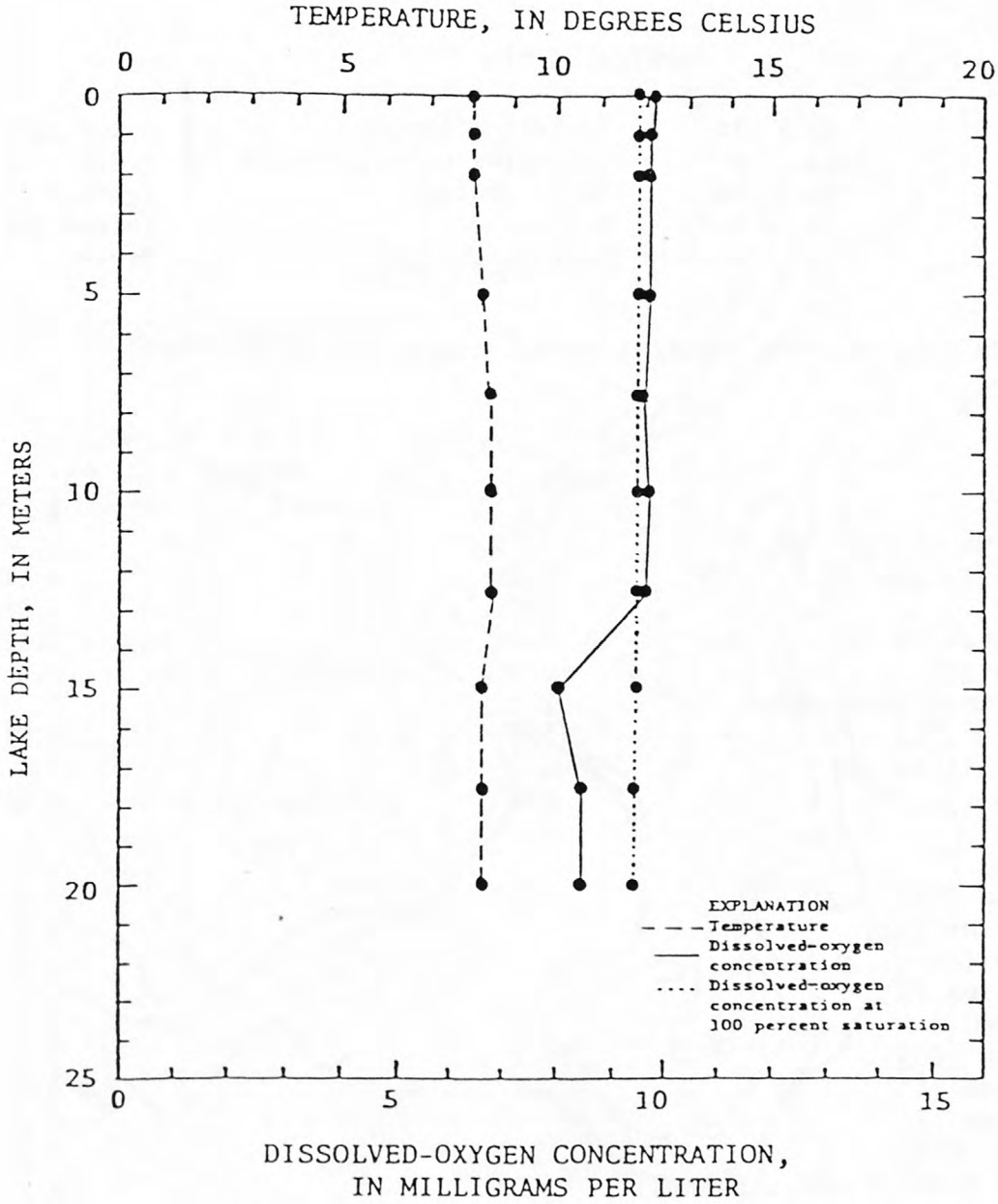
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

A lake with extensive wet areas on the south and southwest sides. The rest of the lake shore is composed of forested colluvium and bedrock, with minor amounts of talus. Zooplankton were moderately abundant. There were minor amounts of emergent vegetation.



Shield Lake, Chelan County. From
U.S. Geological Survey, September 7, 1978.



Shield Lake, Chelan County. From
U.S. Geological Survey, September 7, 1978.

SNOW, LOWER LAKE CHELAN COUNTY

Latitude 47°29'23" Longitude 120°44'2" T23N-R17E-S17
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	11.9 km^2	Shoreline length	2.2 km
Altitude	1651 m	Shoreline configuration	2.3
Lake area	26.3 ha	Basin geology	Igneous
Lake volume	0.92 hm^3	Inflow	Intermittent
Mean depth	4 m	Outflow channel	Present
Maximum depth	13 m		

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

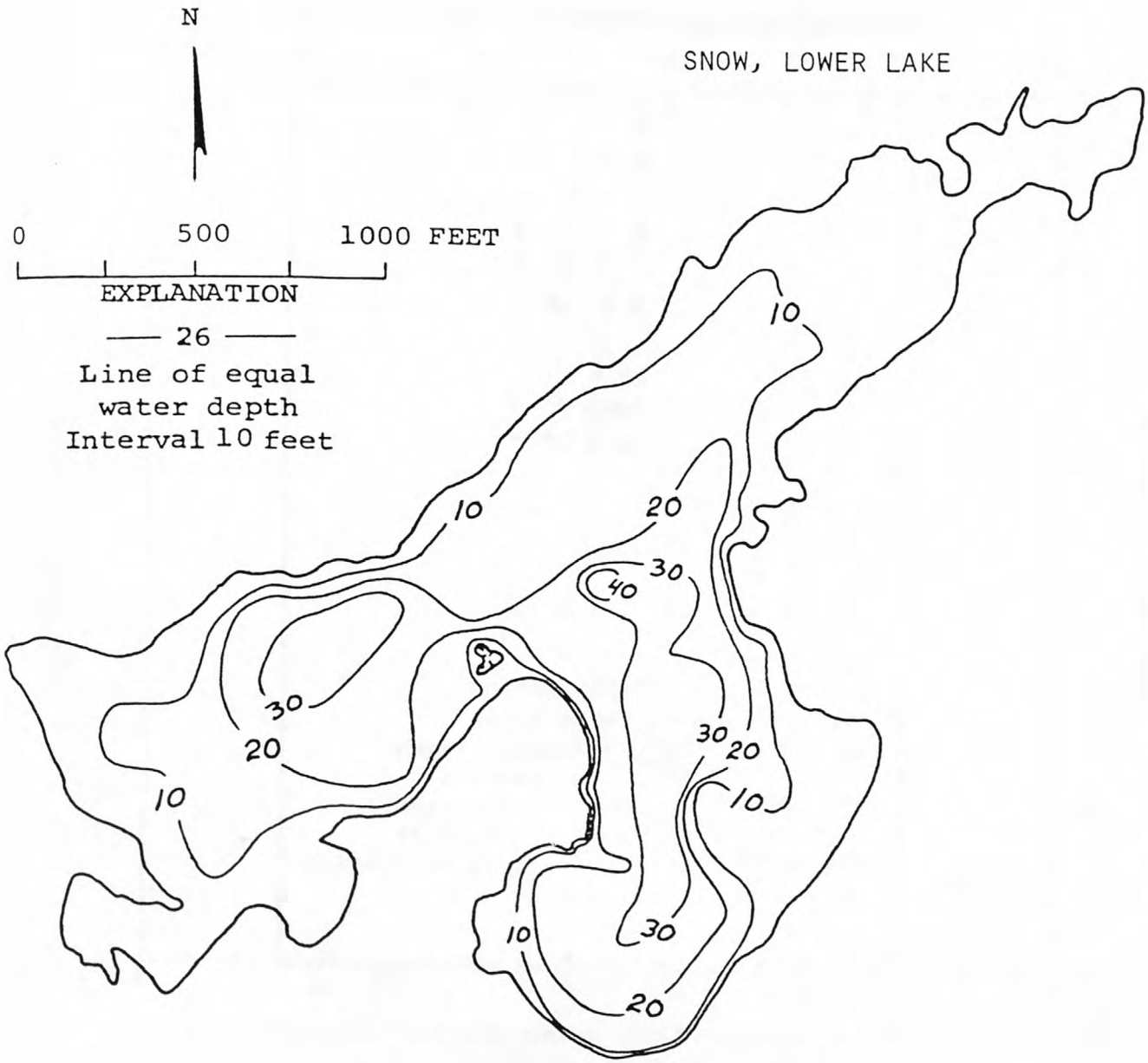
Sample site	1		2	
Date	7/31/74		9/12/78	
Time	1015	1020	1230	1235
Depth (m)	1	9	1	9
Total nitrite plus nitrate (N)	0.01	0.01	0.00	0.00
Total kjeldahl nitrogen (N)	0.24	0.18	0.10	0.14
Total ammonia (N)	0.04	0.04	0.01	0.01
Total organic nitrogen (N)	0.20	0.14	0.09	0.13
Total phosphorus (P)	0.003	0.003	0.001	0.003
Specific conductance (micromhos)	7	7	11	7
Water temperature (°C)	15.2	11.0	10.0	9.5
Secchi-disc visibility (m)	>10		>9	
Dissolved oxygen	8.4	9.6	8.6	8.5

Hardness (Ca, Mg)	2
Dissolved calcium (Ca)	1.5
Dissolved magnesium (Mg)	0.2
Dissolved sodium (Na)	0.5
Dissolved potassium (K)	0.2
Alkalinity as $CaCO_3$	3
Dissolved sulfate (SO_4)	0.5
Dissolved chloride (Cl)	0.2
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	2.9
Dissolved solids (sum of constituents)	8

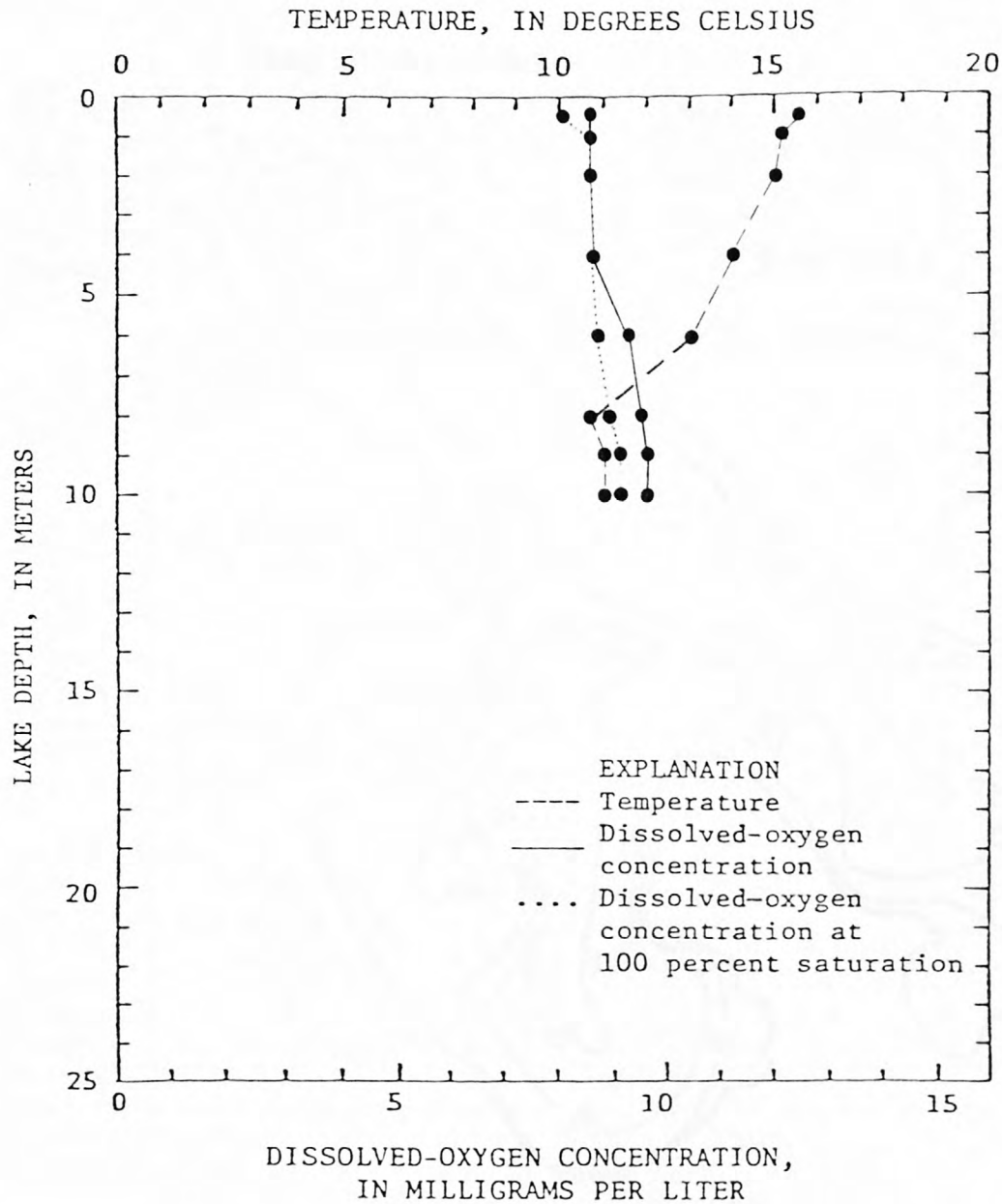
Lake shoreline covered by emersed plants 11-25%
Lake surface covered by emersed plants None or <1%

REMARKS

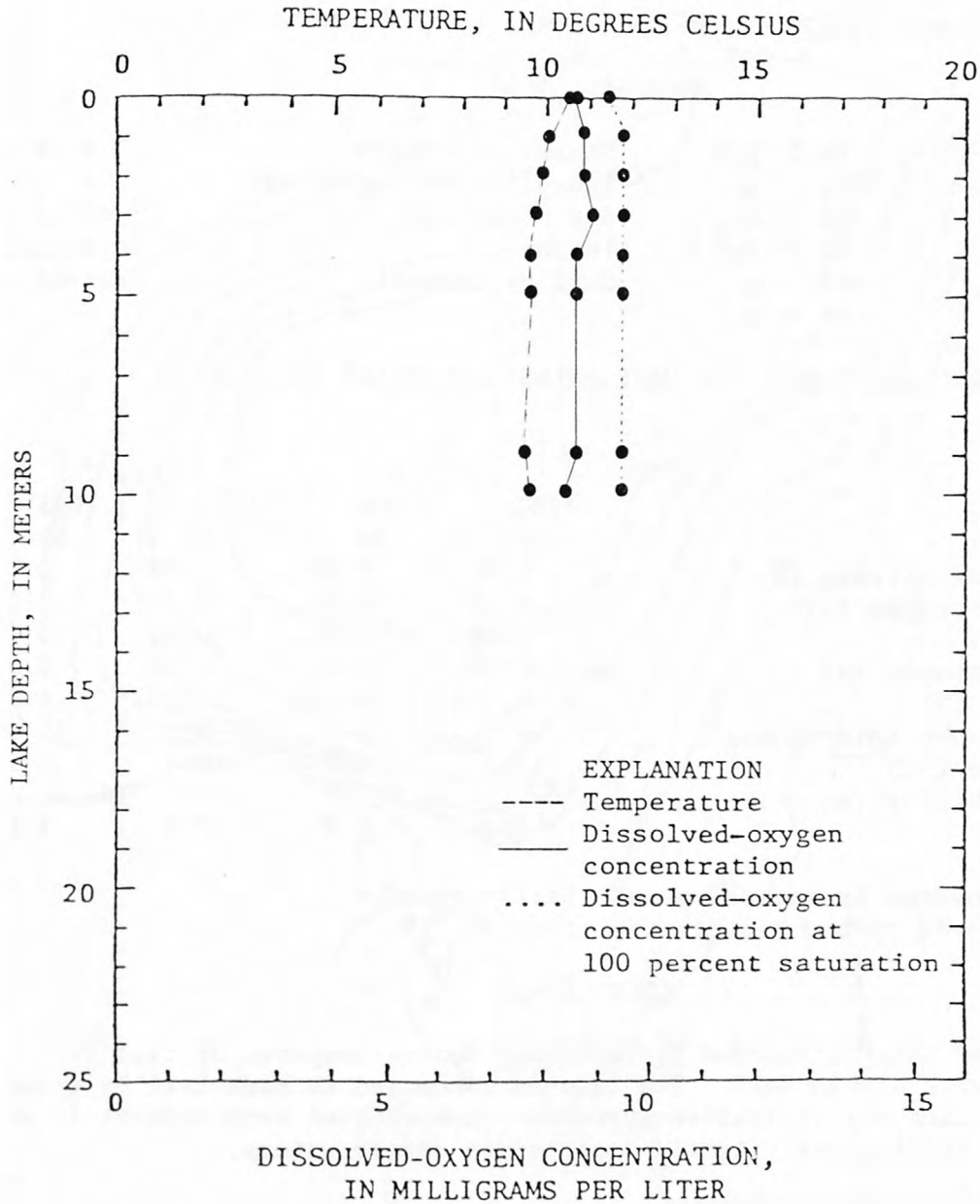
A large, shallow lake with numerous small islands. The lakeshore is largely forested. The lake is part of the U.S. Bureau of Reclamation Snow Lakes Project. Lake stage is controlled by a dam at the outlet and the water is used for irrigation purposes. When full, the lake water backs into Upper Snow Lake. Zooplankton were abundant. Numerous floating logs were present.



Snow, Lower Lake, Chelan County. From
U.S. Geological Survey, September 12, 1974.



Snow, Lower Lake, Chelan County. From U.S. Geological Survey, July 31, 1974.



Snow, Lower Lake, Chelan County. From U.S. Geological Survey, September 12, 1978.

SNOW, UPPER LAKE CHELAN COUNTY

Latitude 47°29'1" Longitude 120°44'57" T23N-R17E-S17
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	10.2	km^2	Shoreline length	1.5 km
Altitude	1651	m	Shoreline configuration	1.5
Lake area	48.6	ha	Basin geology	Igneous
Lake volume	20.89	hm^3	Inflow	Perennial
Mean depth	43	m	Outflow channel	Present
Maximum depth	85	m		

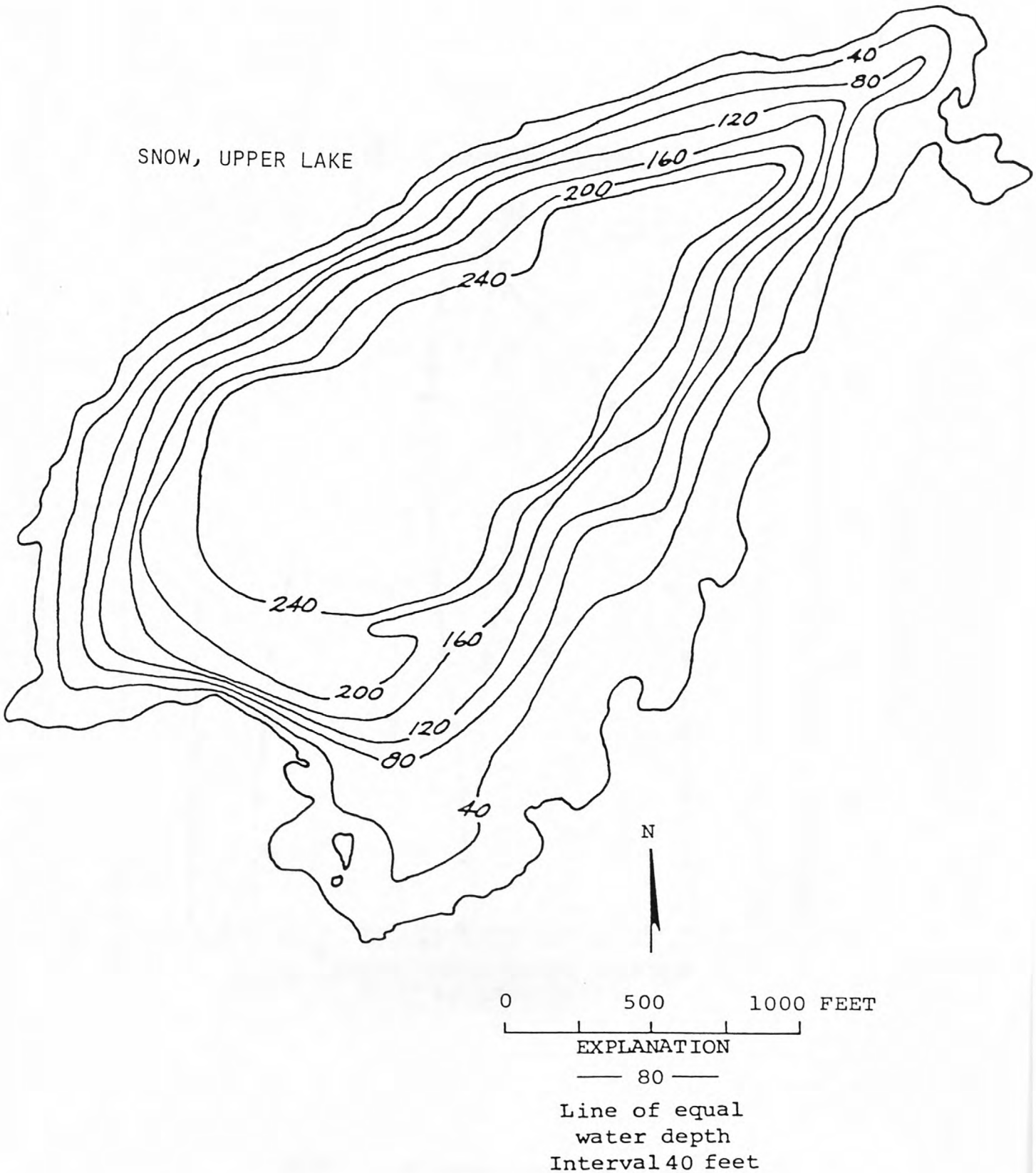
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1		2	
Date	7/31/74		9/12/78	
Time	1200	1205	1030	1035
Depth (m)	1	49	1	50
Total nitrite plus nitrate (N)	0.01	0.03	0.00	0.01
Total kjeldahl nitrogen (N)	0.18	0.06	0.01	0.10
Total ammonia (N)	0.04	0.04	0.02	0.01
Total organic nitrogen (N)	0.14	0.02	0.08	0.09
Total phosphorus (P)	0.003	0.004	0.002	0.005
Specific conductance (micromhos)	6	6	9	12
Water temperature (°C)	14.3	3.7	10.1	3.9
Secchi-disc visibility (m)	12.5		14	
Dissolved oxygen	8.9	8.8	8.8	8.8

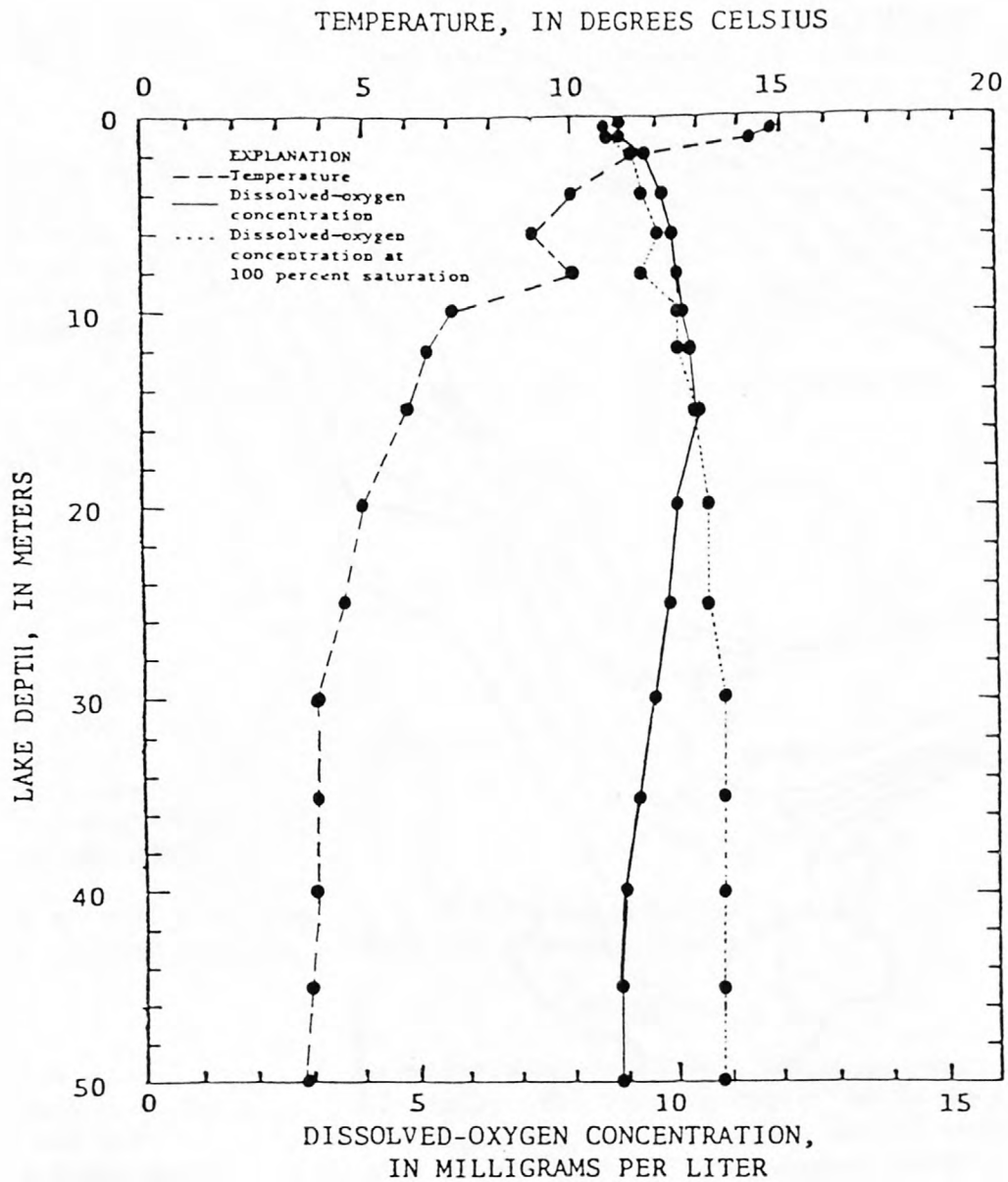
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

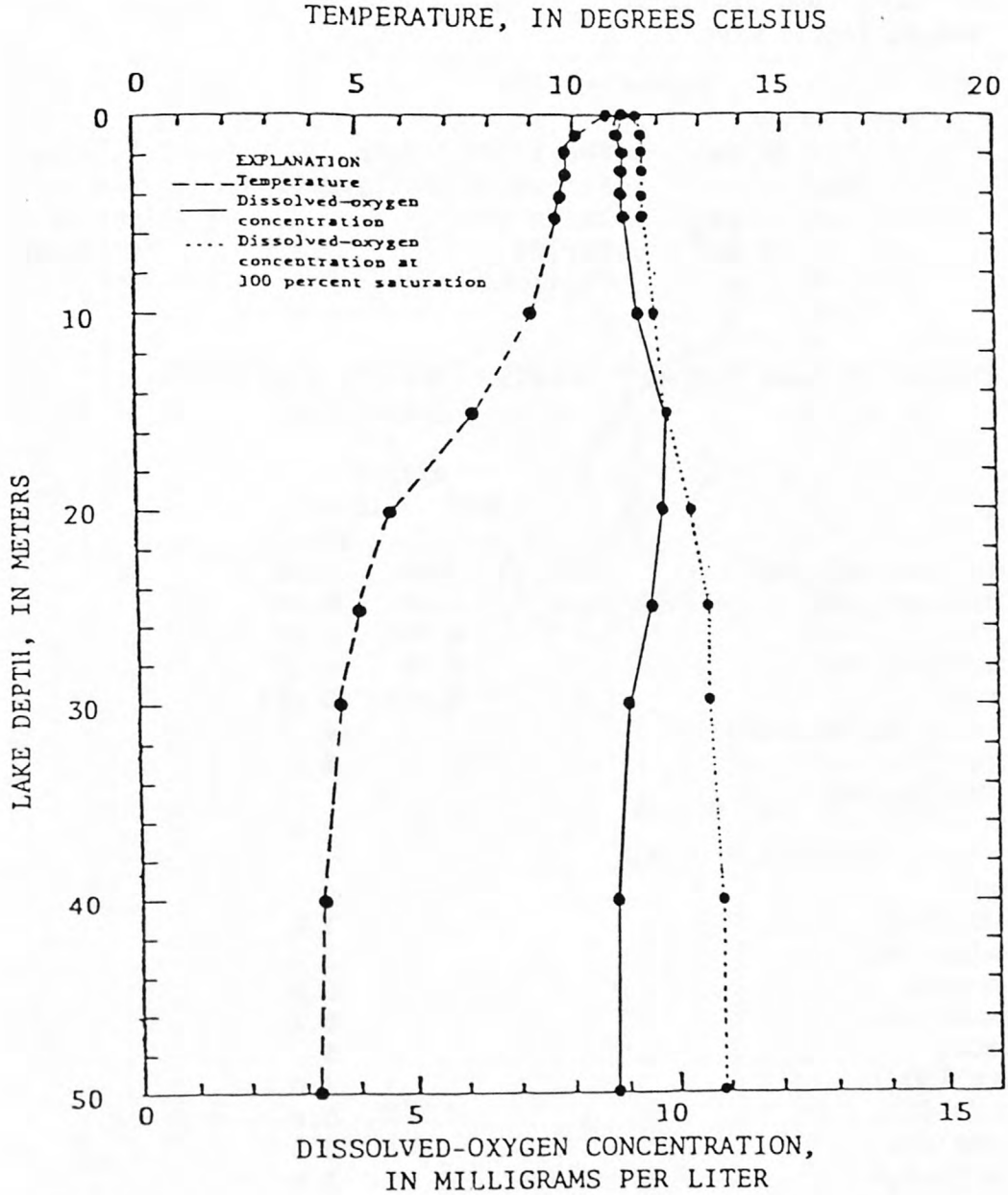
A large, deep lake surrounded by vegetated shores composed of till or bedrock mantled with a thin soil. The lake is connected to Nada Lake by a tunnel, and the water is used for irrigation purposes. Zooplankton were moderately abundant. Dissolved-oxygen levels were slightly depleted in deeper waters.



Snow, Upper Lake, Chelan County. From
U.S. Geological Survey, September 12, 1974.



Snow, Upper Lake, Chelan County. From U.S. Geological Survey, July 31, 1974.



Snow, Upper Lake, Chelan County. From U.S. Geological Survey, September 12, 1978.

STUART LAKE CHELAN COUNTY

Latitude 47°29'44" Longitude 120°52'17" T23N-R16E-S8
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	7.54	km^2	Shoreline length	1.94	km
Altitude	1544	m	Shoreline configuration	1.4	
Lake area	15.9	ha	Basin geology	Igneous	
Lake volume	1.44	hm^3	Inflow	Perennial	
Mean depth	9	m	Outflow channel	Present	
Maximum depth	15	m			

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

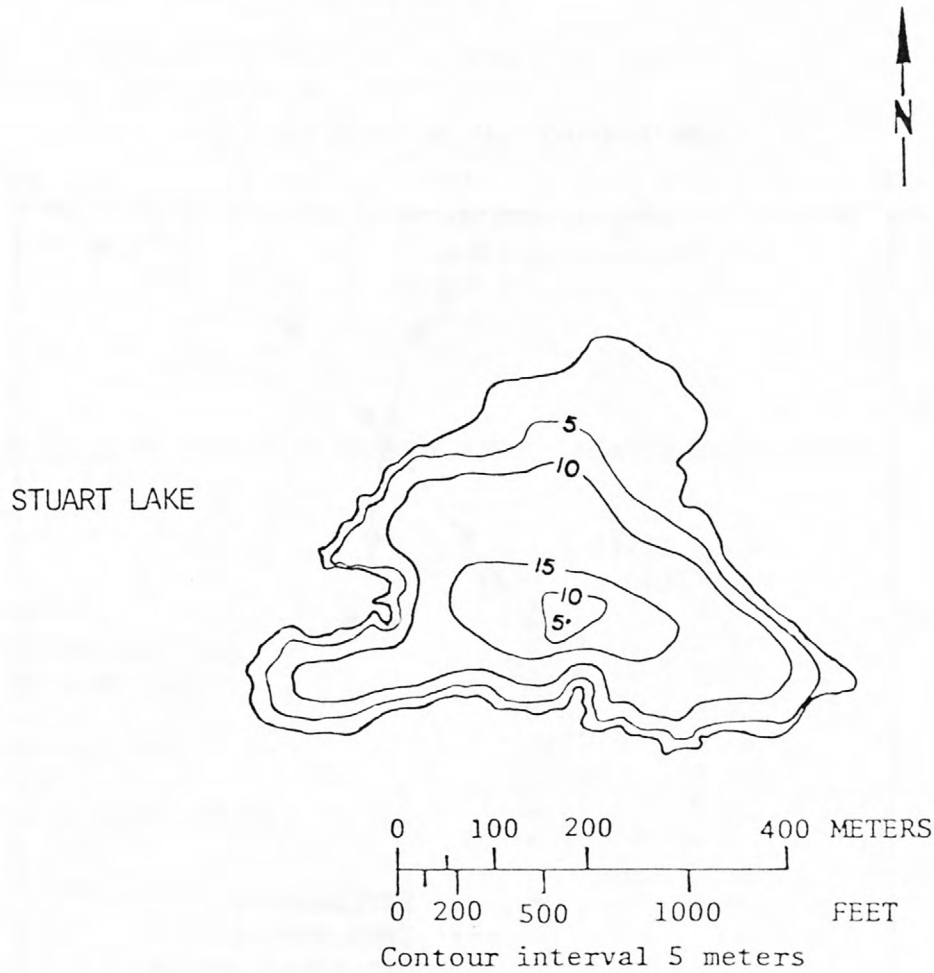
Sample site	1	
Date	8/7/78	
Time	1800	1805
Depth (m)	1	10
Total nitrite plus nitrate (N)	0.02	0.02
Total kjeldahl nitrogen (N)	0.07	0.10
Total ammonia (N)	0.03	0.03
Total organic nitrogen (N)	0.04	0.07
Total phosphorus (P)	0.007	0.010
Specific conductance (micromhos)	11	14
Water temperature (°C)	18.0	8.2
Secchi-disc visibility (m)	8	
Dissolved oxygen	7.3	9.1

Hardness (Ca, Mg)	5
Dissolved calcium (Ca)	1.6
Dissolved magnesium (Mg)	0.2
Dissolved sodium (Na)	0.4
Dissolved potassium (K)	0.4
Alkalinity as $CaCO_3$	5
Dissolved sulfate (SO_4)	2.0
Dissolved chloride (Cl)	0.4
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	3.0
Dissolved solids (sum of constituents)	11

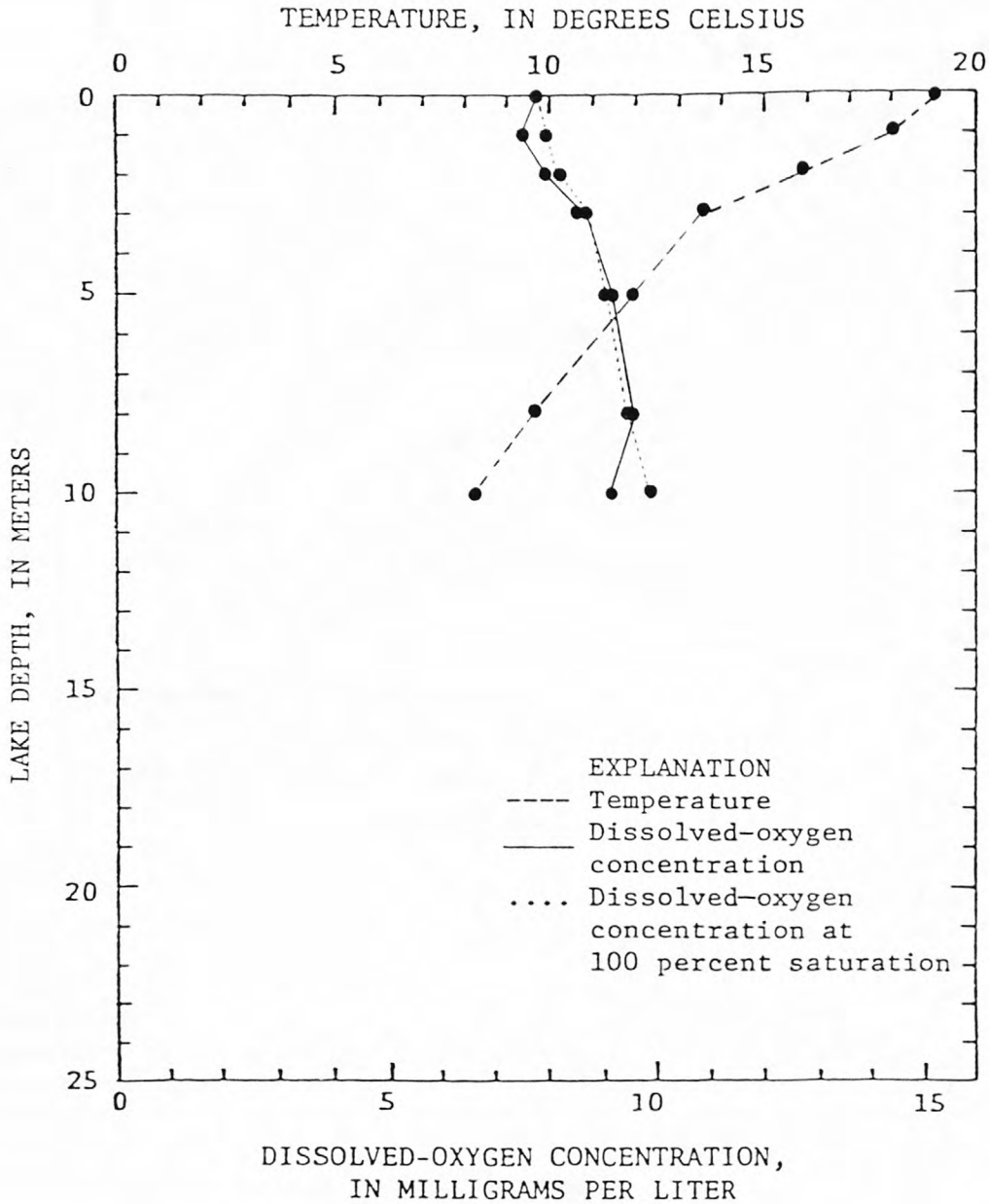
Lake shoreline covered by emersed plants 0-10%
Lake surface covered by emersed plants None or <1%

REMARKS

A large, shallow lake with an extensive wet area on the southwest end. Most of the lake is surrounded by forested colluvial slopes, but there are minor areas of wet soils and bedrock. Zooplankton were abundant. There was an extensive log jam at the east end of the lake.



Stuart Lake, Chelan County. From
U.S. Geological Survey, August 7, 1978.



Stuart Lake, Chelan County. From U.S. Geological Survey, August 7, 1978.

TEMPLE LAKE CHELAN COUNTY

Latitude 47°29'4" Longitude 120°46'34" T23N-R16E-S13
Wenatchee River Basin, Icicle Creek

PHYSICAL DATA

Drainage area	0.32 km^2	Shoreline length	0.62 km
Altitude	2096 m	Shoreline configuration	1.1
Lake area	2.4 ha	Basin geology	Igneous
Lake volume	0.07 hm^3	Inflow	Intermittent
Mean depth	3 m	Outflow channel	Absent
Maximum depth	5 m		

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

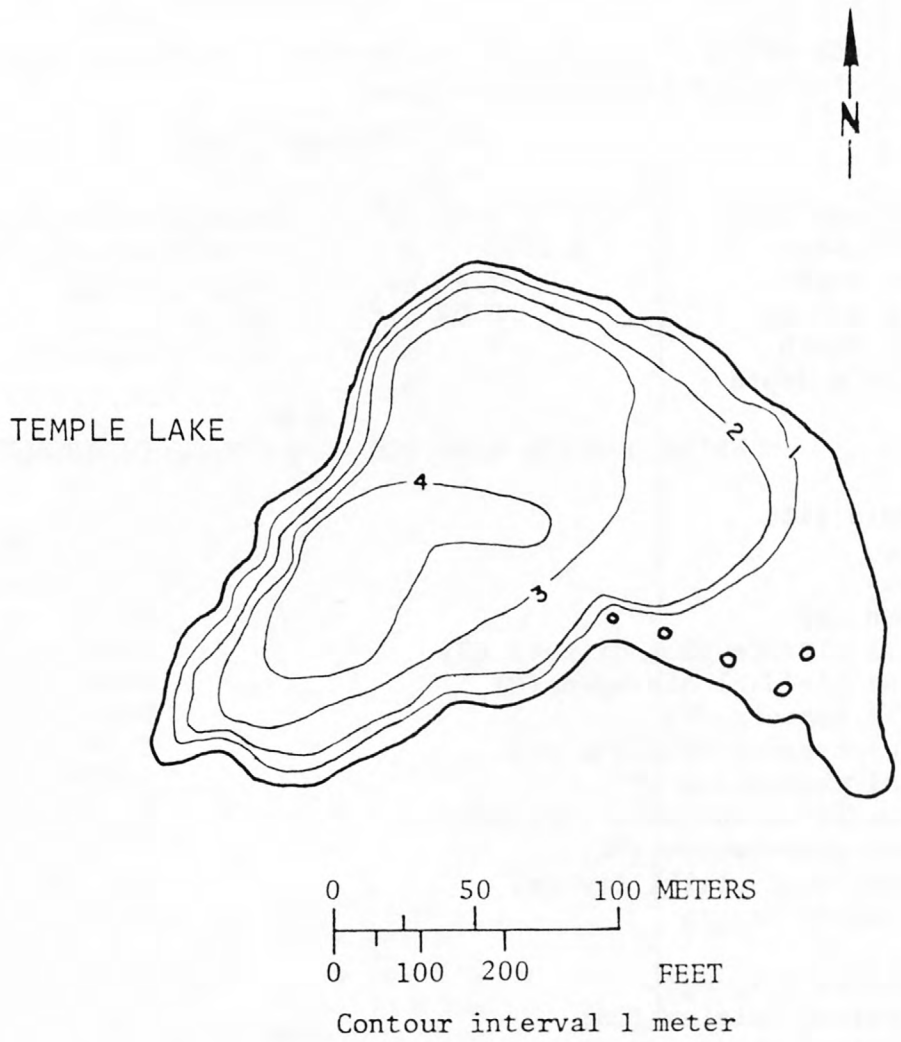
Sample site	1	
Date	9/11/78	
Time	1330	1335
Depth (m)	1	3.5
Total nitrite plus nitrate (N)	0.01	0.01
Total kjeldahl nitrogen (N)	0.19	0.18
Total ammonia (N)	0.02	0.02
Total organic nitrogen (N)	0.17	0.16
Total phosphorus (P)	0.005	0.004
Specific conductance (micromhos)	5	5
Water temperature (°C)	6.2	6.0
Secchi-disc visibility (m)	>5	
Dissolved oxygen	9.0	9.1

Hardness (Ca, Mg)	2
Dissolved calcium (Ca)	0.5
Dissolved magnesium (Mg)	0.3
Dissolved sodium (Na)	0.3
Dissolved potassium (K)	0.2
Alkalinity as $CaCO_3$	2
Dissolved sulfate (SO_4)	1.2
Dissolved chloride (Cl)	0.3
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	2.2
Dissolved solids (sum of constituents)	6

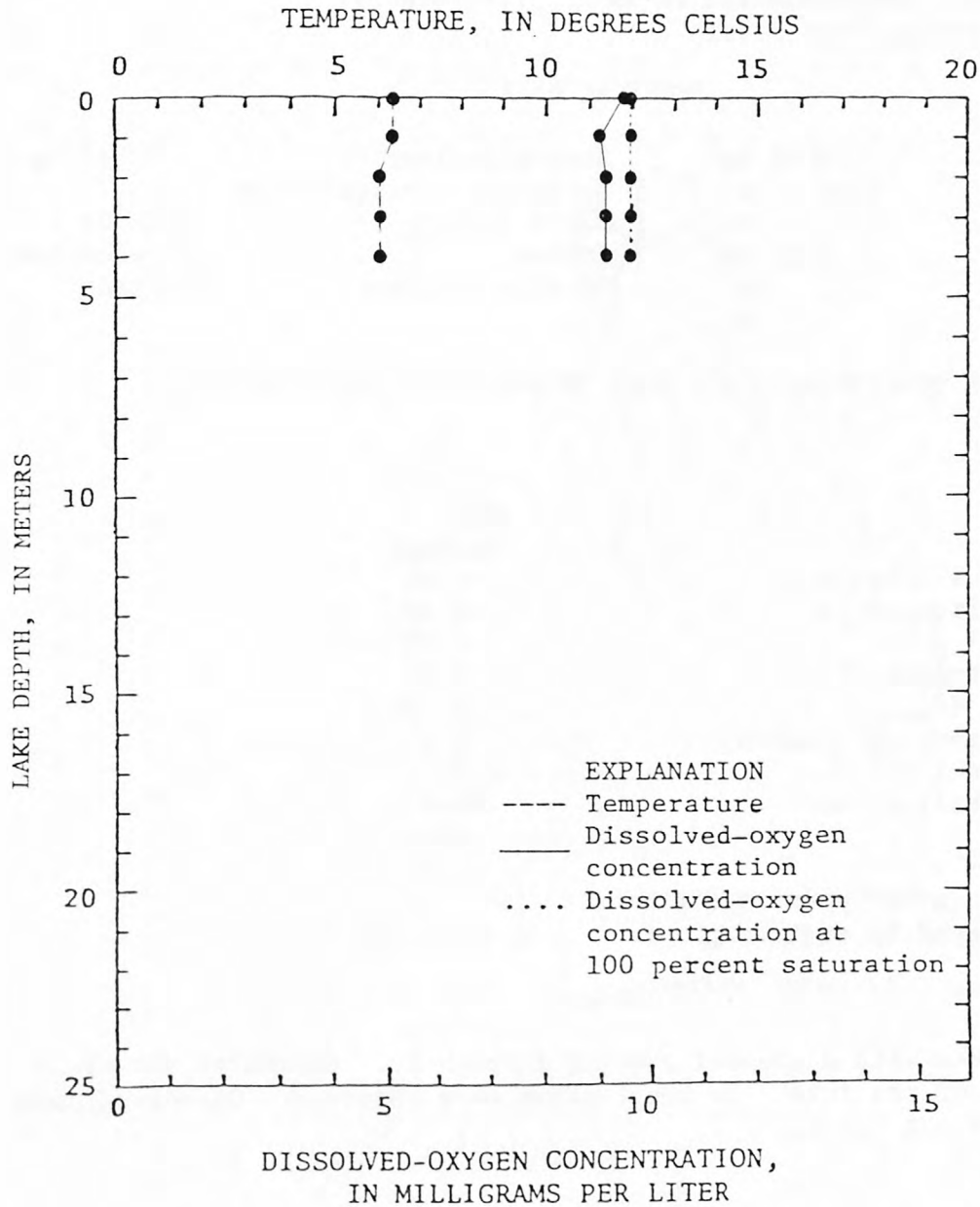
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake. Extensive wet areas occur on the northeast side of the lake; bedrock and talus dominate the rest of the perimeter. Zooplankton were abundant. The lake drops 1-2 meters during dry periods.



Temple Lake, Chelan County. From
U.S. Geological Survey, September 11, 1978.



Temple Lake, Chelan County. From U.S. Geological Survey, September 11, 1978.

AL LAKE KING COUNTY

Latitude 47°34'58" Longitude 121°15'39" T24N-R13E-S7
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	0.55 km^2	Shoreline length	0.55 km
Altitude	1445 m	Shoreline configuration	1.3
Lake area	1.5 ha	Basin geology	Igneous
Lake volume	0.01 hm^3	Inflow	Intermittent
Mean depth	1 m	Outflow channel	Present
Maximum depth	4 m		

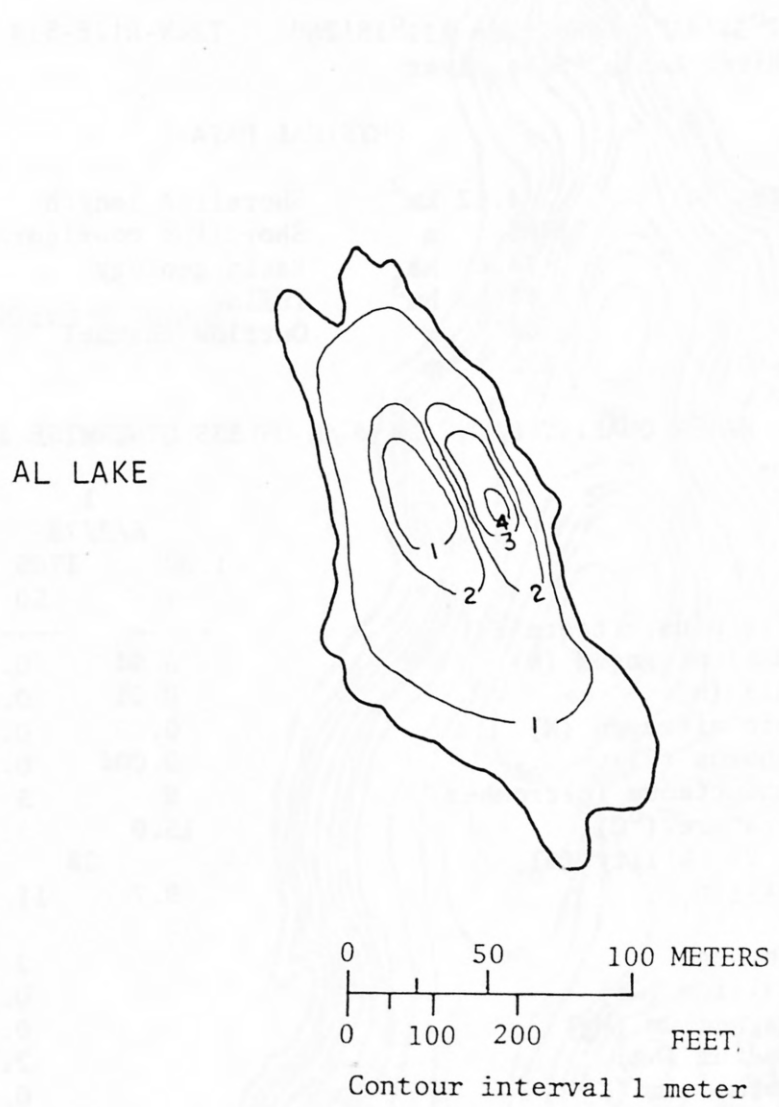
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1
Date	8/24/78
Time	1800
Depth (m)	surface
Total nitrite plus nitrate (N)	0.00
Total kjeldahl nitrogen (N)	0.03
Total ammonia (N)	0.01
Total organic nitrogen (N)	0.02
Total phosphorus (P)	0.003
Specific conductance (micromhos)	9.5
Water temperature (°C)	7.4
Secchi-disc visibility (m)	>3.5
Dissolved oxygen	-----

Lake shoreline covered by emersed plants	0-10%
Lake surface covered by emersed plants	Little or <1%

REMARKS

A shallow lake with a channel running through it. Extensive wet areas on the south end of the lake. No zooplankton were observed. Dissolved-oxygen measurements were not taken.



Al Lake, King County. From
U.S. Geological Survey, August 24, 1978.

ANGELINE LAKE KING COUNTY

Latitude 47°34'45" Longitude 121°18'26" T24N-R12E-S14
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	4.12	km^2	Shoreline length	4.25	km
Altitude	1405	m	Shoreline configuration	1.4	
Lake area	74.6	ha	Basin geology	Igneous	
Lake volume	47.85	hm^3	Inflow	Perennial	
Mean depth	64	m	Outflow channel	Present	
Maximum depth	155	m			

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

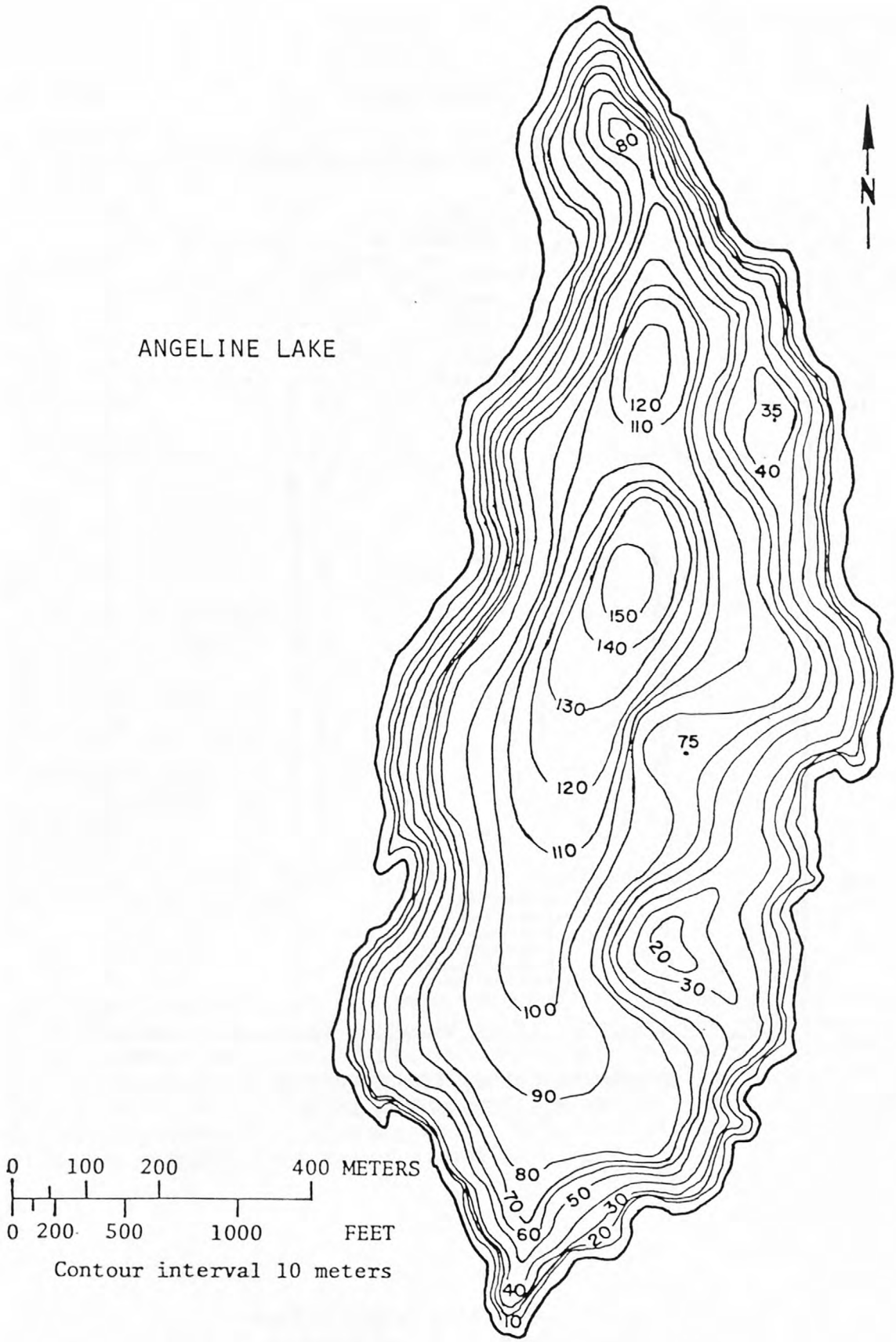
Sample site	1	
Date	8/2/78	
Time	1700	1705
Depth (m)	1	50
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.04	0.01
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.03	0.00
Total phosphorus (P)	0.004	0.003
Specific conductance (micromhos)	8	5
Water temperature (°C)	15.0	3.8
Secchi-disc visibility (m)	28	
Dissolved oxygen	9.7	11.7

Hardness (Ca, Mg)	2
Dissolved calcium (Ca)	0.9
Dissolved magnesium (Mg)	0.1
Dissolved sodium (Na)	2.0
Dissolved potassium (K)	0.1
Alkalinity as $CaCO_3$	2
Dissolved sulfate (SO_4)	0.5
Dissolved chloride (Cl)	1.0
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	1.4
Dissolved solids (sum of constituents)	7

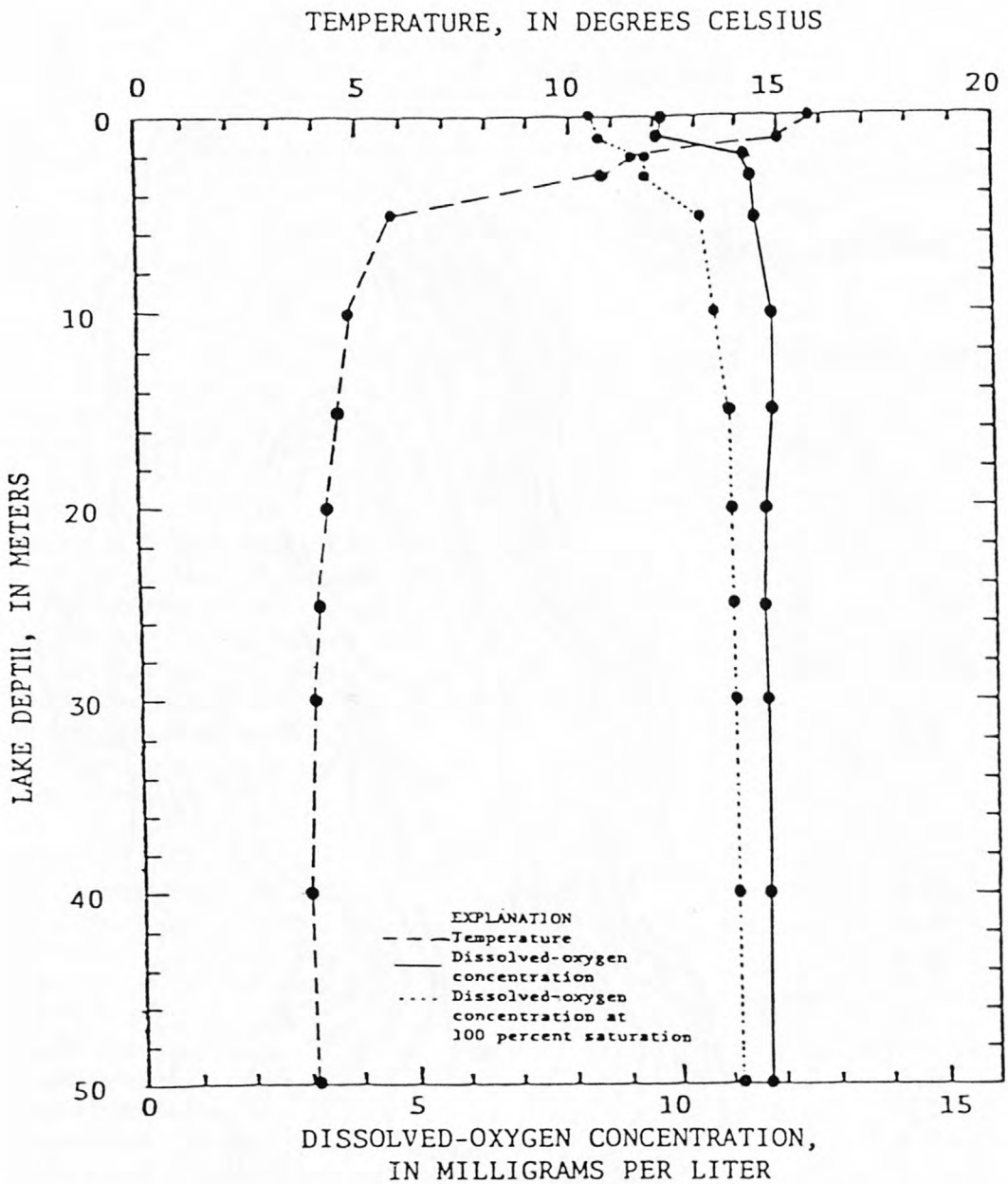
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

A deep lake largely surrounded by steep bedrock walls. Underwater slopes are also very steep. Zooplankton were moderately abundant. The dissolved-oxygen concentration was near saturation throughout the water column.



Angeline Lake, King County. From
U.S. Geological Survey, August 2, 1978.



Angeline Lake, King County. From
U,S, Geological Survey, August 2, 1978.

BIG HEART LAKE KING COUNTY

Latitude 47°35'2" Longitude 121°19'5" T24N-R12E-S10
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	3.91 km^2	Shoreline length	5.69 km
Altitude	1386 m	Shoreline configuration	1.9
Lake area	72.2 ha	Basin geology	Igneous
Lake volume	30.9 hm^3	Inflow	Intermittent
Mean depth	43 m	Outflow channel	Present
Maximum depth	168 m		

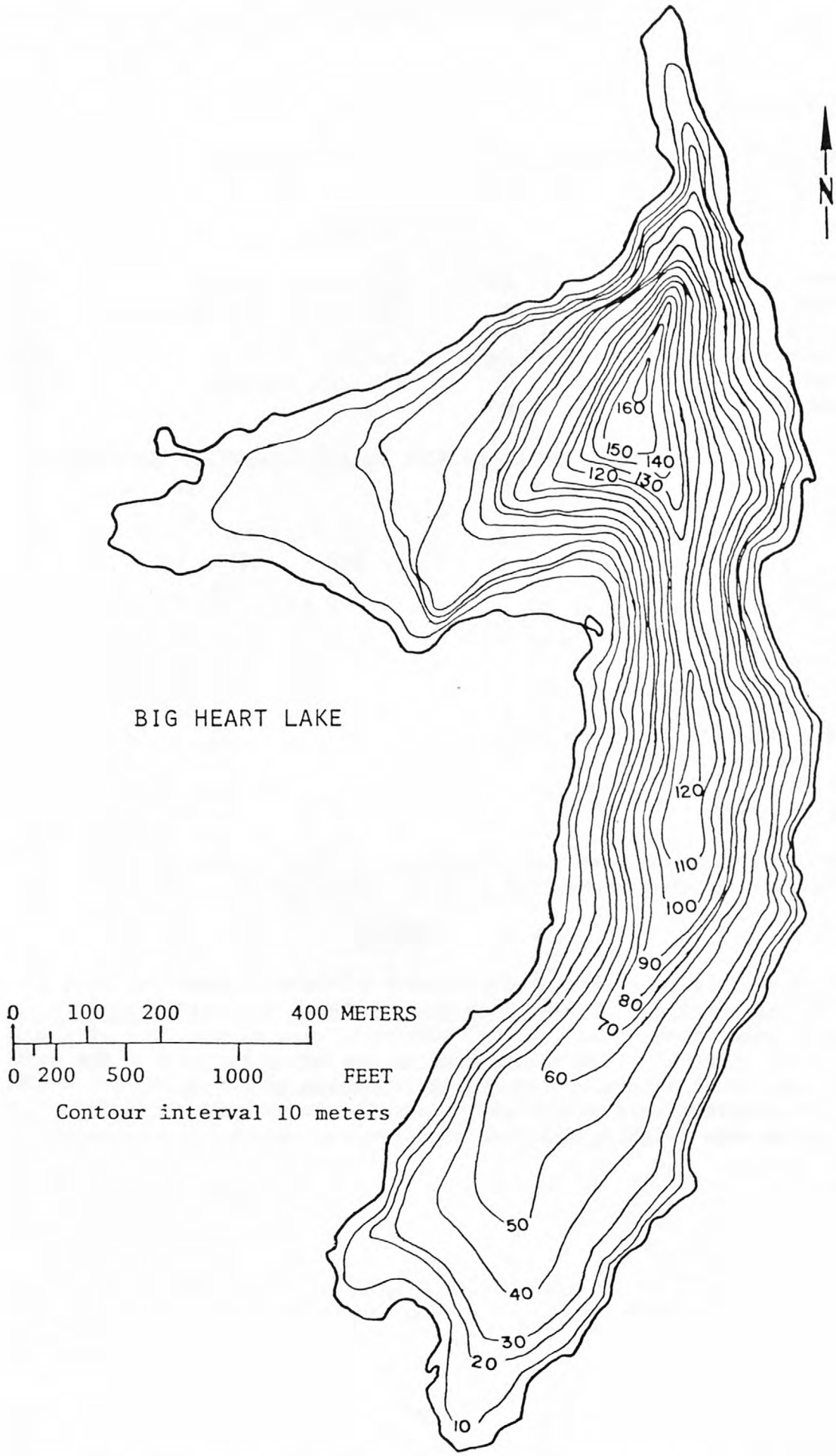
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/3/78	
Time	900	905
Depth (m)	1	50
Total nitrite plus nitrate (N)	0.02	0.03
Total kjeldahl nitrogen (N)	0.03	0.02
Total ammonia (N)	0.01	0.02
Total organic nitrogen (N)	0.02	0.00
Total phosphorus (P)	0.004	0.010
Specific conductance (micromhos)	43	30
Water temperature (°C)	15.0	4.0
Secchi-disc visibility (m)	25	
Dissolved oxygen	7.9	9.4

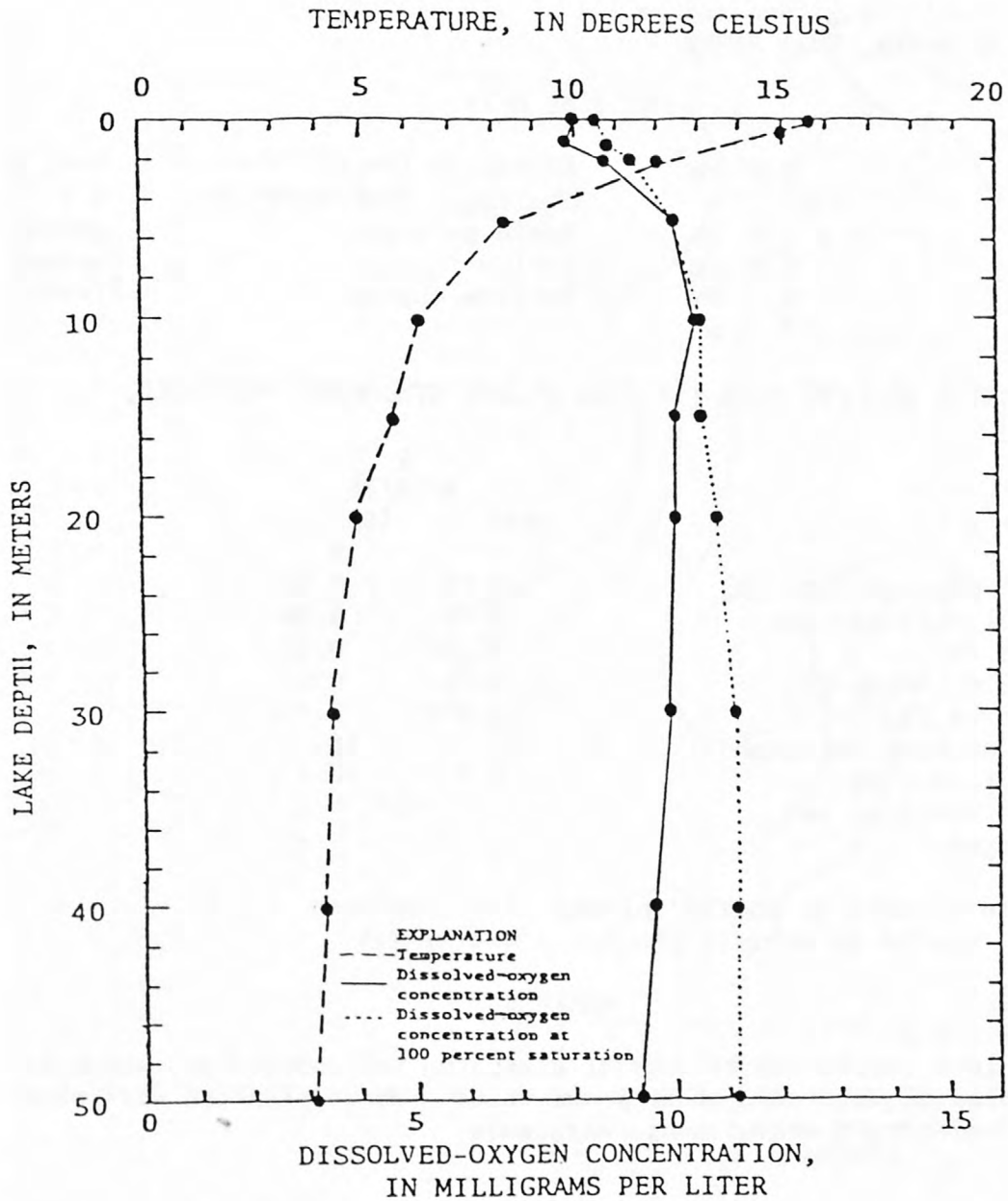
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

A fjord-like lake with several arms: the deepest measured lake in the Alpine Lakes Wilderness Area. Forested colluvial slopes dominate the north, northwest, and south ends of the lake; bedrock surrounds most of the rest of the lake. Moraines are present 10-20 meters beneath the water surface in the west and south arms. Lake level is controlled by a bedrock lip on the northeast end of the lake. Zooplankton were moderately abundant. Below a depth of about 12 m the water column was slightly depleted of dissolved oxygen.



Big Heart Lake, King County. From
U.S. Geological Survey, August 3, 1978.



Big Heart Lake, King County. From
U.S. Geological Survey, August 3, 1978.

BONNIE LAKE KING COUNTY

Latitude 47°33'54" Longitude 121°16'22" T24N-R13E-S13
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	0.54 km^2	Shoreline length	0.82 km
Altitude	1482 m	Shoreline configuration	1.2
Lake area	3.5 ha	Basin geology	Igneous
Lake volume	0.21 hm^3	Inflow	Perennial
Mean depth	6 m	Outflow channel	Present
Maximum depth	13 m		

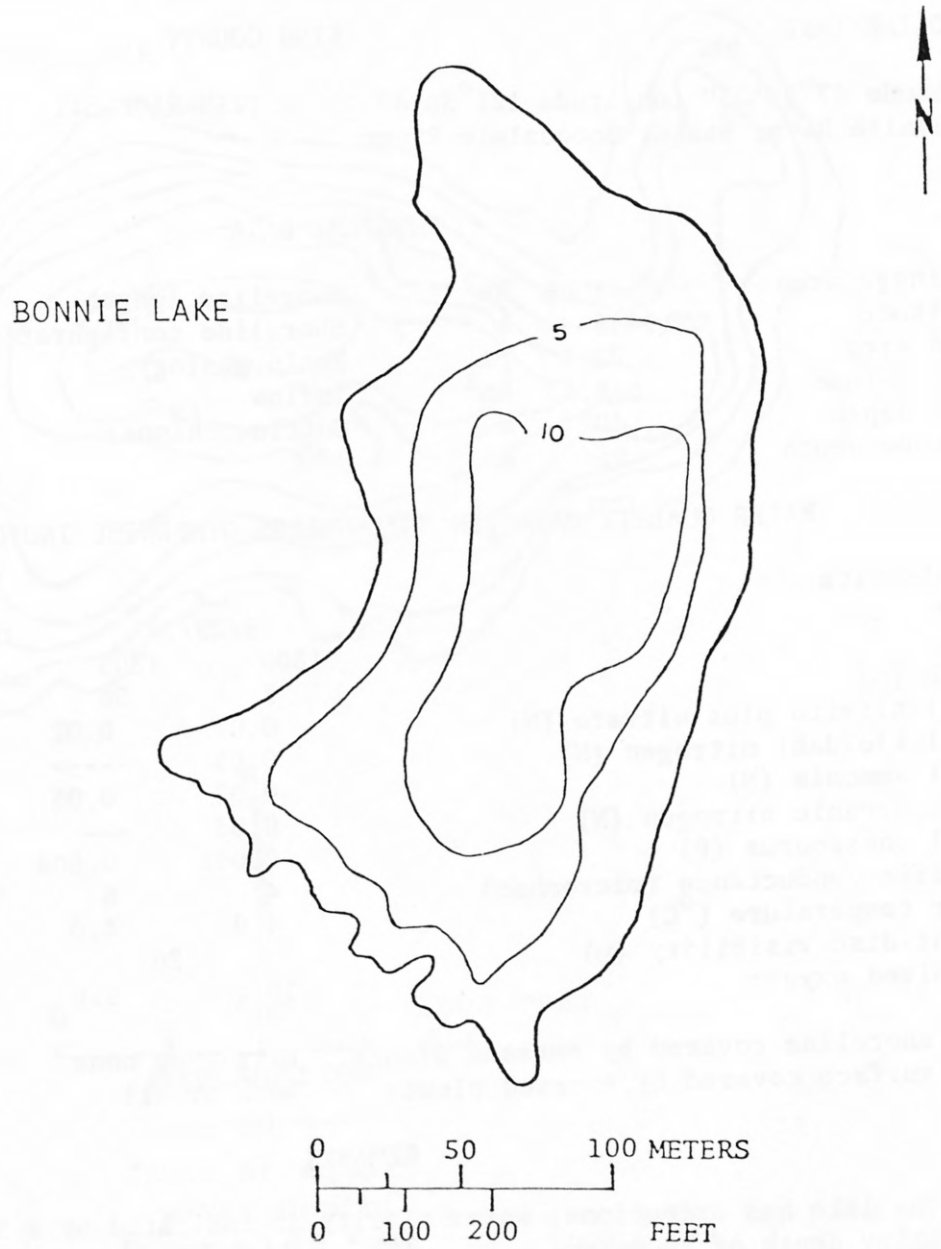
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/23/78	
Time	1630	1635
Depth (m)	1	10
Total nitrite plus nitrate (N)	0.02	0.02
Total kjeldahl nitrogen (N)	0.06	0.08
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.05	0.07
Total phosphorus (P)	0.006	0.004
Specific conductance (micromhos)	15	18
Water temperature (°C)	9.0	10.4
Secchi-disc visibility (m)	>10	
Dissolved oxygen	-----	-----

Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small lake surrounded by forests except on the south side, which is largely composed of vegetated bedrock and talus. No zooplankton were observed and no dissolved-oxygen measurements were made.



Contour interval 5 meters

Bonnie Lake, King County. From
U.S. Geological Survey, August 23, 1978.

CAROLINE LAKE KING COUNTY

Latitude 47°29'23" Longitude 121°30'4" T23N-R10E-S11
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	1.06	km^2	Shoreline length	2.25 km
Altitude	1445	m	Shoreline configuration	1.4
Lake area	22.3	ha	Basin geology	Igneous
Lake volume	8.63	hm^3	Inflow	Intermittent
Mean depth	40	m	Outflow channel	Present
Maximum depth	95	m		

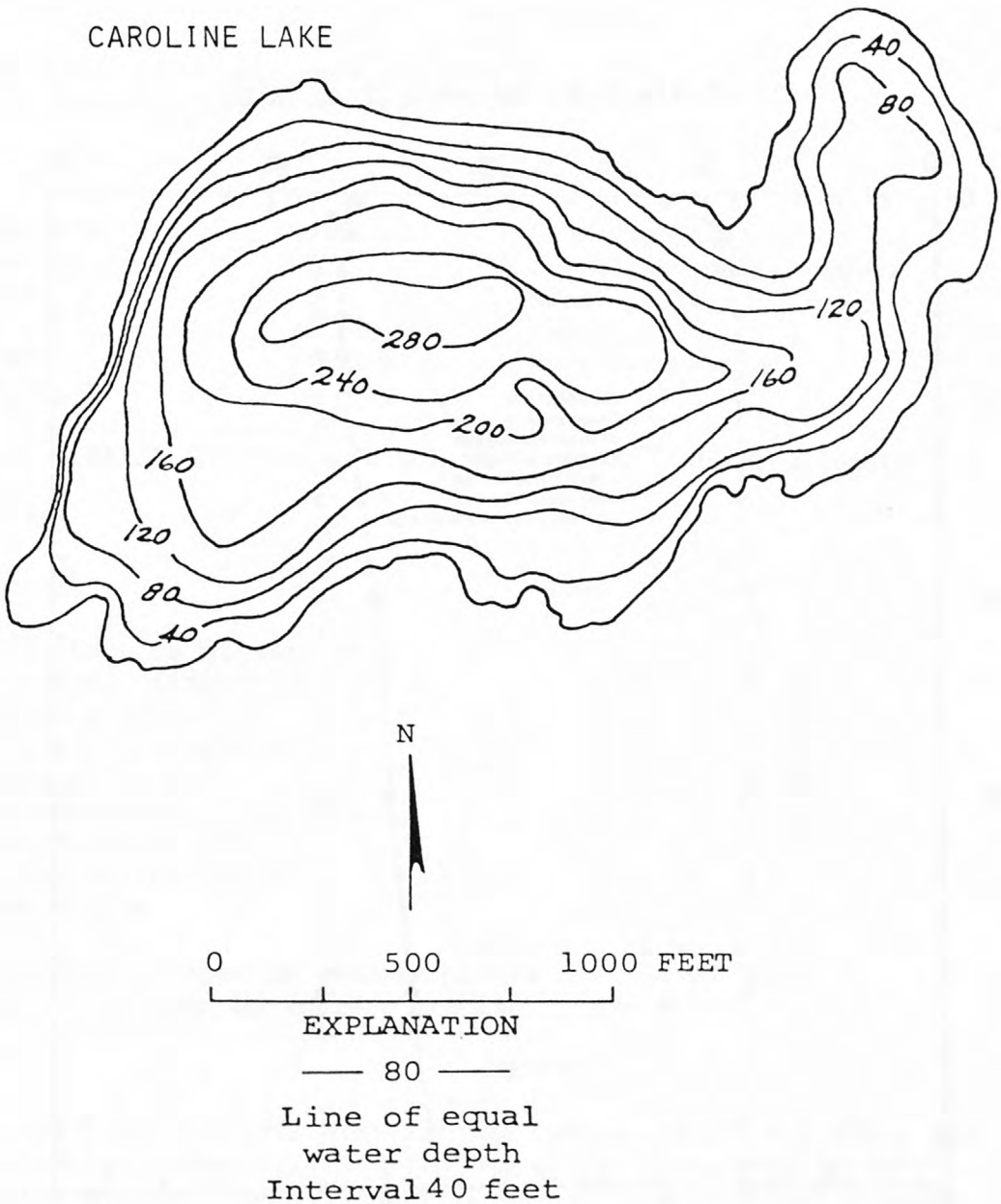
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/29/74	
Time	1300	1305
Depth (m)	1	50
Total nitrite plus nitrate (N)	0.01	0.02
Total kjeldahl nitrogen (N)	0.05	-----
Total ammonia (N)	0.02	0.03
Total organic nitrogen (N)	0.03	-----
Total phosphorus (P)	0.002	0.004
Specific conductance (micromhos)	4	6
Water temperature (°C)	4.9	4.0
Secchi-disc visibility (m)	26	
Dissolved oxygen	10.4	9.0

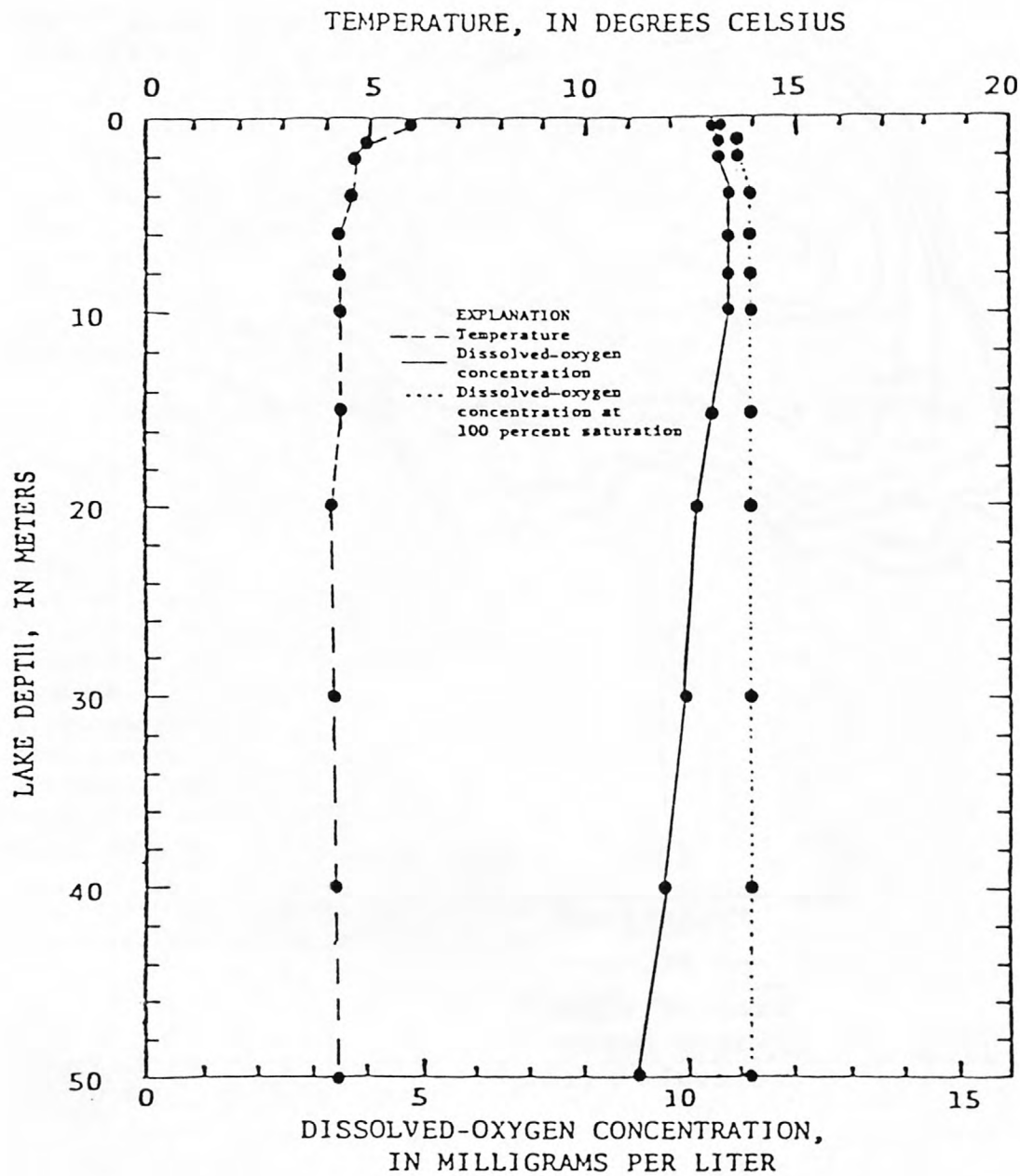
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

The lake has exceptional water clarity as indicated by a Secchi disc visibility depth of 26 meters.



Caroline Lake, King County. From U.S. Geological Survey, September 7, 1974.



Caroline Lake, King County. From
U.S. Geological Survey, August 29, 1974.

COPPER LAKE KING COUNTY

Latitude 47°36'28" Longitude 121°19'41" T24N-R12E-S3
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	3.57 km^2	Shoreline length	3.18 km
Altitude	1208 m	Shoreline configuration	1.2
Lake area	53.4 ha	Basin geology	Igneous
Lake volume	25.61 hm^3	Inflow	Perennial
Mean depth	48 m	Outflow channel	Present
Maximum depth	105 m		

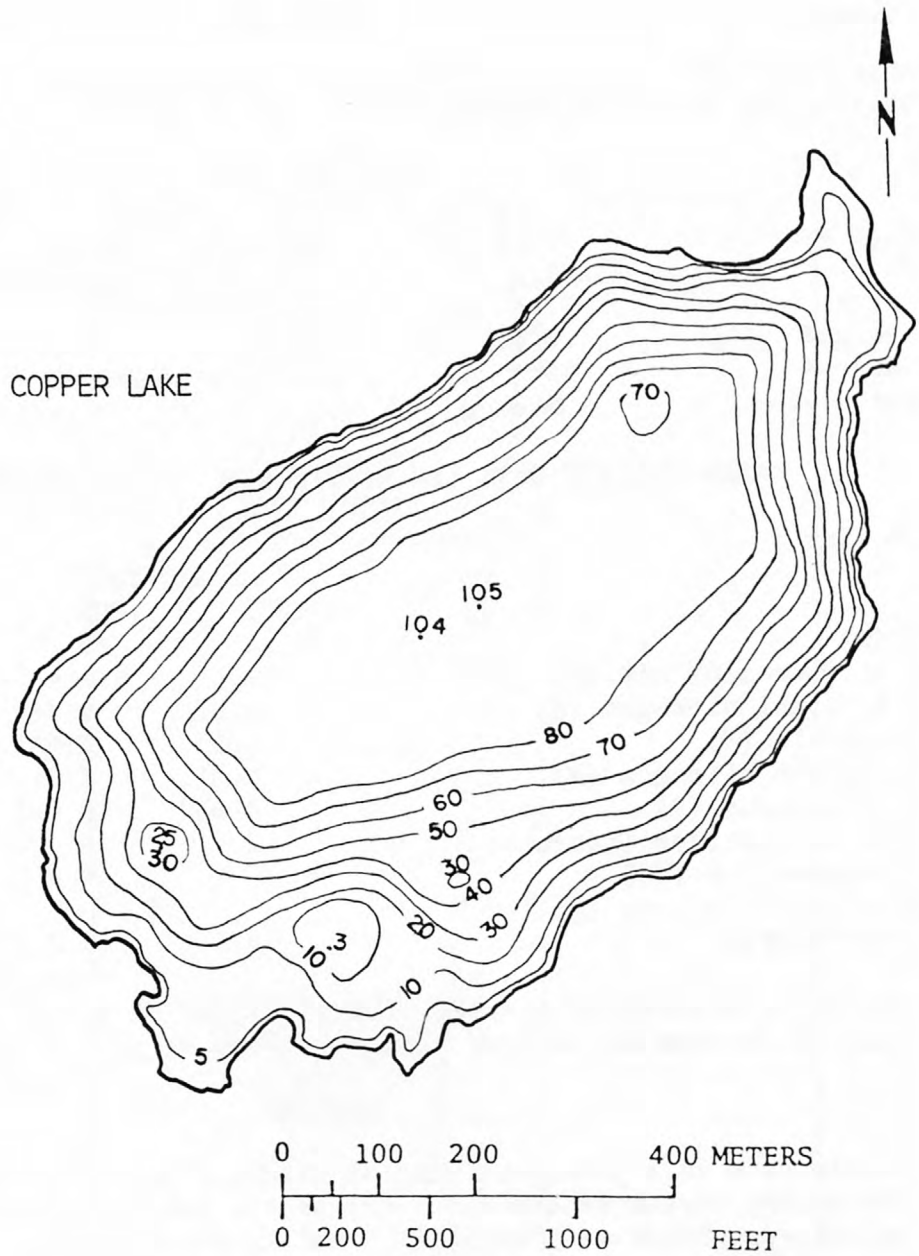
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/4/78	
Time	1000	1005
Depth (m)	1	45
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.02	0.01
Total ammonia (N)	0.01	0.00
Total organic nitrogen (N)	0.01	0.01
Total phosphorus (P)	0.002	0.001
Specific conductance (micromhos)	12	55
Water temperature (°C)	17.0	4.0
Secchi-disc visibility (m)	23	
Dissolved oxygen	8.1	2.2

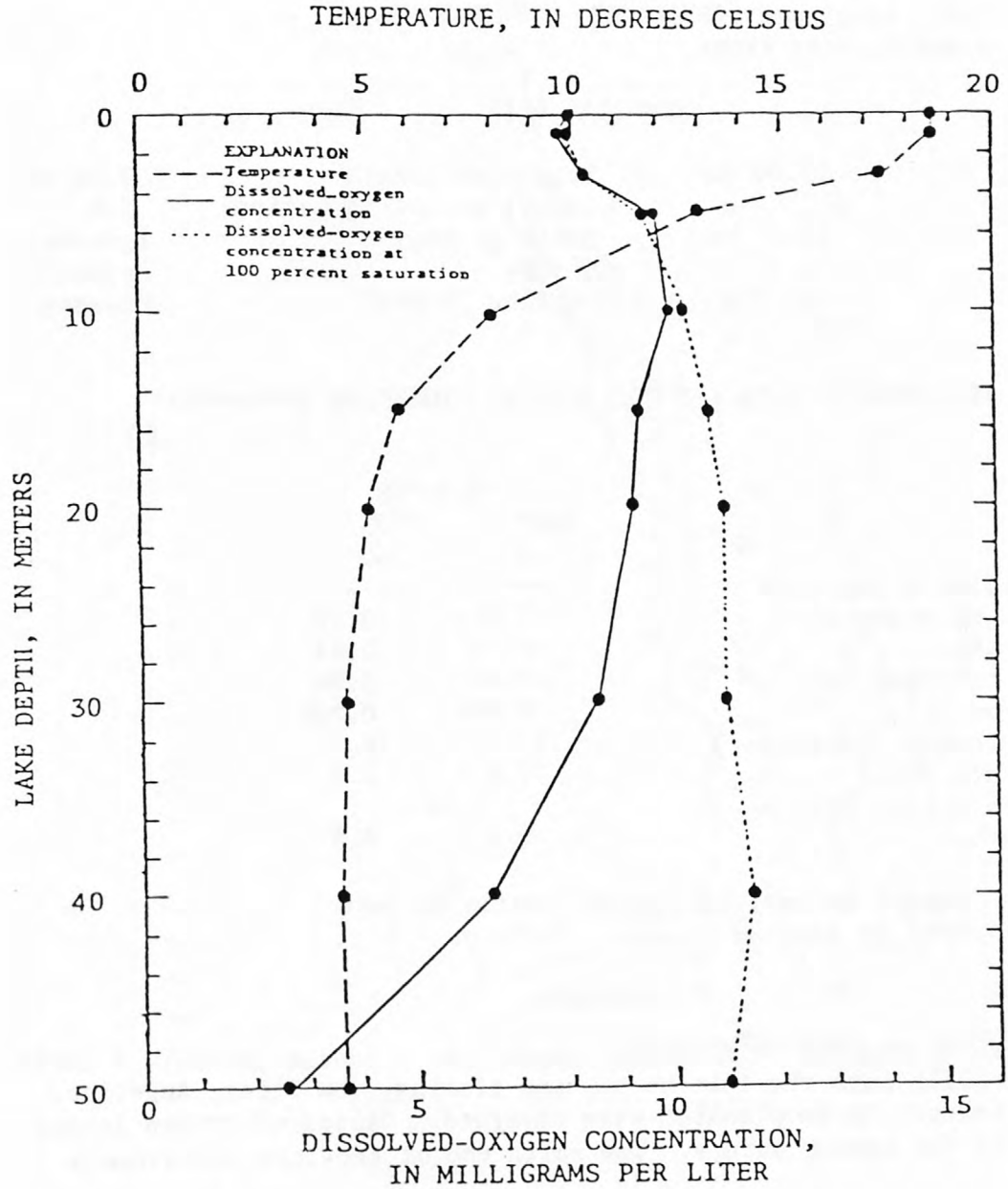
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

A deep lake in a prominent glacial cirque. Small wet areas are located near the outlet stream at the north end of the lake, near an extensive log jam. Zooplankton were moderately abundant. The dissolved-oxygen concentration was highly depleted in the bottom waters.



Copper Lake, King County. From
U.S. Geological Survey, August 4, 1978.



Copper Lake, King County. From
U.S. Geological Survey, August 4, 1978.

DELTA LAKE KING COUNTY

Latitude 47°35'45" Longitude 121°18'46" T24N-R12E-S2
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	19.66 km^2	Shoreline length	2.36 km
Altitude	985 m	Shoreline configuration	1.6
Lake area	18.4 ha	Basin geology	Igneous
Lake volume	2.37 hm^3	Inflow	Perennial
Mean depth	13 m	Outflow channel	Present
Maximum depth	37 m		

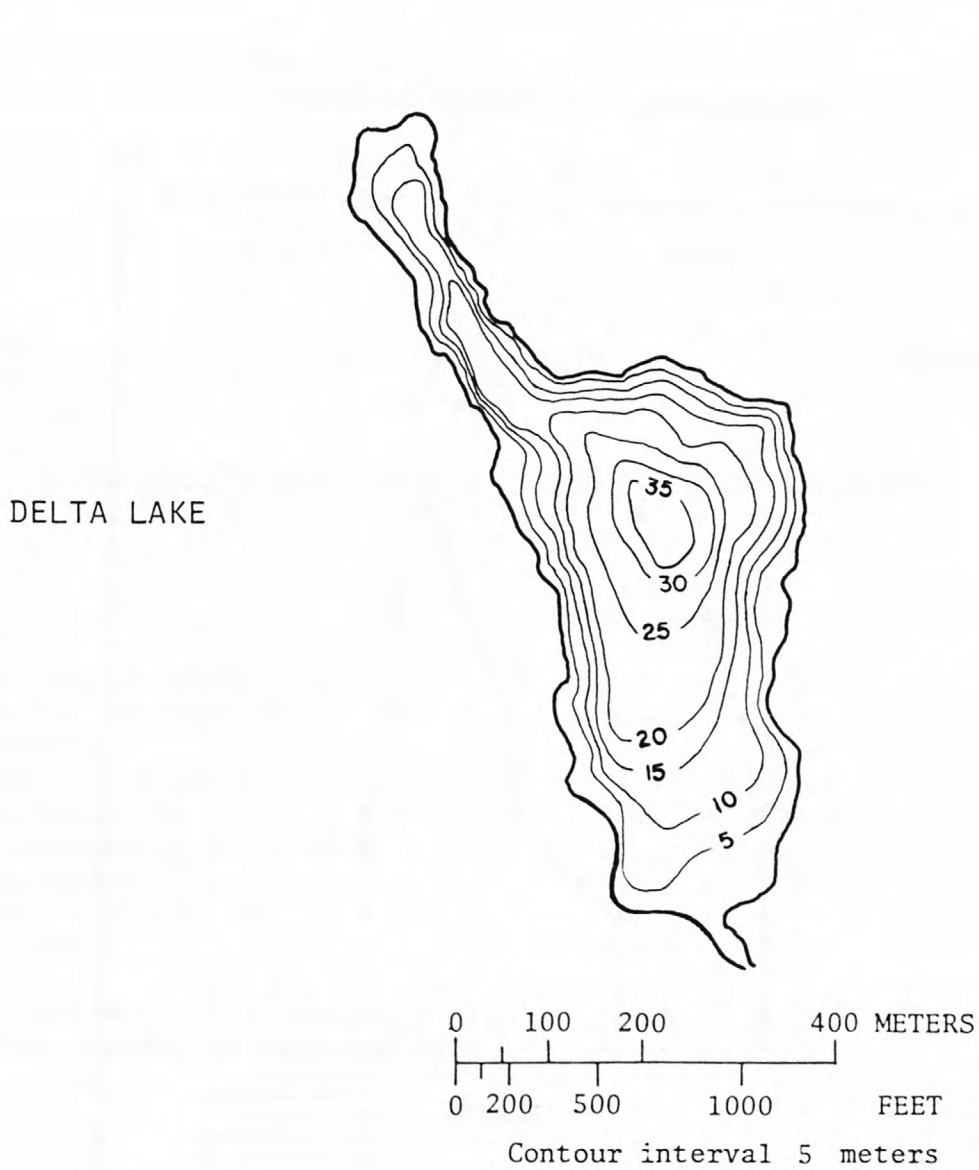
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/30/78	
Time	1500	1505
Depth (m)	1	30
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.06	0.08
Total ammonia (N)	0.04	0.02
Total organic nitrogen (N)	0.02	0.06
Total phosphorus (P)	0.002	0.004
Specific conductance (micromhos)	11	18
Water temperature (°C)	14.2	5.2
Secchi-disc visibility (m)	15	
Dissolved oxygen	9.9	8.5

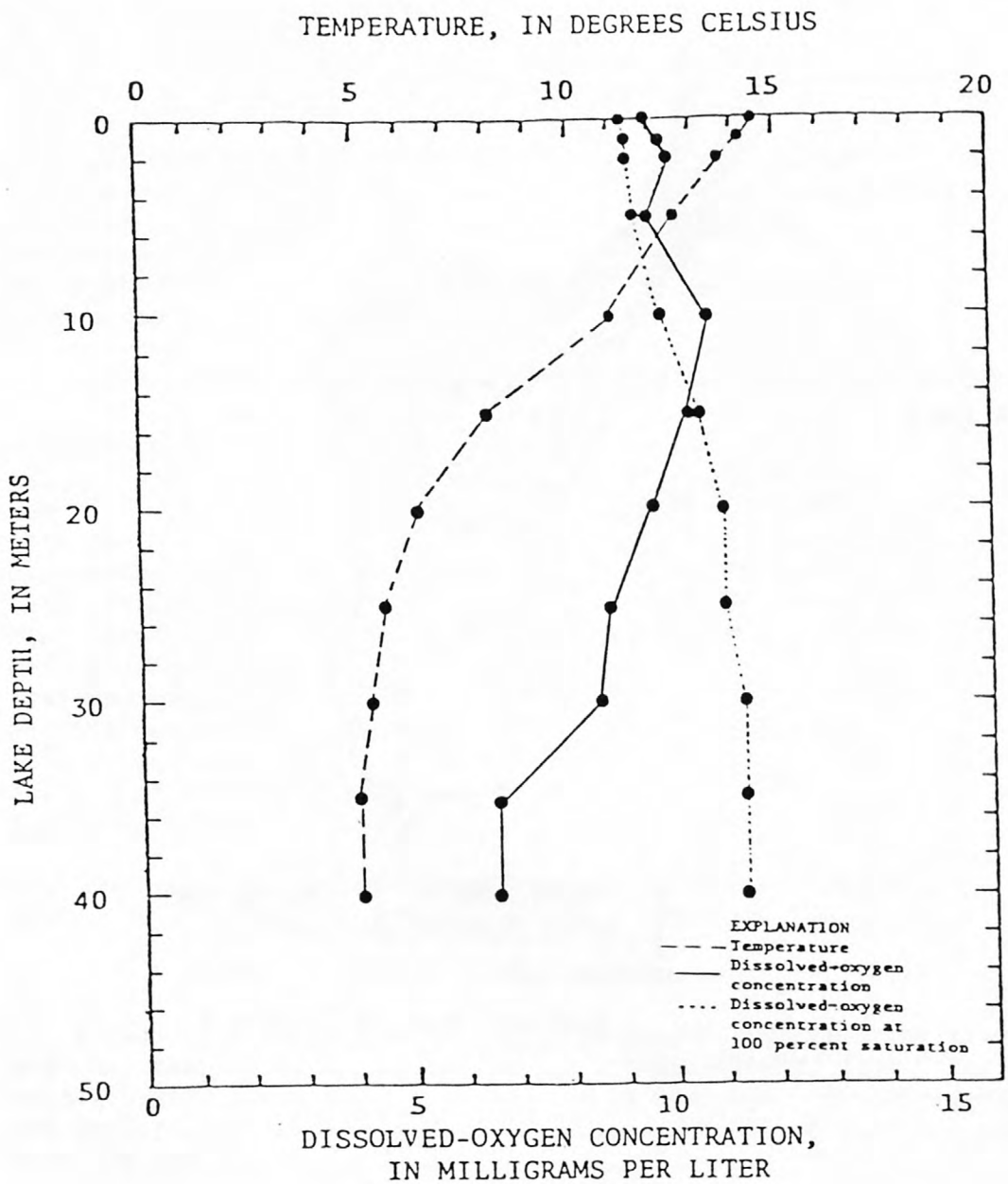
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

A deep lake surrounded by forested slopes and avalanche tracks. A large delta has been built into the lake by streams flowing from Otter, Angeline, and Big Heart Lakes. No zooplankton were observed. Dissolved-oxygen levels were depleted in the deeper waters. The north end of the lake contained a large log jam.



Delta Lake, King County. From
U.S. Geological Survey, August 30, 1978.



Delta Lake, King County. From
U.S. Geological Survey, August 30, 1978.

DERRICK LAKE KING COUNTY

Latitude 47°30'6" Longitude 121°29'34" T23N-R10E-S2
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	4.12	km^2	Shoreline length	1.61	km
Altitude	1124	m	Shoreline configuration	1.2	
Lake area	14.6	ha	Basin geology	Igneous	
Lake volume	2.47	hm^3	Inflow	Intermittent	
Mean depth	17	m	Outflow channel	Present	
Maximum depth	43	m			

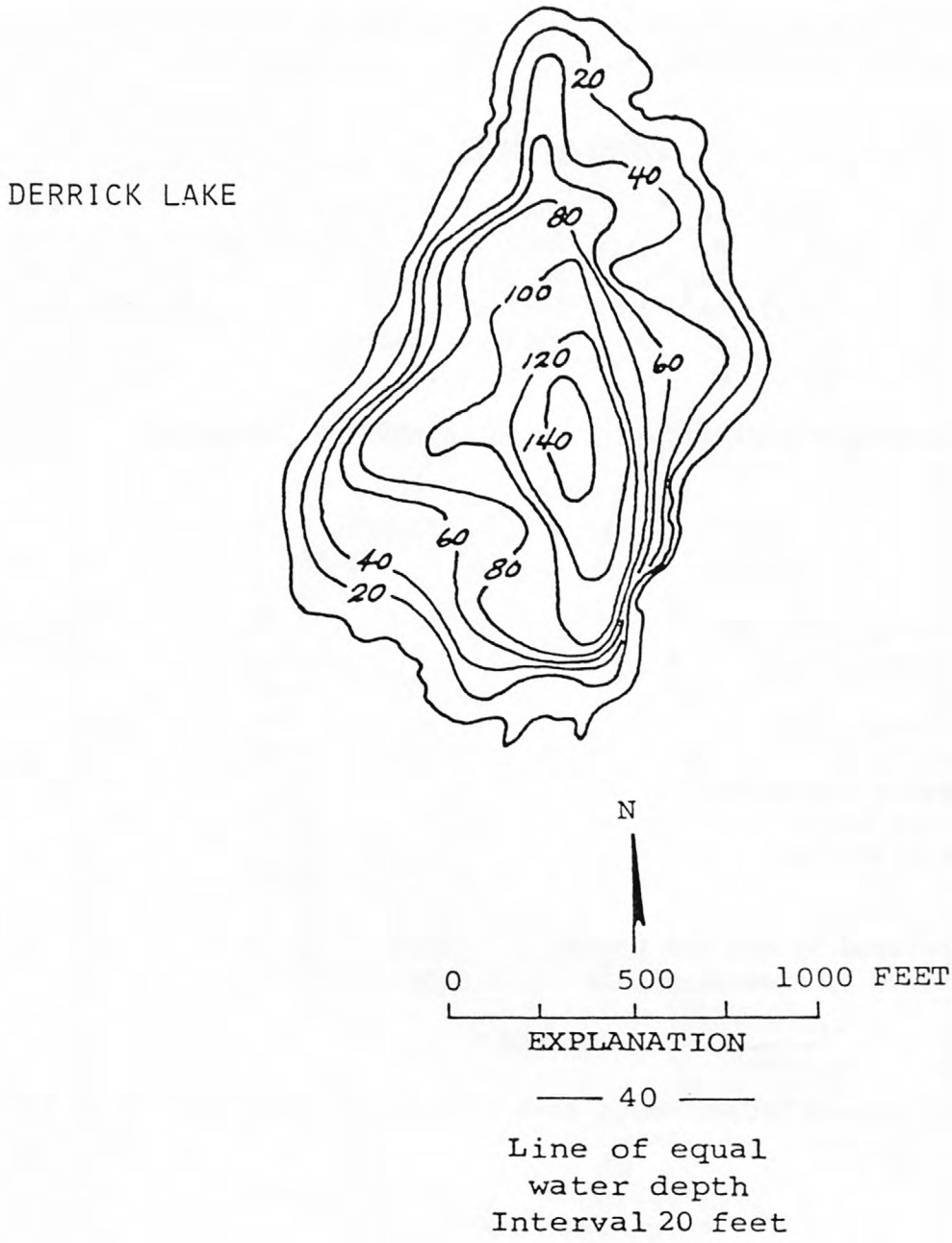
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/29/74	
Time	1430	1435
Depth (m)	1	38
Total nitrite plus nitrate (N)	0.01	0.05
Total kjeldahl nitrogen (N)	-----	-----
Total ammonia (N)	0.03	0.04
Total organic nitrogen (N)	-----	-----
Total phosphorus (P)	0.002	0.001
Specific conductance (micromhos)	6	6
Water temperature (°C)	14.5	4.0
Secchi-disc visibility (m)	13	
Dissolved oxygen	9.3	6.6

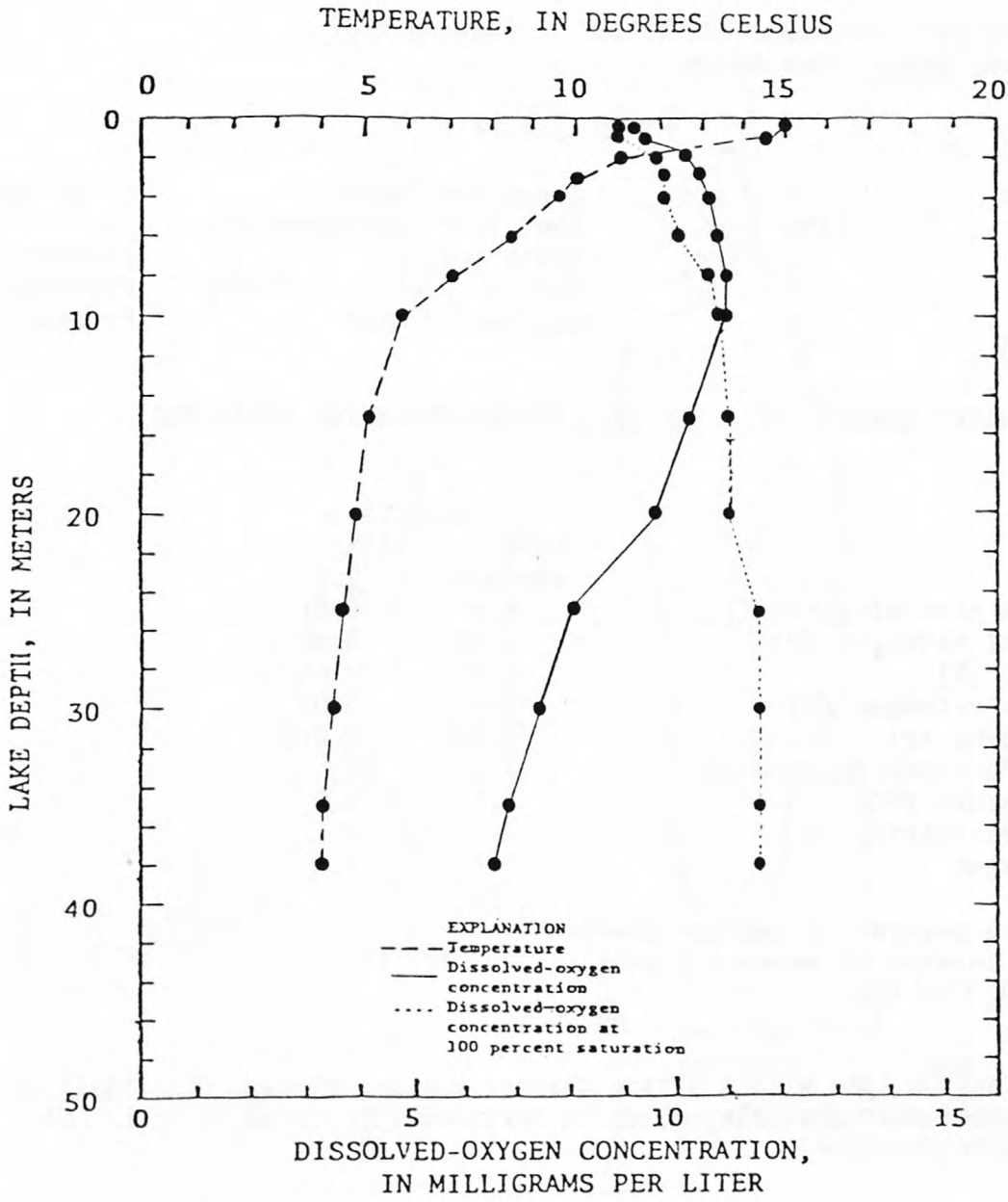
Lake shoreline covered by emersed plants	1-10%
Lake surface covered by emersed plants	None or <1%

REMARKS

The lake has several inlets which form a delta at the south end of the lake.



Derrick Lake, King County. From U.S. Geological Survey, September 7, 1974.



Derrick Lake, King County. From
U.S. Geological Survey, August 29, 1974.

EMERALD LAKE KING COUNTY

Latitude 47°34'53" Longitude 121°15'16" T24N-R13E-S7
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	2.85 km^2	Shoreline length	0.60 km
Altitude	1433 m	Shoreline configuration	1.7
Lake area	1.0 ha	Basin geology	Igneous
Lake volume	0.01 hm^3	Inflow	Perennial
Mean depth	1 m	Outflow channel	Present
Maximum depth	3 m		

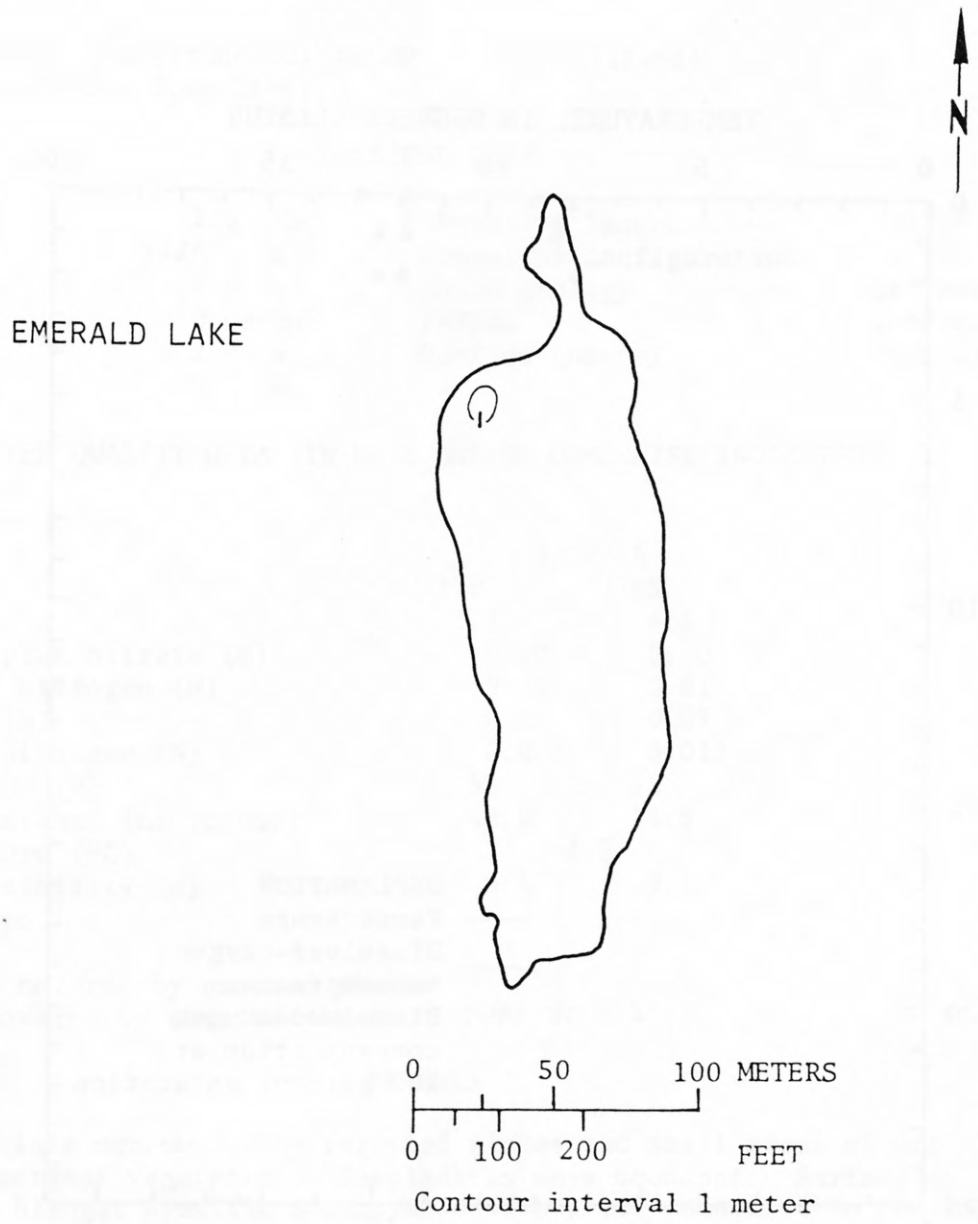
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/22/78	
Time	1430	1435
Depth (m)	surface	2.5
Total nitrite plus nitrate (N)	0.01	0.01
Total kjeldahl nitrogen (N)	0.05	0.06
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.04	0.05
Total phosphorus (P)	0.003	0.016
Specific conductance (micromhos)	12	11
Water temperature (°C)	8.6	7.9
Secchi-disc visibility (m)	>2.5	
Dissolved oxygen	9.4	9.5

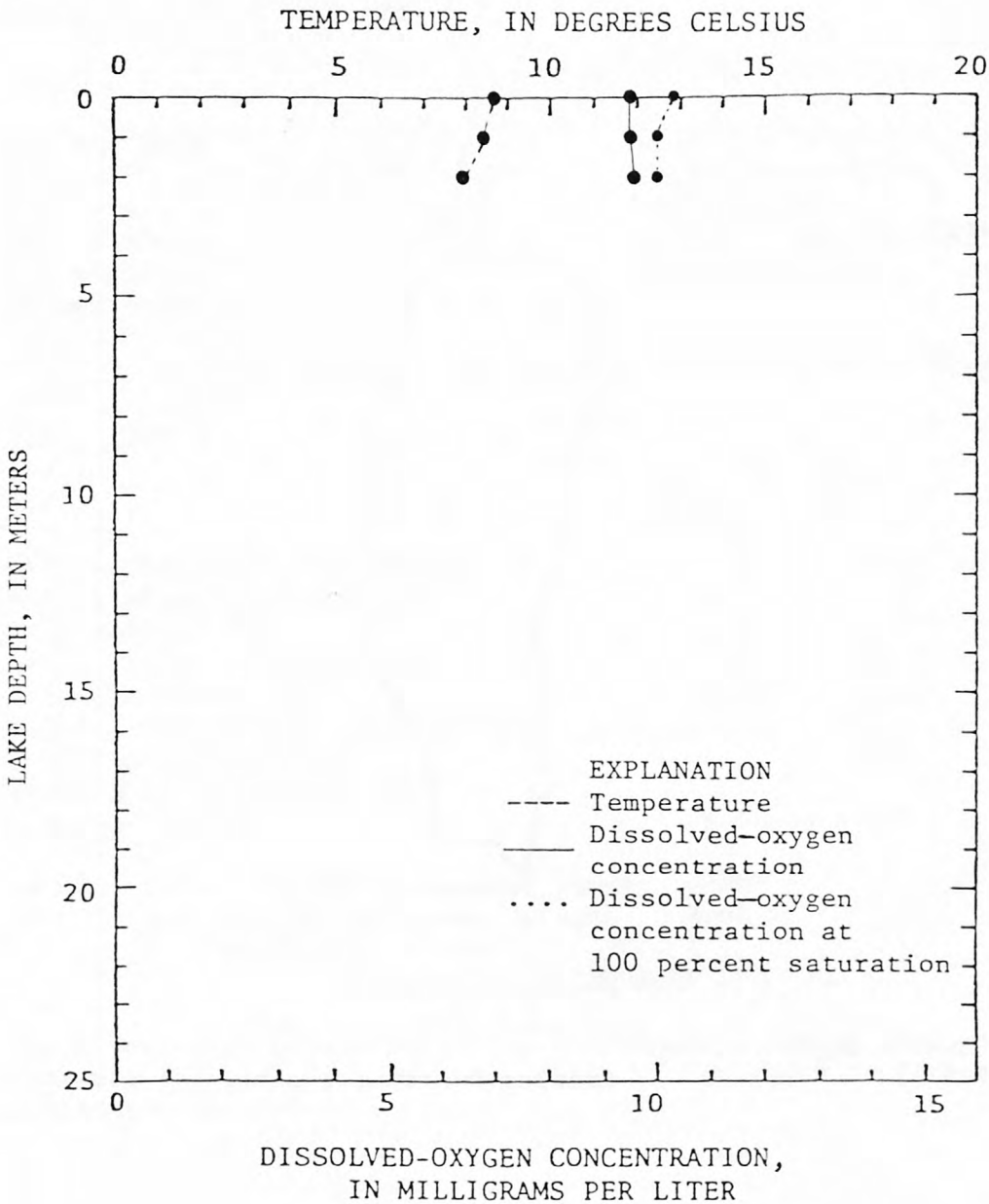
Lake shoreline covered by emersed plants	0-10%
Lake surface covered by emersed plants	None or <1%

REMARKS

A very shallow lake with a stream channel running through it. Small wet areas are located near the lake, which is surrounded by forested till. No zooplankton were observed.



Emerald Lake, King County. From
U.S. Geological Survey, August 22, 1978.



Emerald Lake, King County. From
U.S. Geological Survey, August 22, 1978.

EVANS LAKE KING COUNTY

Latitude 47°39'26" Longitude 121°19'28" T25N-R11E-S24
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	1.6	km^2	Shoreline length	0.84	km
Altitude	1128	m	Shoreline configuration	1.2	
Lake area	4.0	ha	Basin geology	Sedimentary	
Lake volume	0.08	hm^3	Inflow	Intermittent	
Mean depth	2	m	Outflow channel	Present	
Maximum depth	6	m			

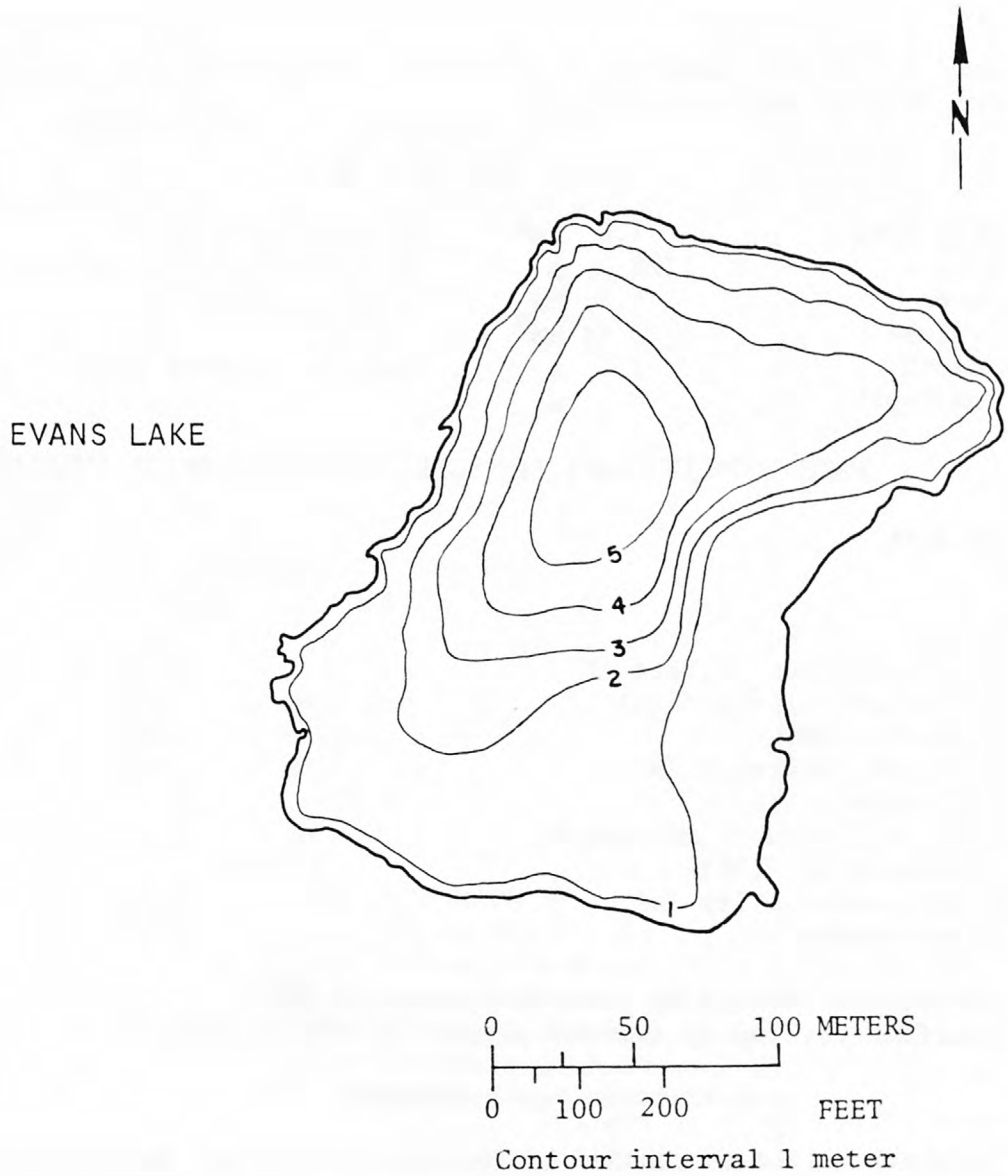
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/29/78	
Time	1100	1105
Depth (m)	1	4.5
Total nitrite plus nitrate (N)	0.00	0.00
Total kjeldahl nitrogen (N)	0.06	0.21
Total ammonia (N)	0.01	0.02
Total organic nitrogen (N)	0.003	0.012
Total phosphorus (P)	50	55
Specific conductance (micromhos)	16.0	14.5
Water temperature (°C)	>4.5	
Secchi-disc visibility (m)	9.1	9.1
Dissolved oxygen		

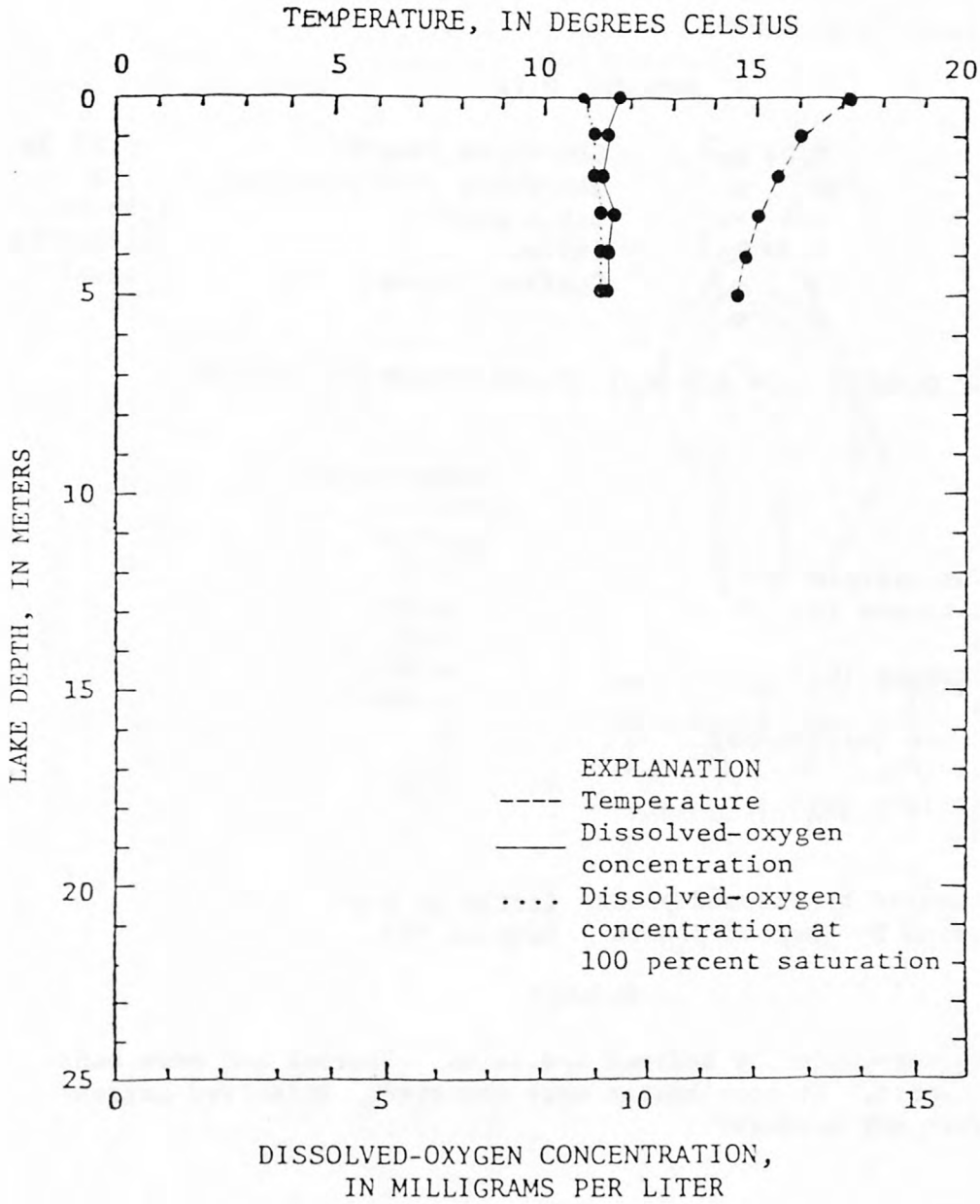
Lake shoreline covered by emersed plants	11-25%
Lake surface covered by emersed plants	None or <1%

REMARKS

A shallow lake surrounded by forested slopes and small areas of wet soils. Considerable emergent vegetation. Zooplankton were abundant. Surface and bottom waters had the highest specific conductance of any lake measured in the Foss River drainage.



Evans Lake, King County. From
U.S. Geological Survey, August 29, 1978.



Evans Lake, King County. From
U.S. Geological Survey, August 29, 1978.

FOEHN LAKE KING COUNTY

Latitude 47°34'2" Longitude 121°15'26" T24N-R13E-S18
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	0.04 km^2	Shoreline length	0.33 km
Altitude	1738 m	Shoreline configuration	1.3
Lake area	0.5 ha	Basin geology	Igneous
Lake volume	0.01 hm^3	Inflow	Intermittent
Mean depth	2 m	Outflow channel	Present
Maximum depth	5 m		

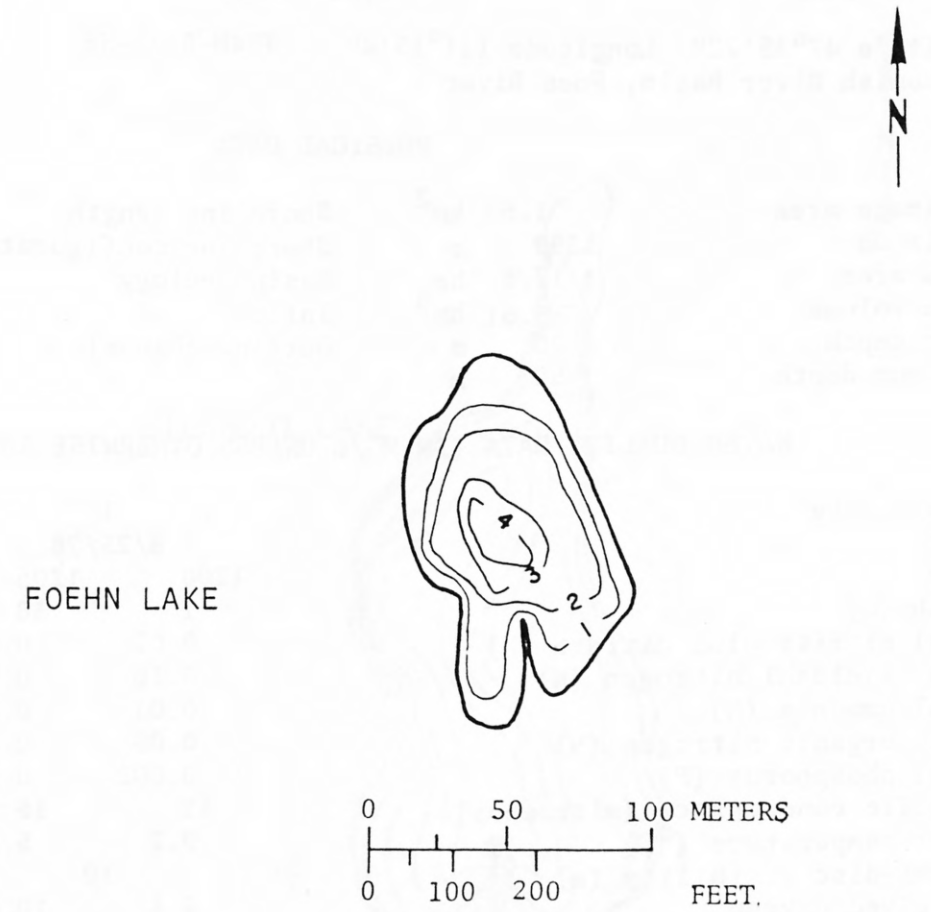
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1
Date	8/24/78
Time	1100
Depth (m)	surface
Total nitrite plus nitrate (N)	0.02
Total kjeldahl nitrogen (N)	0.09
Total ammonia (N)	0.01
Total organic nitrogen (N)	0.08
Total phosphorus (P)	0.001
Specific conductance (micromhos)	3
Water temperature (°C)	6.0
Secchi-disc visibility (m)	>4.5
Dissolved oxygen	-----

Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

A small lake surrounded by bedrock and talus. Bedrock and snow banks compose the lake shore. No zooplankton were observed. Dissolved-oxygen concentrations were not measured.



Foehn Lake, King County. From
U.S. Geological Survey, August 24, 1978.

ILSWOOT LAKE KING COUNTY

Latitude 47°35'22" Longitude 121°15'4" T24N-R13E-S8
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	1.69	km^2	Shoreline length	2.15	km
Altitude	1399	m	Shoreline configuration	1.4	
Lake area	17.8	ha	Basin geology	Igneous	
Lake volume	3.61	hm^3	Inflow	Intermittent	
Mean depth	20	m	Outflow channel	Present	
Maximum depth	50	m			

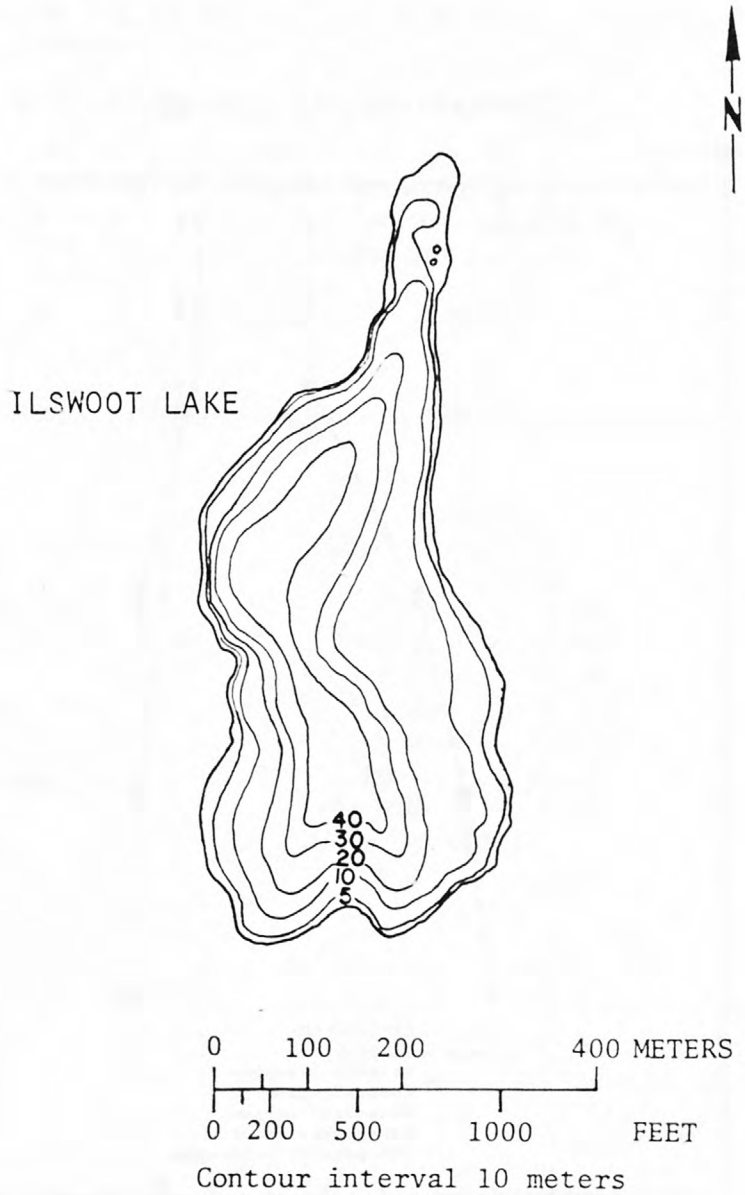
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/25/78	
Time	1200	1205
Depth (m)	1	30
Total nitrite plus nitrate (N)	0.02	0.04
Total kjeldahl nitrogen (N)	0.10	0.04
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.09	0.03
Total phosphorus (P)	0.002	0.004
Specific conductance (micromhos)	12	18
Water temperature (°C)	9.2	5.0
Secchi-disc visibility (m)	10	
Dissolved oxygen	9.4	10.4
Hardness (Ca, Mg)		4
Dissolved calcium (Ca)		1.5
Dissolved magnesium (Mg)		0.2
Dissolved sodium (Na)		1.2
Dissolved potassium (K)		0.1
Alkalinity as $CaCO_3$		4
Dissolved sulfate (SO_4)		1.5
Dissolved chloride (Cl)		0.6
Dissolved fluoride (F)		0.0
Dissolved silica (SiO_2)		2.5
Dissolved solids (sum of constituents)		10

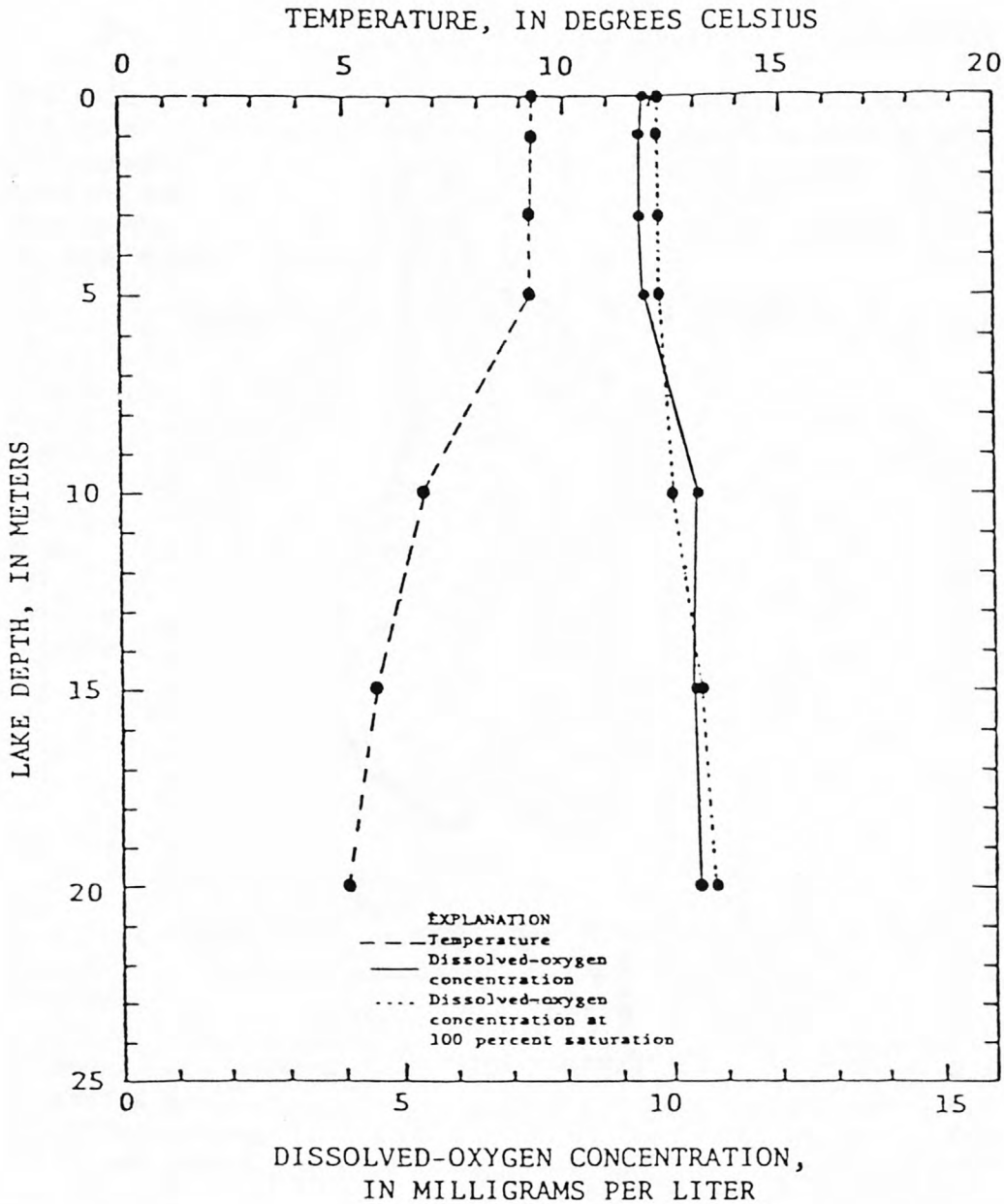
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

A deep lake with impaired visibility because of suspended silt. The silt appears to come from Cloudy Lake, to the south, and in drainage through talus on the east side of Ilswoot. The west shore of the lake is composed of tree-covered colluvium and bedrock, and a talus slope is located on the east shore. No zooplankton were observed.



Ilswoot Lake, King County. From
U.S. Geological Survey, August 25, 1978.



Ilswoot Lake, King County. From
U.S. Geological Survey, August 25, 1978.

JADE LAKE KING COUNTY

Latitude 47°35'10" Longitude 121°15'25" T24N-R13E-S7
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	3.06 km^2	Shoreline length	0.72 km
Altitude	1659 m	Shoreline configuration	1.5
Lake area	1.9 ha	Basin geology	Igneous
Lake volume	0.05 hm^3	Inflow	Perennial
Mean depth	3 m	Outflow channel	Present
Maximum depth	14 m		

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

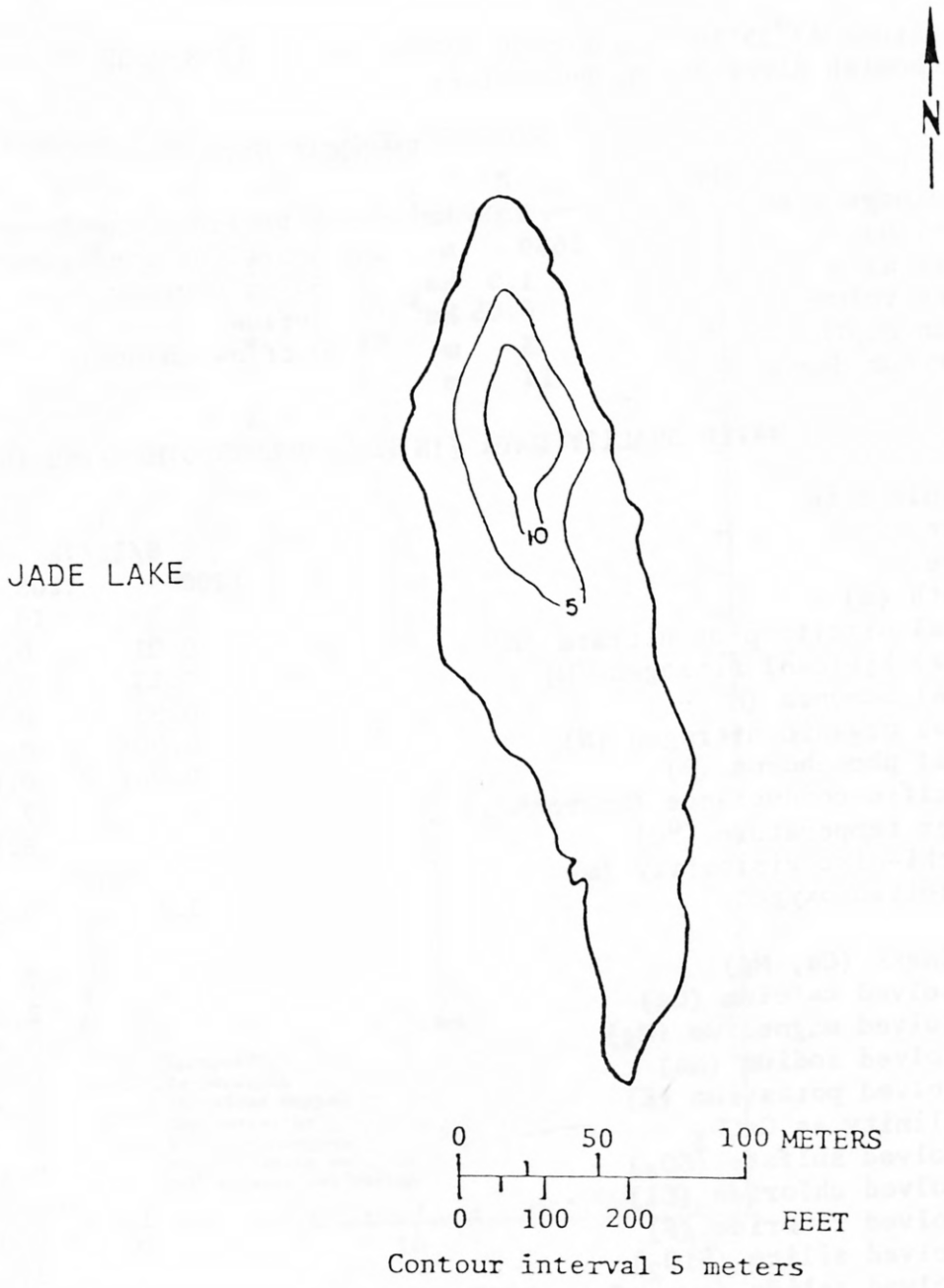
Sample site	1	
Date	8/22/78	
Time	1200	1205
Depth (m)	1	10
Total nitrite plus nitrate (N)	0.01	0.02
Total kjeldahl nitrogen (N)	0.13	0.10
Total ammonia (N)	0.01	0.02
Total organic nitrogen (N)	0.09	0.11
Total phosphorus (P)	0.004	0.017
Specific conductance (micromhos)	10	17
Water temperature (°C)	9.2	6.3
Secchi-disc visibility (m)	>10	
Dissolved oxygen	9.1	0.3

Hardness (Ca, Mg)	7
Dissolved calcium (Ca)	2.5
Dissolved magnesium (Mg)	0.4
Dissolved sodium (Na)	0.5
Dissolved potassium (K)	0.2
Alkalinity as $CaCO_3$	7
Dissolved sulfate (SO_4)	0.8
Dissolved chloride (Cl)	0.5
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	3.5
Dissolved solids (sum of constituents)	13

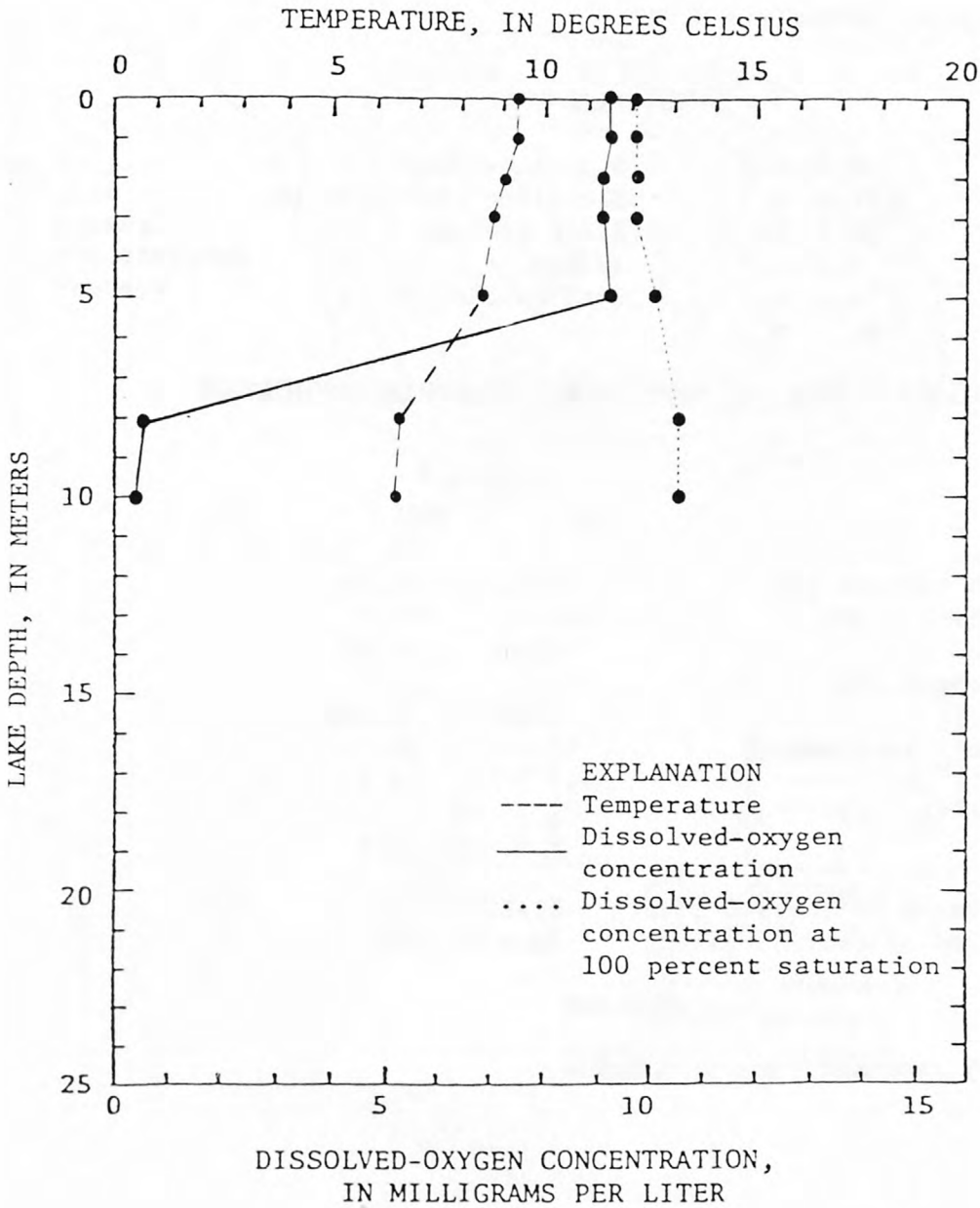
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A shallow lake with a large drainage basin; the shore is composed of talus, bedrock, and forested colluvial slopes. Small areas of wet soils were noted on the southeast shore. No zooplankton were observed. Dissolved-oxygen concentrations were highly depleted in bottom waters.



Jade Lake, King County. From
U.S. Geological Survey, August 22, 1978.



Jade Lake, King County. From
U.S. Geological Survey, August 22, 1978.

KALEETAN LAKE KING COUNTY

Latitude 47°28'4" Longitude 121°29'49" T23N-R10E-S23
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	2.69	km^2	Shoreline length	1.61	km
Altitude	1174	m	Shoreline configuration	1.1	
Lake area	16.6	ha	Basin geology	Igneous	
Lake volume	4.32	hm^3	Inflow	Intermittent	
Mean depth	26	m	Outflow channel	Present	
Maximum depth	55	m			

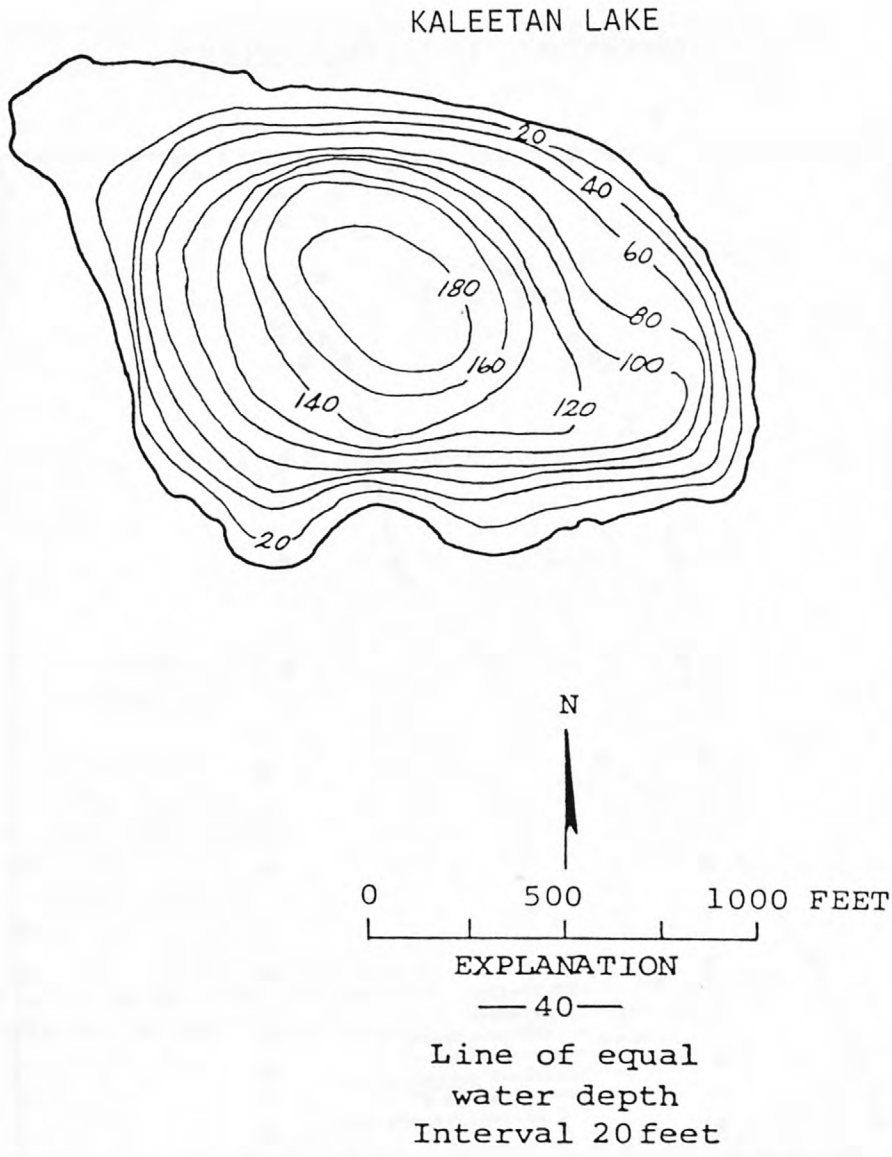
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/28/74	
Time	1500	1505
Depth (m)	1	48
Total nitrite plus nitrate (N)	0.05	0.01
Total kjeldahl nitrogen (N)	-----	-----
Total ammonia (N)	0.04	0.06
Total organic nitrogen (N)	-----	-----
Total phosphorus (P)	0.003	0.004
Specific conductance (micromhos)	17	23
Water temperature (°C)	15.3	4.1
Secchi-disc visibility (m)	13	
Dissolved oxygen	9.4	0.4

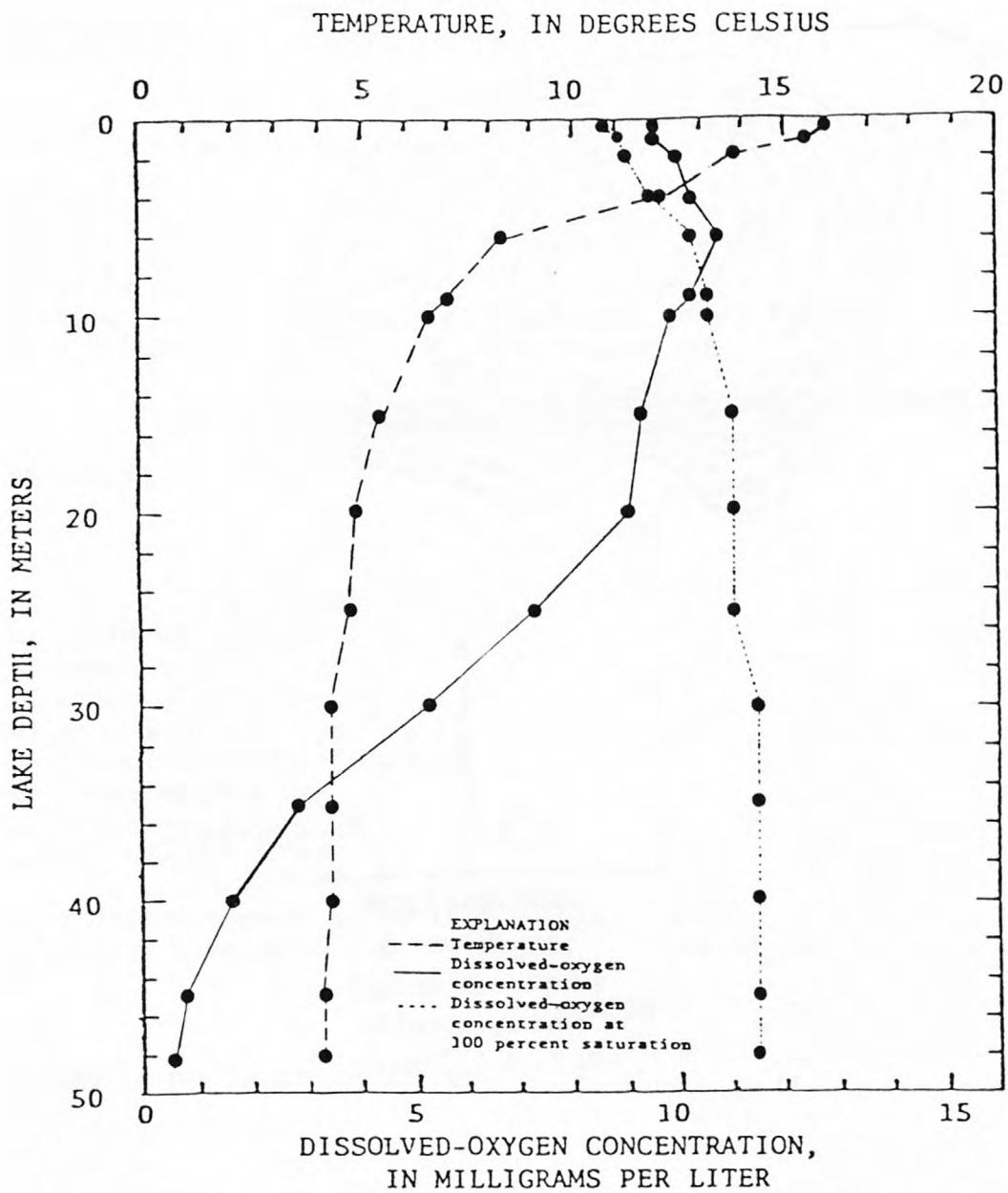
Lake shoreline covered by emersed plants 11-25%
Lake surface covered by emersed plants None or <1%

REMARKS

The lake is fed by two small upstream lakes.



Kaleetan Lake, King County. From U.S. Geological Survey, September 7, 1974.



Kaleetan Lake, King County. From
U.S. Geological Survey, August 28, 1974.

KULLA KULLA LAKE KING COUNTY

Latitude 47°25'55" Longitude 121°32'33" T23N-R10E-S33
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	1.42	km^2	Shoreline length	1.93	km
Altitude	1148	m	Shoreline configuration	1.2	
Lake area	21.9	ha	Basin geology	Igneous	
Lake volume	5.8	hm^3	Inflow	Intermittent	
Mean depth	27	m	Outflow channel	Present	
Maximum depth	64	m			

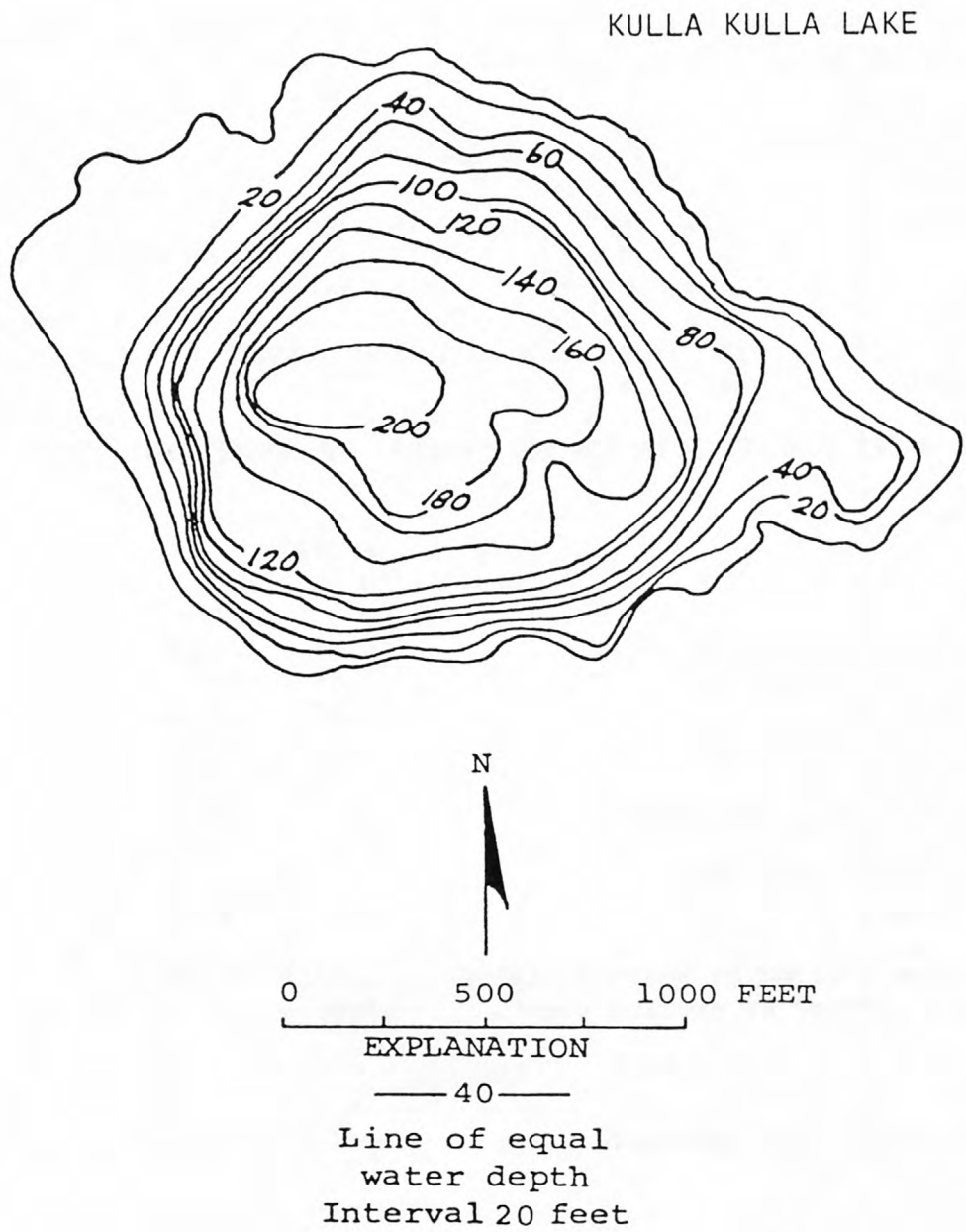
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/28/74	
Time	1200	1205
Depth (m)	1	48
Total nitrite plus nitrate (N)	0.04	0.09
Total kjeldahl nitrogen (N)	-----	-----
Total ammonia (N)	0.03	0.03
Total organic nitrogen (N)	-----	-----
Total phosphorus (P)	0.002	0.006
Specific conductance (micromhos)	8	12
Water temperature (°C)	16.0	4.0
Secchi-disc visibility (m)	16	
Dissolved oxygen	9.0	5.2

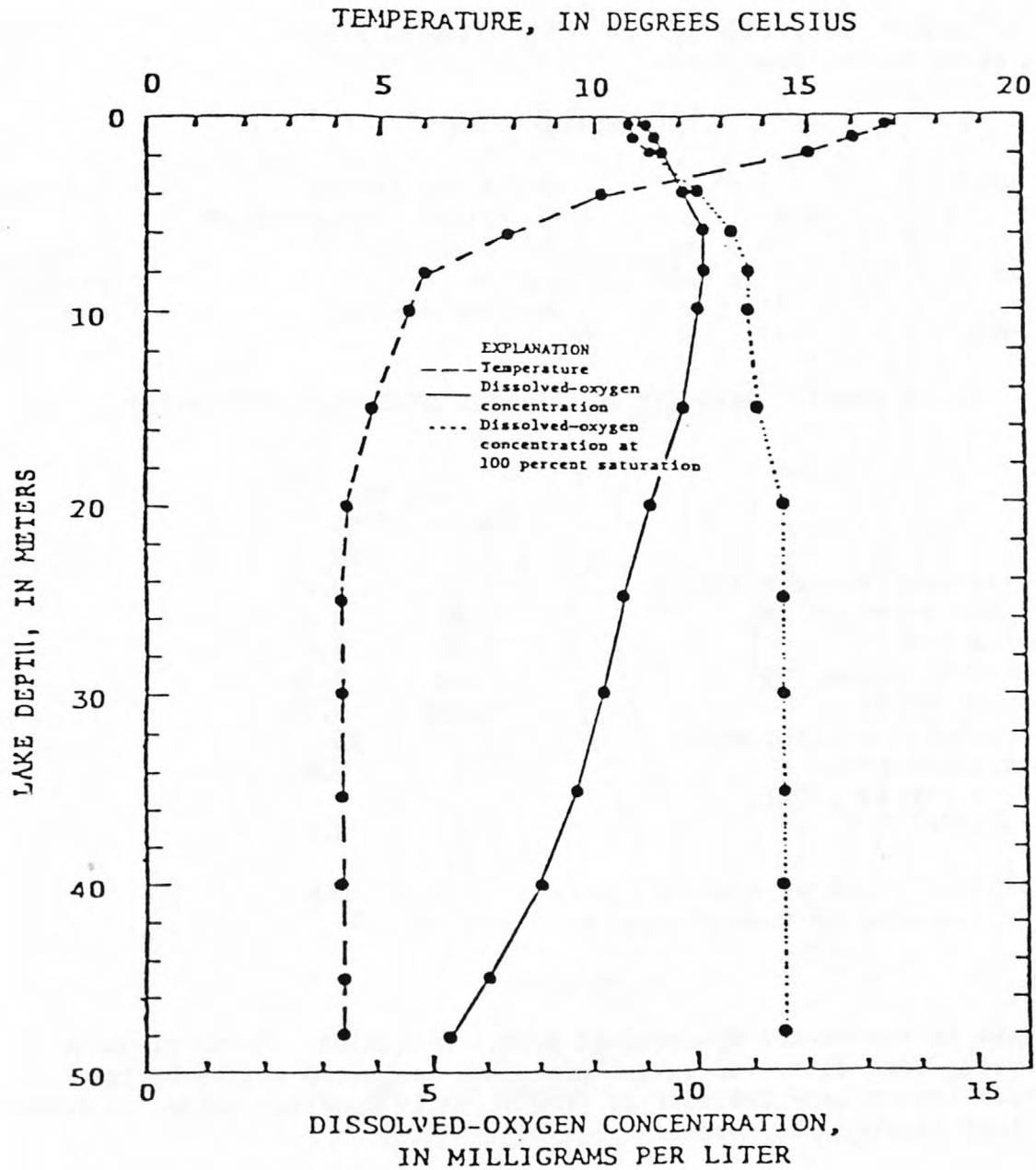
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

No aquatic plants were observed. Logs covered the shoreline.



Kulla Kulla Lake, King County. From U.S. Geological Survey, September 5, 1974.



Kulla Kulla Lake, King County. From U.S. Geological Survey, August 28, 1974.

LITTLE HEART LAKE KING COUNTY

Latitude 47°35'35" Longitude 121°19'42" T24N-R12E-S3
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	1.48 km^2	Shoreline length	1.56 km
Altitude	1282 m	Shoreline configuration	1.3
Lake area	10.9 ha	Basin geology	Igneous
Lake volume	1.18 hm^3	Inflow	Intermittent
Mean depth	11 m	Outflow channel	Present
Maximum depth	37 m		

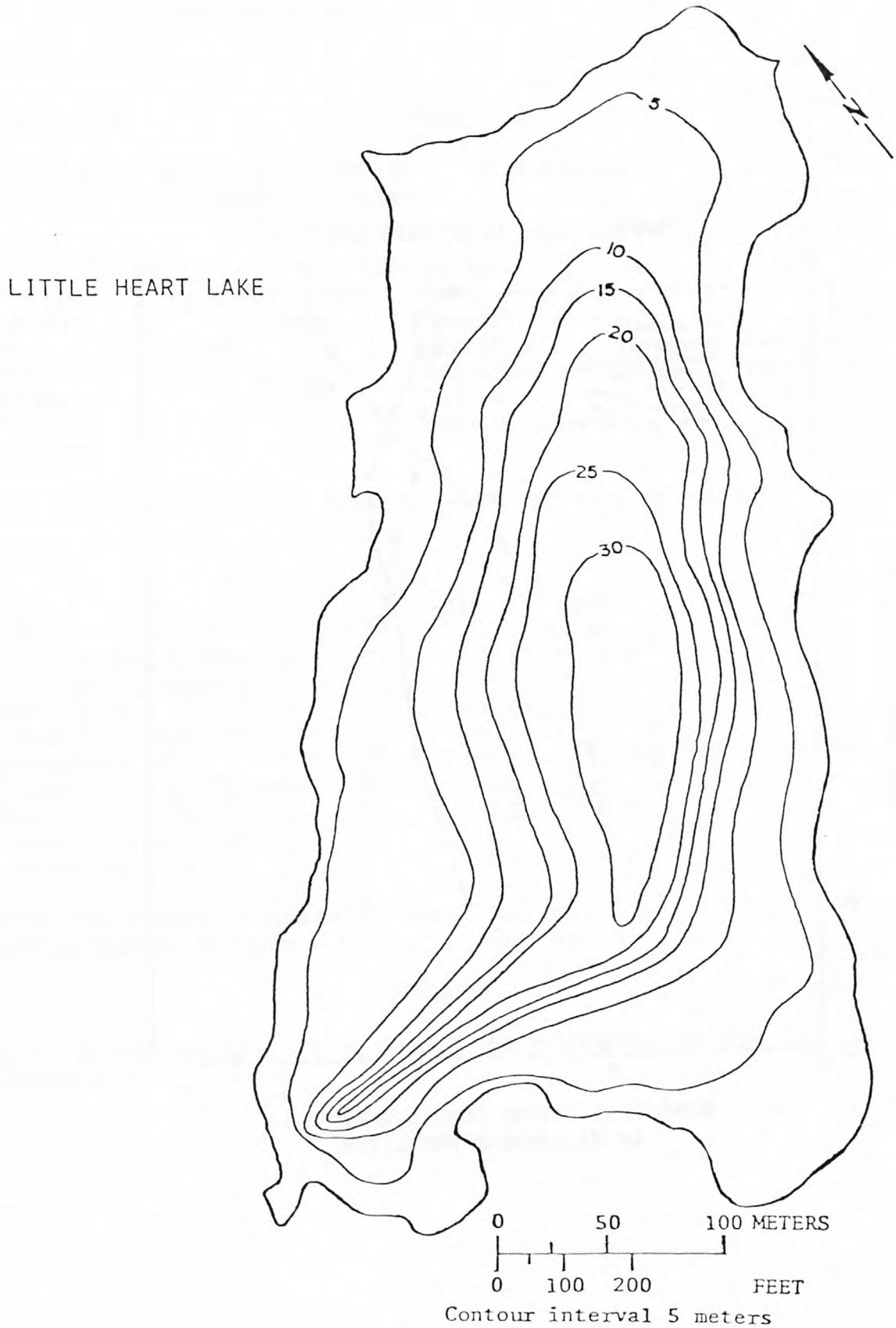
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/3/78	
Time	1700	1705
Depth (m)	1	20
Total nitrite plus nitrate (N)	0.02	0.03
Total kjeldahl nitrogen (N)	0.02	0.06
Total ammonia (N)	0.00	0.01
Total organic nitrogen (N)	0.02	0.05
Total phosphorus (P)	0.003	0.004
Specific conductance (micromhos)	10	23
Water temperature (°C)	15.4	6.0
Secchi-disc visibility (m)	22	
Dissolved oxygen	9.4	8.2

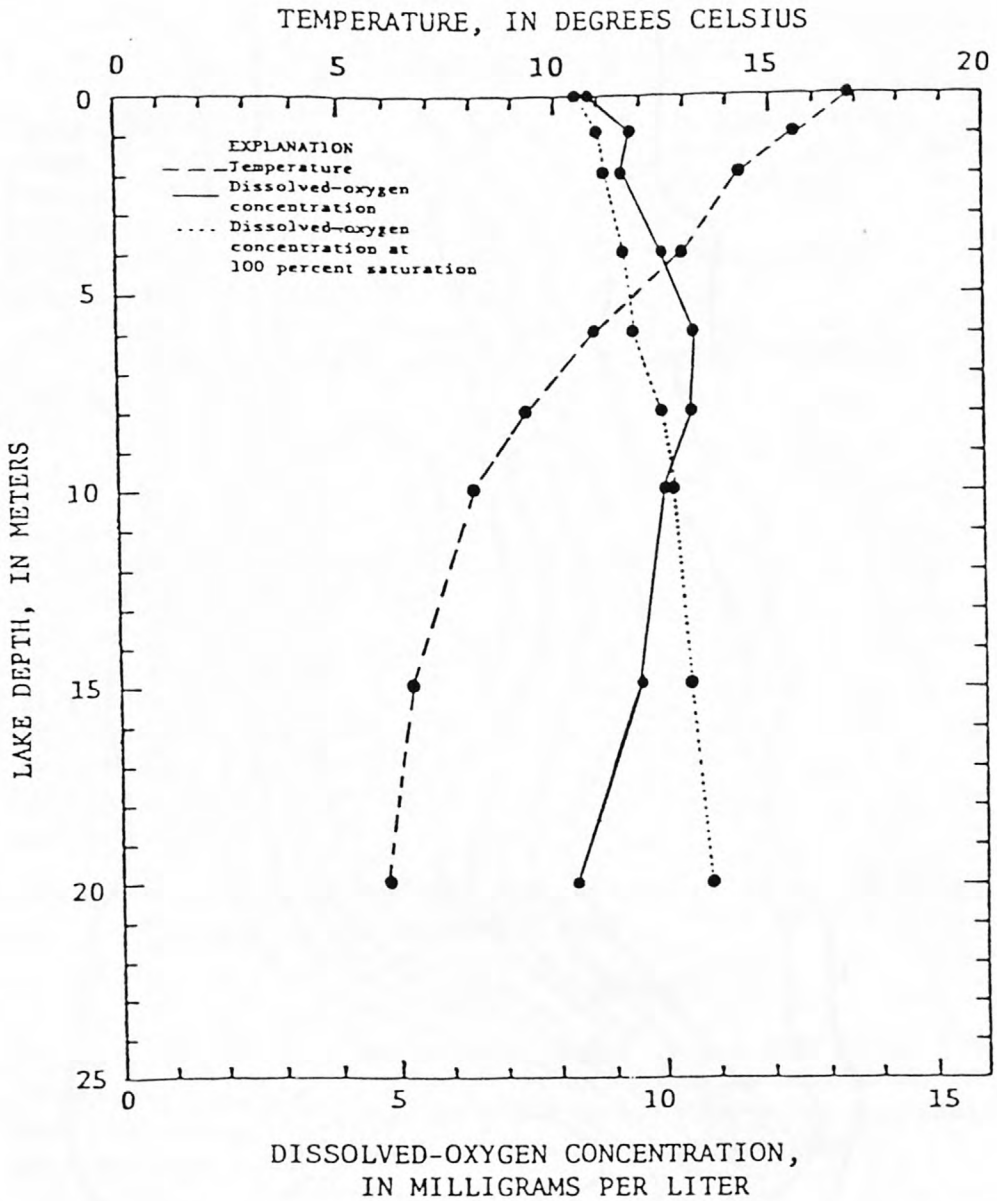
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

The lake is surrounded by forested slopes and talus. No zooplankton were observed. Some dissolved-oxygen depletion was noted in the bottom waters, while layers near the surface were slightly supersaturated. A large number of logs blocked the northern side of the lake.



Little Heart Lake, King County. From
U.S. Geological Survey, August 3, 1978.



Little Heart Lake, King County. From U.S. Geological Survey, August 3, 1978.

LOCH KATRINE LAKE KING COUNTY

Latitude 47°38'23" Longitude 121°36'10" T25N-R9E-S24
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	3.32	km^2	Shoreline length	2.09 km	
Altitude	880	m	Shoreline configuration	1.3	
Lake area	19.8	ha	Basin geology	Sedimentary/metamorphic	
Lake volume	4.56	hm^3	Inflow	Perennial	
Mean depth	23	m	Outflow channel	Present	
Maximum depth	61	m			

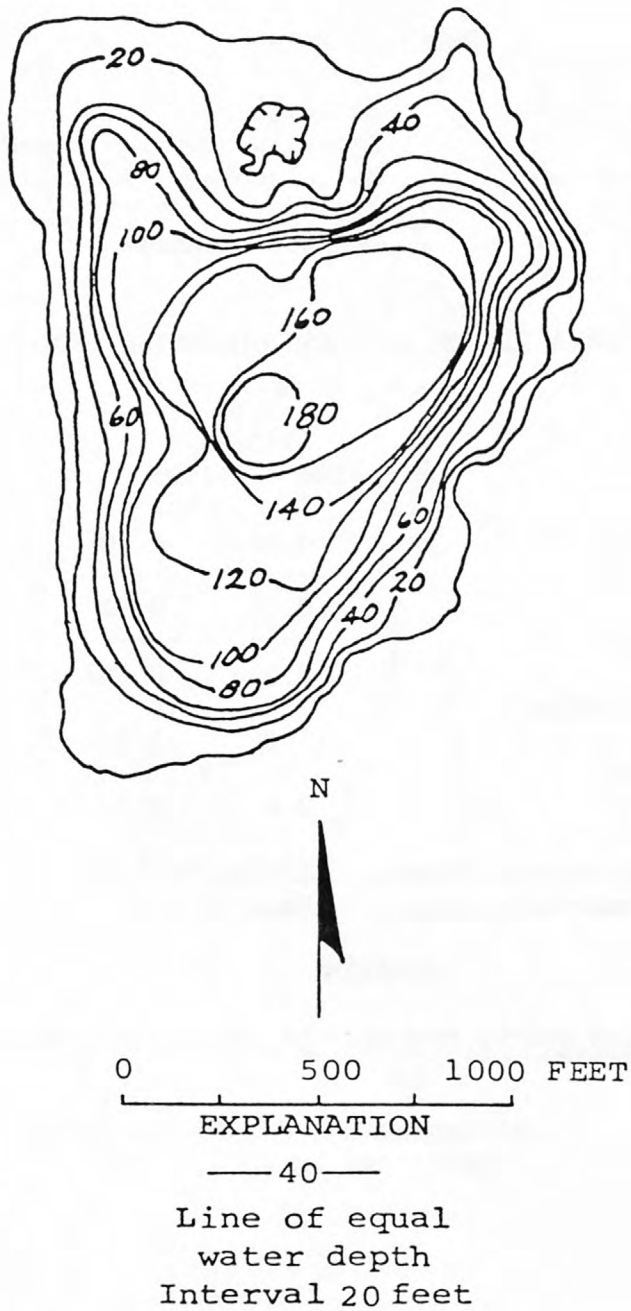
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/3/74	
Time	1500	1505
Depth (m)	1	48
Total nitrite plus nitrate (N)	0.02	0.10
Total kjeldahl nitrogen (N)	-----	-----
Total ammonia (N)	0.05	0.12
Total organic nitrogen (N)	-----	-----
Total phosphorus (P)	0.000	0.002
Specific conductance (micromhos)	7	14
Water temperature (°C)	15.0	3.8
Secchi-disc visibility (m)	14	
Dissolved oxygen	9.6	3.2

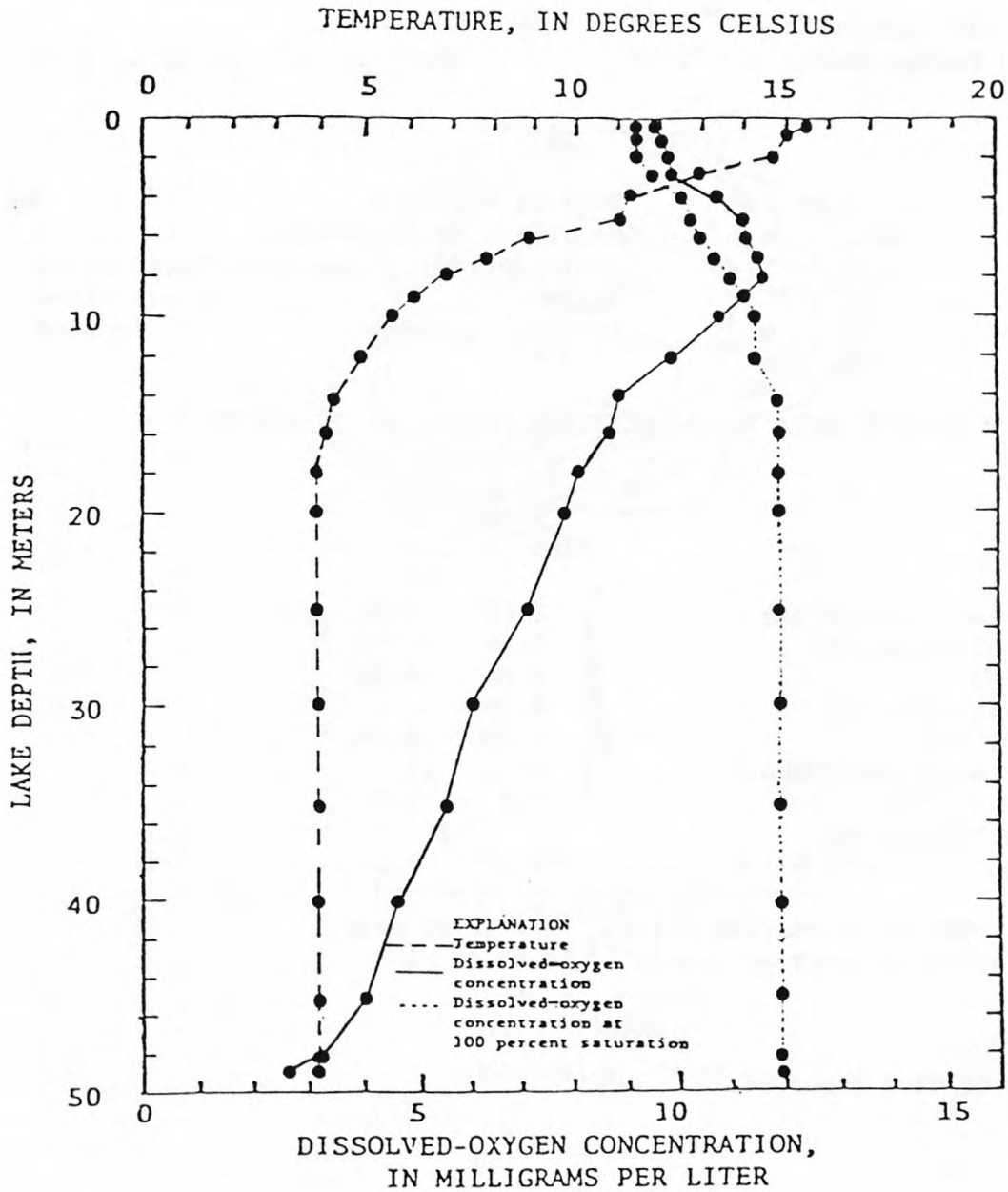
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

Floating logs and wood debris covered the shoreline. No aquatic plants were observed.



Loch Katrine Lake, King County. From U.S. Geological Survey, September 6, 1974.



Loch Katrine Lake, King County. From U.S. Geological Survey, September 3, 1974.

LOCH KATRINE, UPPER LAKE KING COUNTY

Latitude 47°37'21" Longitude 121°35'58" T25N-R9E-S25
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	0.85	km^2	Shoreline length	1.3	km
Altitude	1296	m	Shoreline configuration	1.2	
Lake area	9.3	ha	Basin geology	Sedimentary/Metamorphic	
Lake volume	1.97	hm^3	Inflow	Intermittent	
Mean depth	21	m	Outflow channel	Present	
Maximum depth	40	m			

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

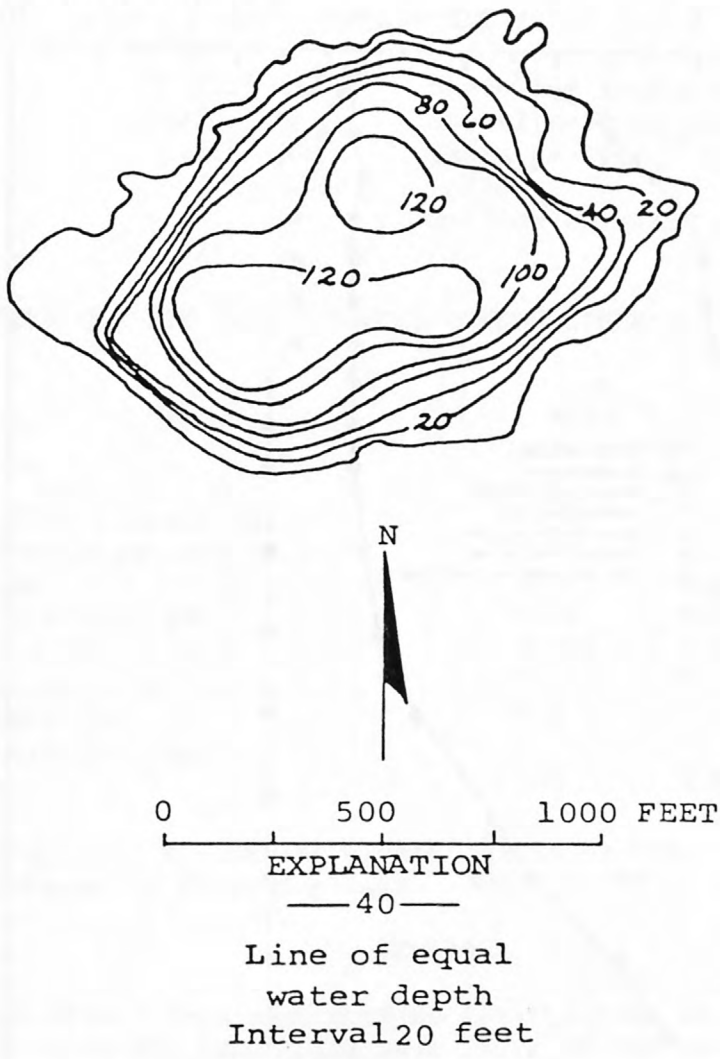
Sample site	1	
Date	9/3/74	
Time	1305	1355
Depth (m)	1	22
Total nitrite plus nitrate (N)	0.02	0.05
Total kjeldahl nitrogen (N)	0.04	-----
Total ammonia (N)	0.04	0.05
Total organic nitrogen (N)	0.00	-----
Total phosphorus (P)	0.000	0.001
Specific conductance (micromhos)	7	11
Water temperature (°C)	7.9	3.7
Secchi-disc visibility (m)	18	
Dissolved oxygen	10.0	5.5

Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

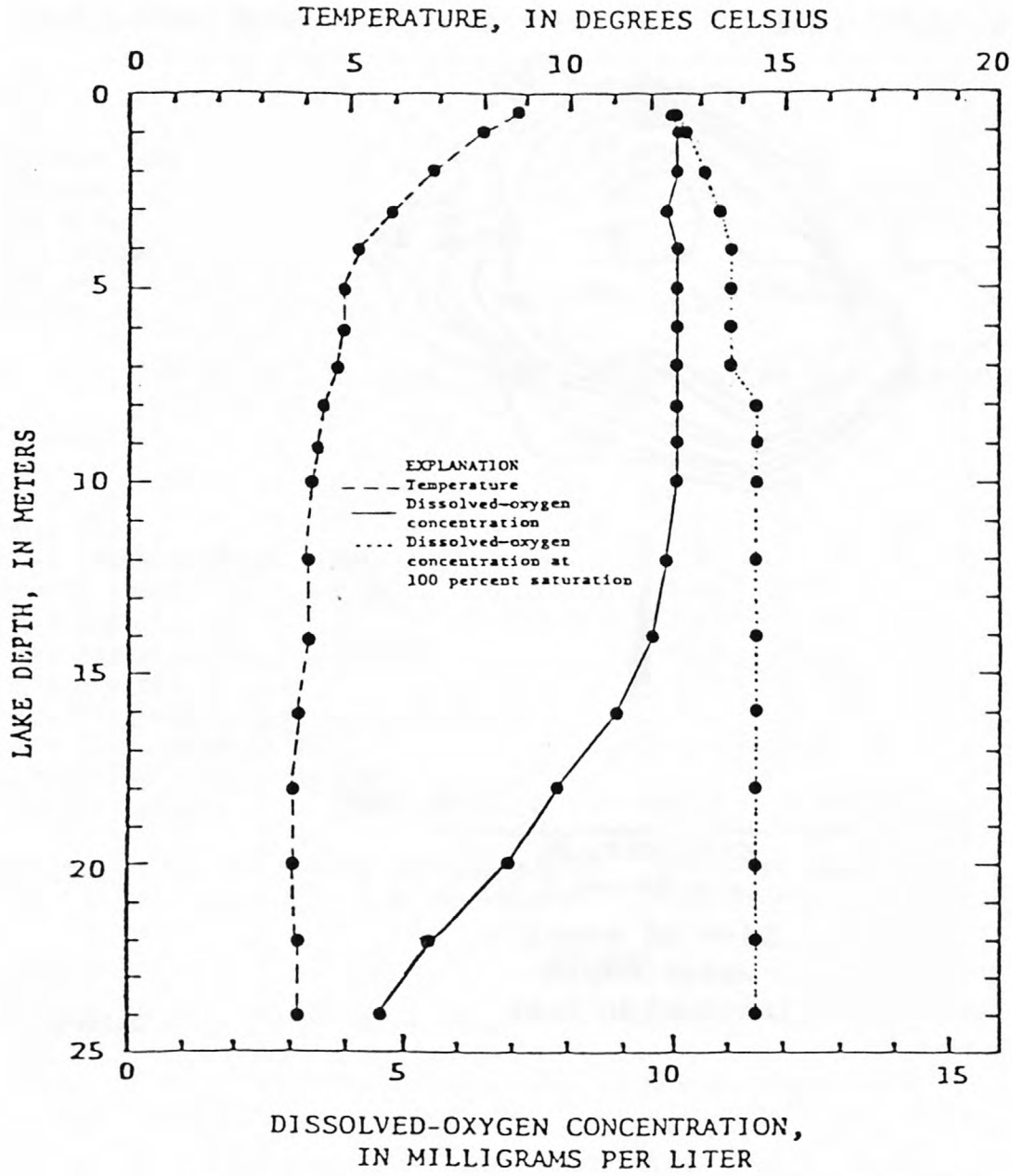
REMARKS

No aquatic plants were observed.

LOCH KATRINE, UPPER LAKE



Loch Katrine, Upper Lake, King County. From U.S. Geological Survey, September 6, 1974.



Loch Katrine, Upper Lake, King County. From U.S. Geological Survey, September 3, 1974.

LOCKET LAKE KING COUNTY

Latitude 47°35'18" Longitude 121°16'14" T24N-R13E-S7
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	1.08 km^2	Shoreline length	2.25 km
Altitude	1412 m	Shoreline configuration	1.5
Lake area	18.9 ha	Basin geology	Igneous
Lake volume	3.31 hm^3	Inflow	Perennial
Mean depth	18 m	Outflow channel	Present
Maximum depth	57 m		

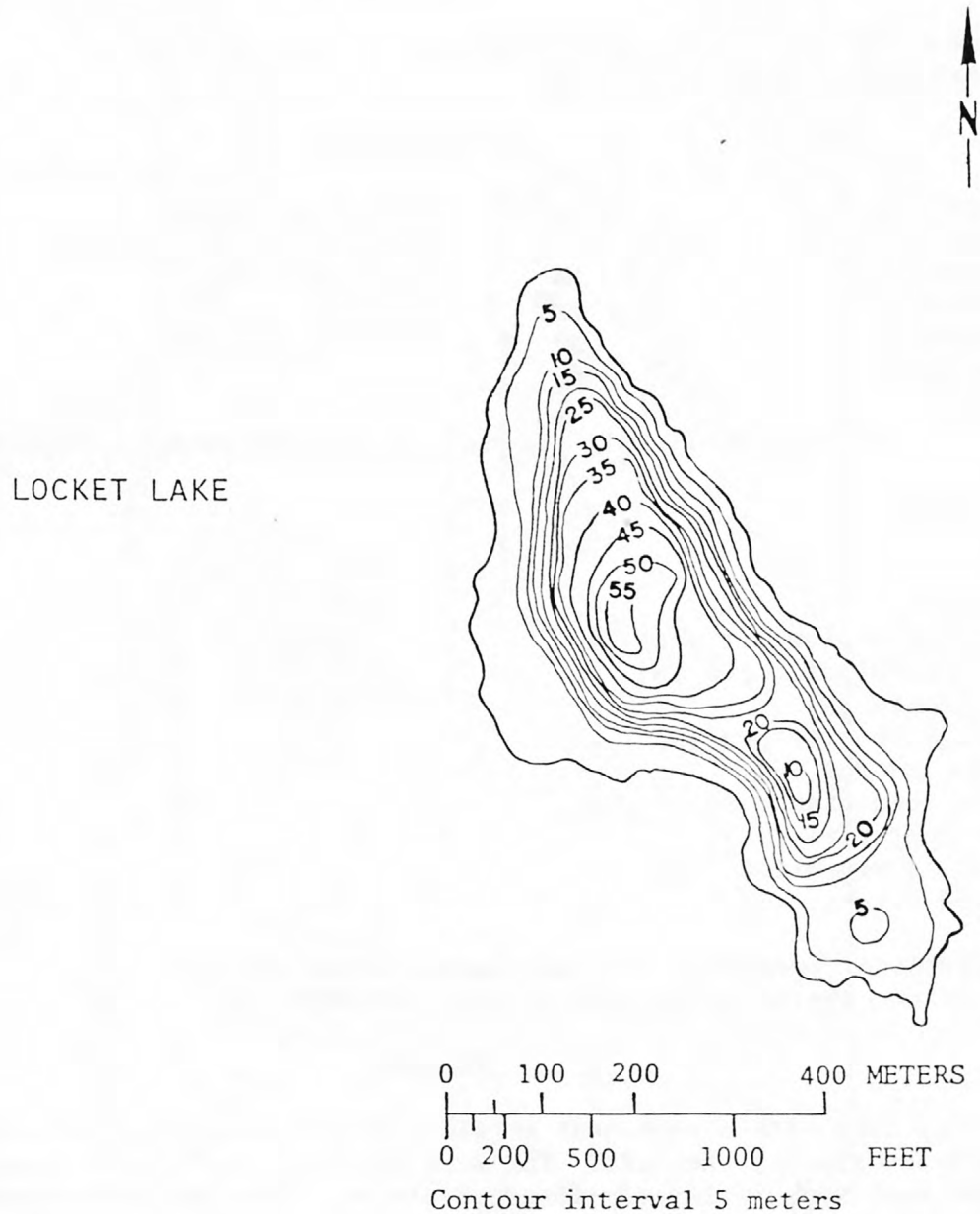
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/24/78	
Time	1730	1735
Depth (m)	1	35
Total nitrite plus nitrate (N)	0.02	0.02
Total kjeldahl nitrogen (N)	0.04	0.04
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.03	0.03
Total phosphorus (P)	0.003	0.002
Specific conductance (micromhos)	18	19
Water temperature (°C)	10.5	5.5
Secchi-disc visibility (m)	25	
Dissolved oxygen	8.8	7.8

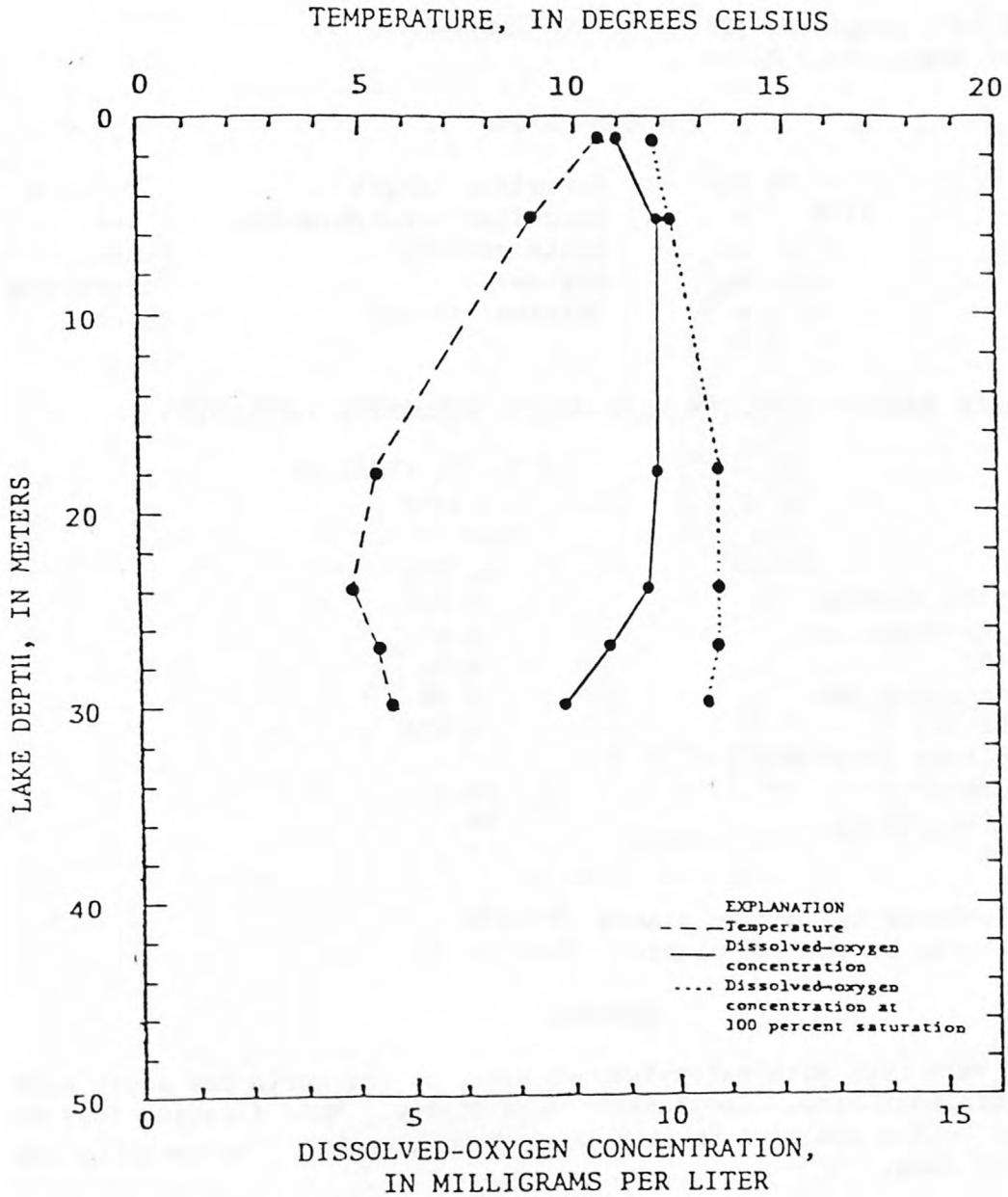
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A deep lake with a prominent moraine located some 10 m below the surface on the southwest side of the lake. The west shore of the lake is composed of talus, while the east side is largely forested slopes. No zooplankton were observed. The dissolved oxygen was depleted in the lake beneath the surface waters.



Locket Lake, King County. From
U.S. Geological Survey, August 24, 1978.



Locket Lake, King County. From
U.S. Geological Survey, August 24, 1978.

McCAFFREY LAKE KING COUNTY

Latitude 47°36'34" Longitude 121°19'52" T24½N-R12E-S34
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	0.09	km^2	Shoreline length	0.28	km
Altitude	1195	m	Shoreline configuration	1.4	
Lake area	0.4	ha	Basin geology	Igneous	
Lake volume	0.01	hm^3	Inflow	Intermittent	
Mean depth	3	m	Outflow channel	Absent	
Maximum depth	7	m			

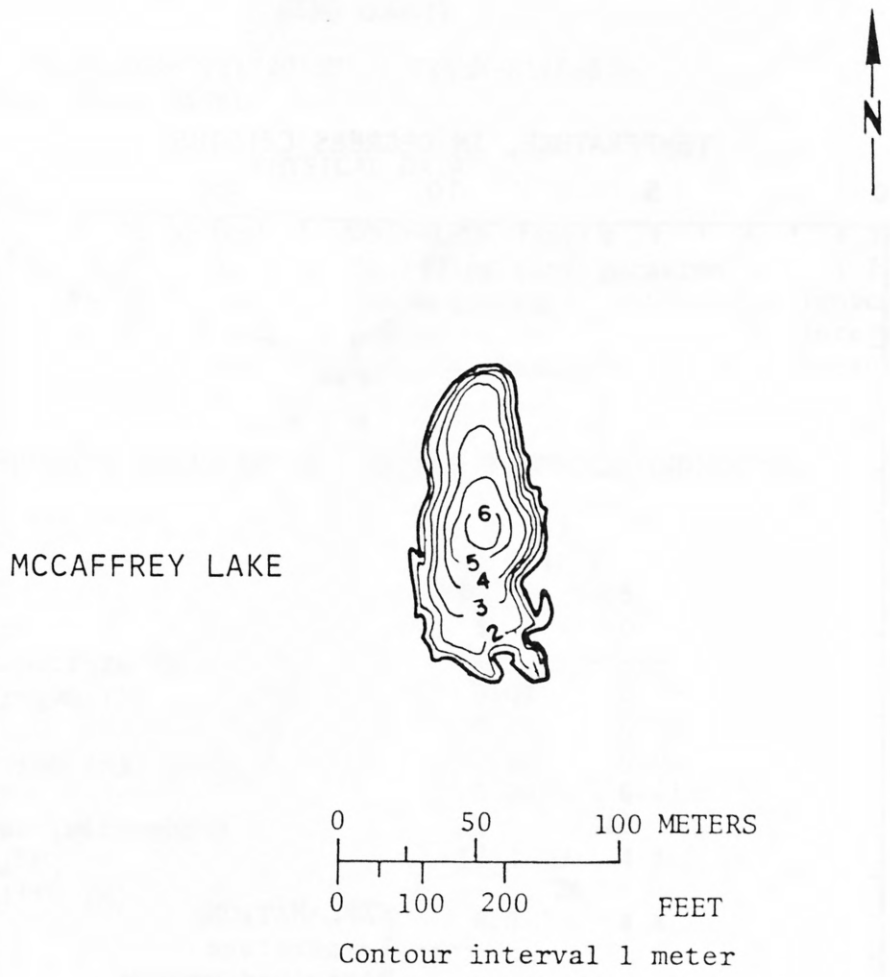
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1
Date	8/4/78
Time	1200
Depth (m)	surface
Total nitrite plus nitrate (N)	0.01
Total kjeldahl nitrogen (N)	0.10
Total ammonia (N)	0.02
Total organic nitrogen (N)	0.08
Total phosphorus (P)	0.014
Specific conductance (micromhos)	-----
Water temperature (°C)	23.5
Secchi-disc visibility (m)	>6
Dissolved oxygen	7.4

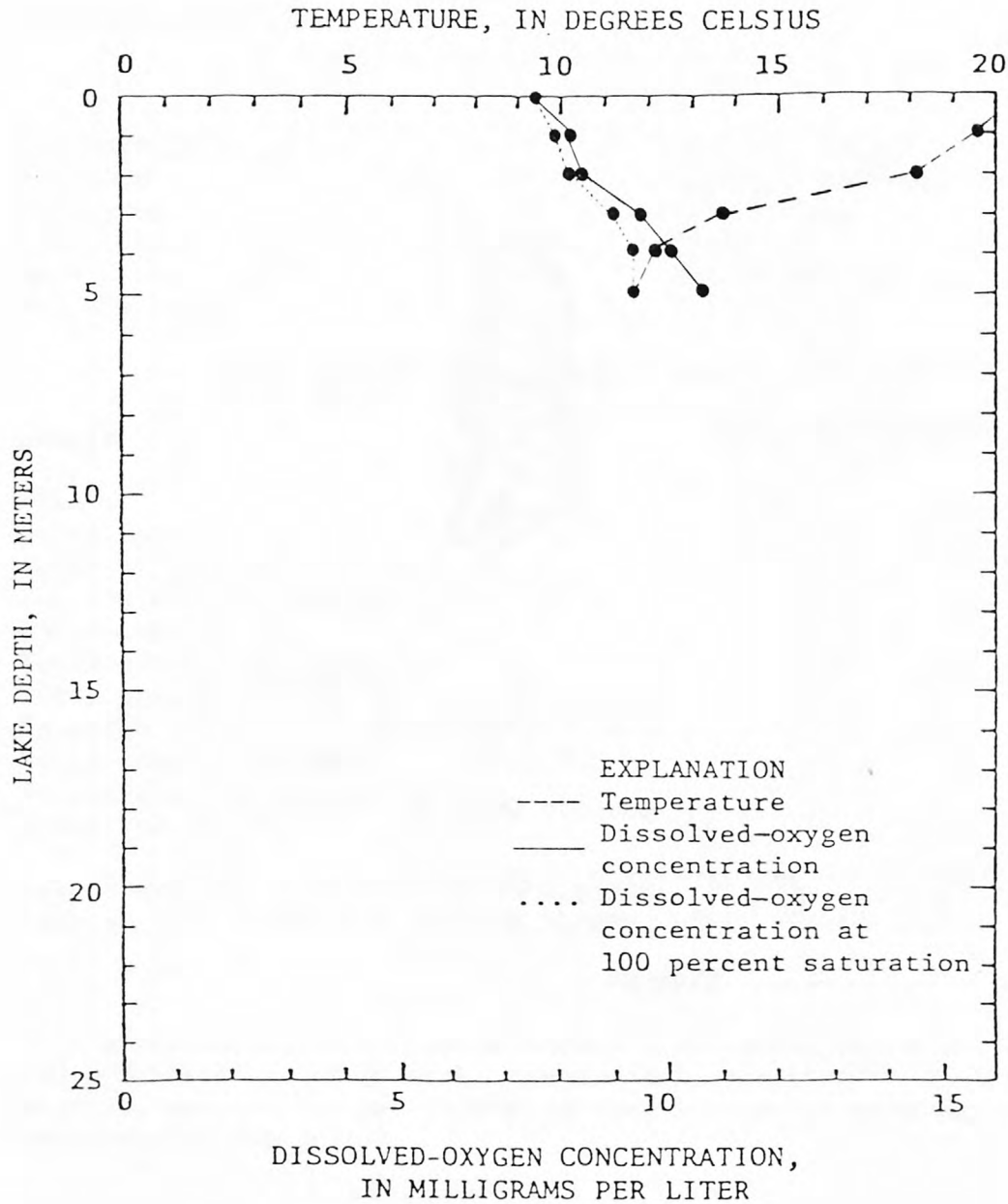
Lake shoreline covered by emersed plants	76-100%
Lake surface covered by emersed plants	None or <1%

REMARKS

A shallow, warm lake with extensive wet areas on the north and south sides, and a forested drainage area. Zooplankton were scarce. Many floating logs were observed and the bottom sediment is rich in organic material. No specific-conduct measurements were made.



McCaffrey Lake, King County. From
U.S. Geological Survey, August 4, 1978.



McCaffrey Lake, King County. From U.S. Geological Survey, August 4, 1978.

MALACHITE LAKE KING COUNTY

Latitude 47°36'37" Longitude 121°20'5" T24½N-R11E-S36
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	1.59	km^2	Shoreline length	2.32	km
Altitude	1247	m	Shoreline configuration	1.2	
Lake area	29.4	ha	Basin geology	Igneous	
Lake volume	9.61	hm^3	Inflow	Intermittent	
Mean depth	33	m	Outflow channel	Present	
Maximum depth	91	m			

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

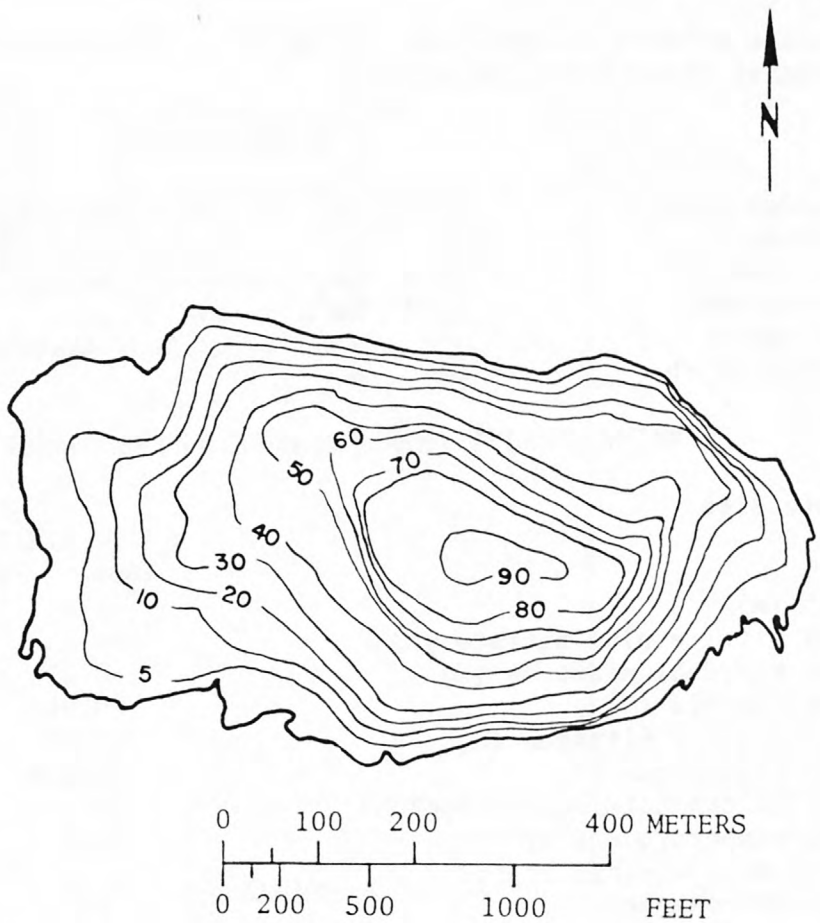
Sample site	1	
Date	8/4/78	
Time	1600	1605
Depth (m)	1	50
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.01	0.03
Total ammonia (N)	0.01	0.00
Total organic nitrogen (N)	0.00	0.03
Total phosphorus (P)	0.008	0.018
Specific conductance (micromhos)	15	42
Water temperature (°C)	18.2	4.4
Secchi-disc visibility (m)	26	
Dissolved oxygen	8.0	4.8

Hardness (Ca, Mg)	16
Dissolved calcium (Ca)	5.8
Dissolved magnesium (Mg)	0.4
Dissolved sodium (Na)	2.0
Dissolved potassium (K)	0.5
Alkalinity as $CaCO_3$	17
Dissolved sulfate (SO_4)	1.0
Dissolved chloride (Cl)	0.5
Dissolved fluoride (F)	0.0
Dissolved silica (SiO_2)	7.1
Dissolved solids (sum of constituents)	28

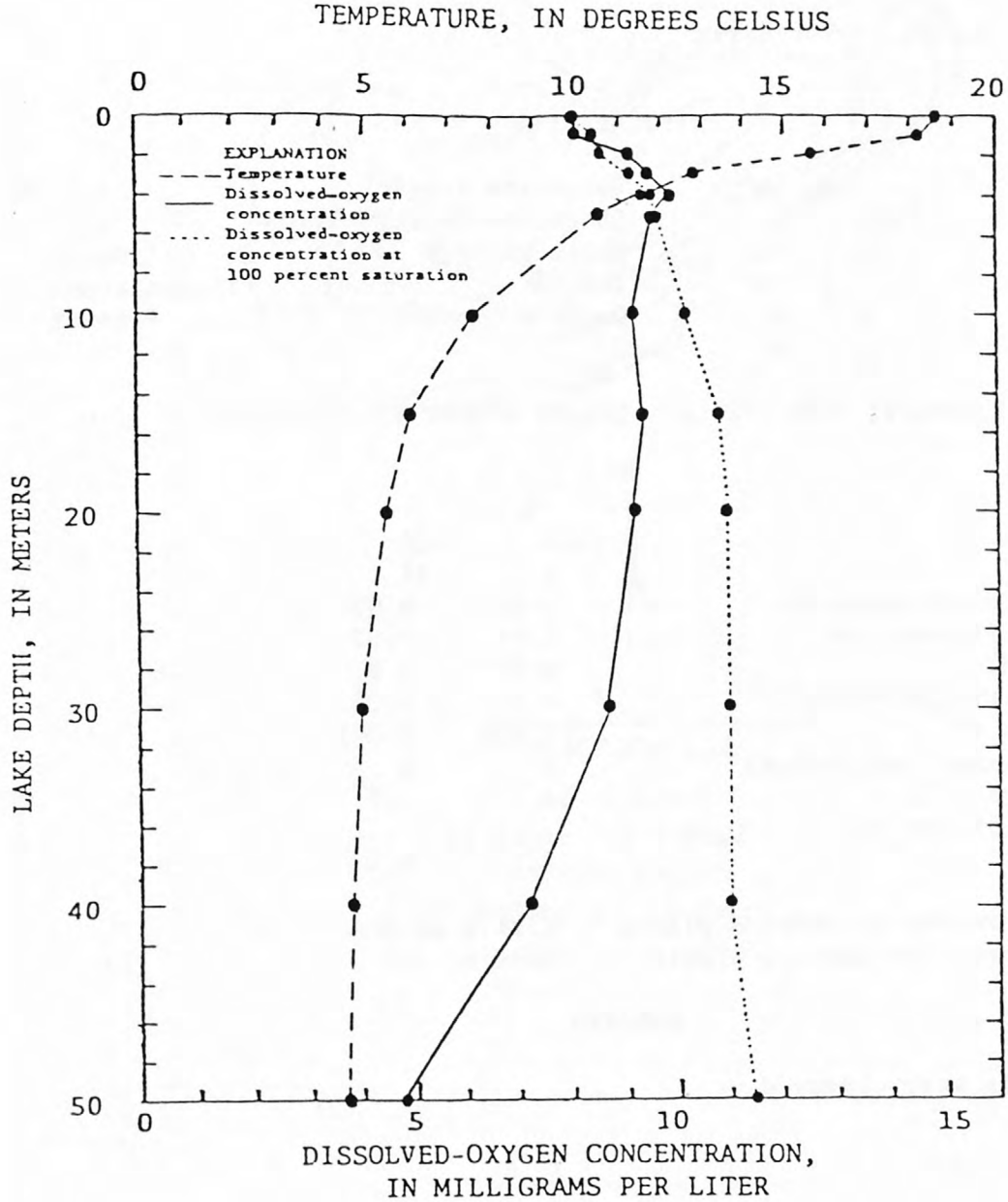
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A deep lake in a spectacular glacial cirque, and dammed by a moraine. Steep talus and vegetated talus slopes surround most of the lake; there are minor areas of wet soils located near the northeast outlet. Zooplankton were scarce. Dissolved oxygen was depleted in most of the water column. There was a large log jam at the northeast outlet.



Malachite Lake, King County. From
U.S. Geological Survey, August 4, 1978.



Malachite Lake, King County. From
U.S. Geological Survey, August 4, 1978.

MARTEN LAKE KING COUNTY

Latitude 47°35'39" Longitude 121°30'31" T24N-R10E-S2
Snohomish River Basin, Taylor River

PHYSICAL DATA

Drainage area	2.98 km^2	Shoreline length	1.77 km
Altitude	902 m	Shoreline configuration	1.2
Lake area	15.8 ha	Basin geology	Igneous
Lake volume	1.36 hm^3	Inflow	Intermittent
Mean depth	8 m	Outflow channel	Present
Maximum depth	19 m		

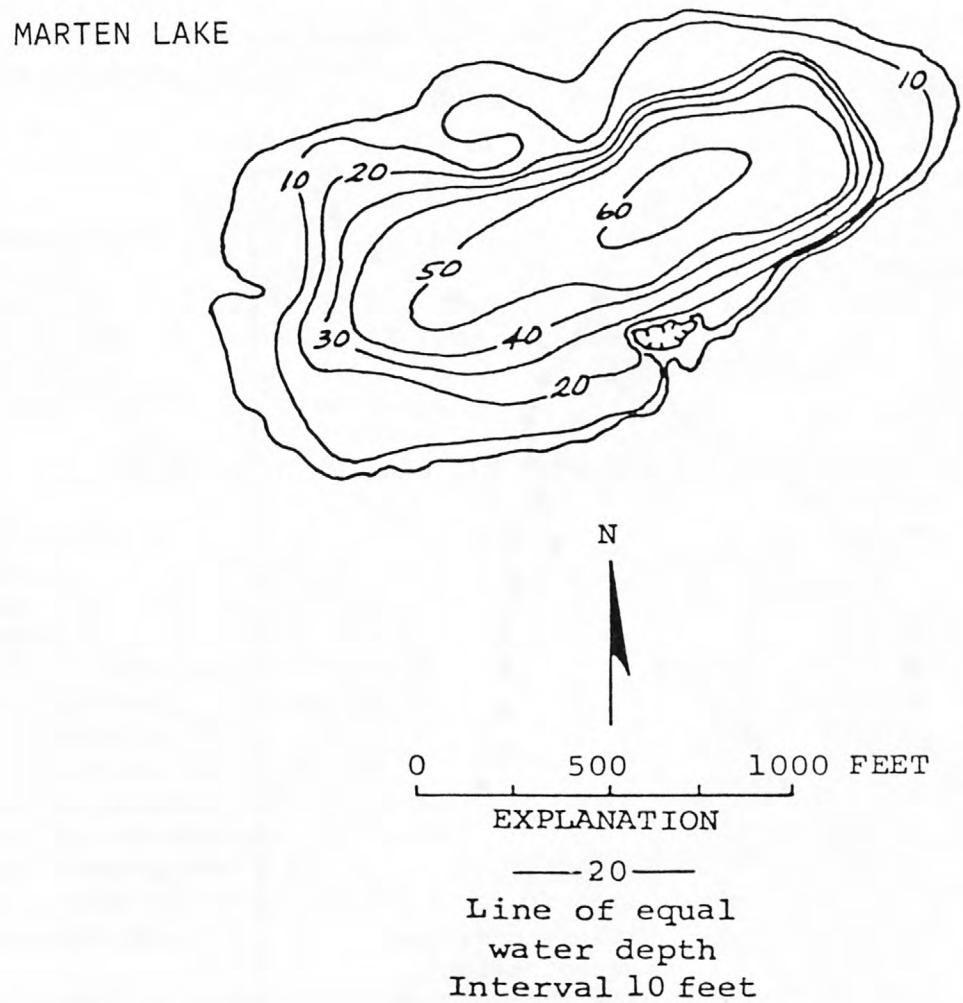
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/3/74	
Time	1110	1115
Depth (m)	1	14
Total nitrite plus nitrate (N)	0.02	0.09
Total kjeldahl nitrogen (N)	0.04	0.07
Total ammonia (N)	0.03	0.07
Total organic nitrogen (N)	0.01	0.00
Total phosphorus (P)	0.001	0.003
Specific conductance (micromhos)	7	8
Water temperature (°C)	18.1	4.7
Secchi-disc visibility (m)	11	
Dissolved oxygen	8.8	6.9

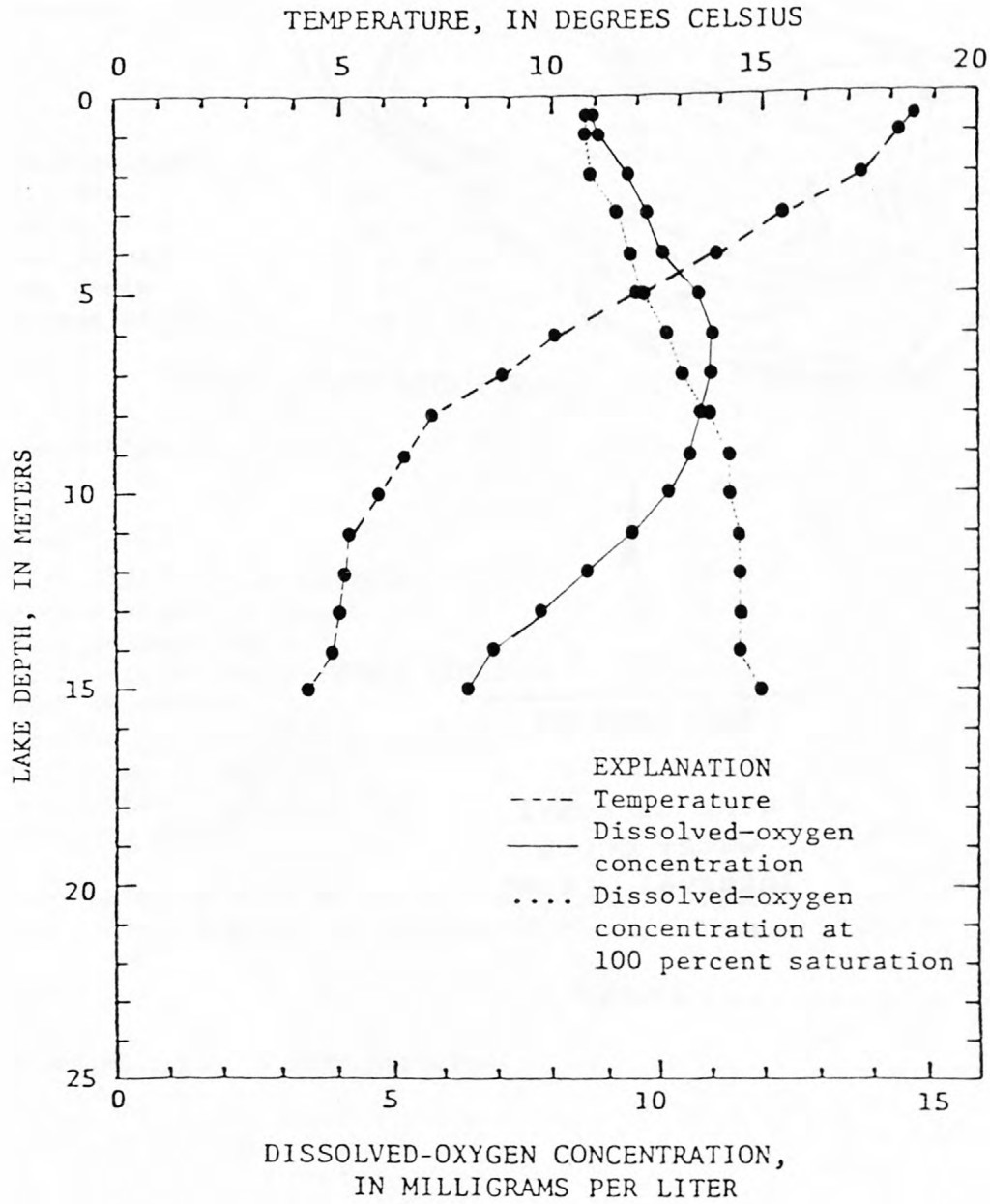
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

No aquatic plants were observed.



Marten Lake, King County. From U.S. Geological Survey, September 7, 1974.



Marten Lake, King County. From
U.S. Geological Survey, September 3, 1974.

MASON LAKE KING COUNTY

Latitude 47°25'29" Longitude 121°33'13" T22N-R10E-S5
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	0.67	km^2	Shoreline length	1.47	km
Altitude	1274	m	Shoreline configuration	1.2	
Lake area	11.7	ha	Basin geology	Igneous	
Lake volume	1.73	hm^3	Inflow	Intermittent	
Mean depth	15	m	Outflow channel	Present	
Maximum depth	28	m			

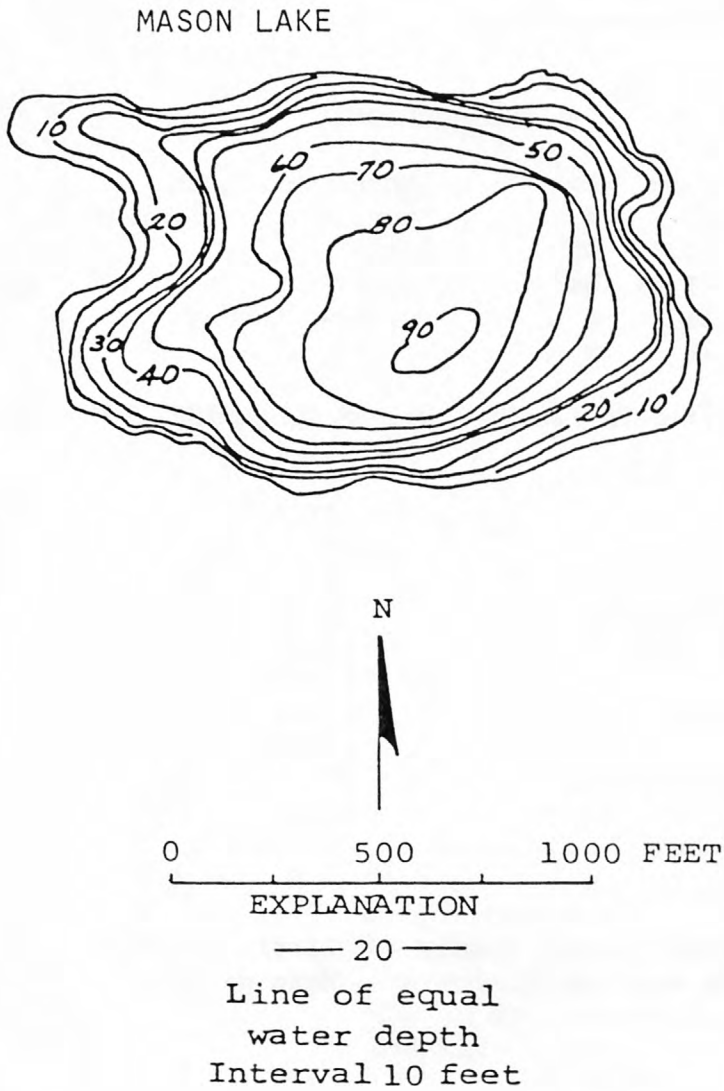
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/28/74	
Time	1030	1035
Depth (m)	1	21
Total nitrite plus nitrate (N)	0.01	0.01
Total kjeldahl nitrogen (N)	0.11	-----
Total ammonia (N)	0.03	0.03
Total organic nitrogen (N)	0.08	-----
Total phosphorus (P)	0.002	0.002
Specific conductance (micromhos)	10	10
Water temperature (°C)	16.0	4.1
Secchi-disc visibility (m)	15	
Dissolved oxygen	9.0	9.2

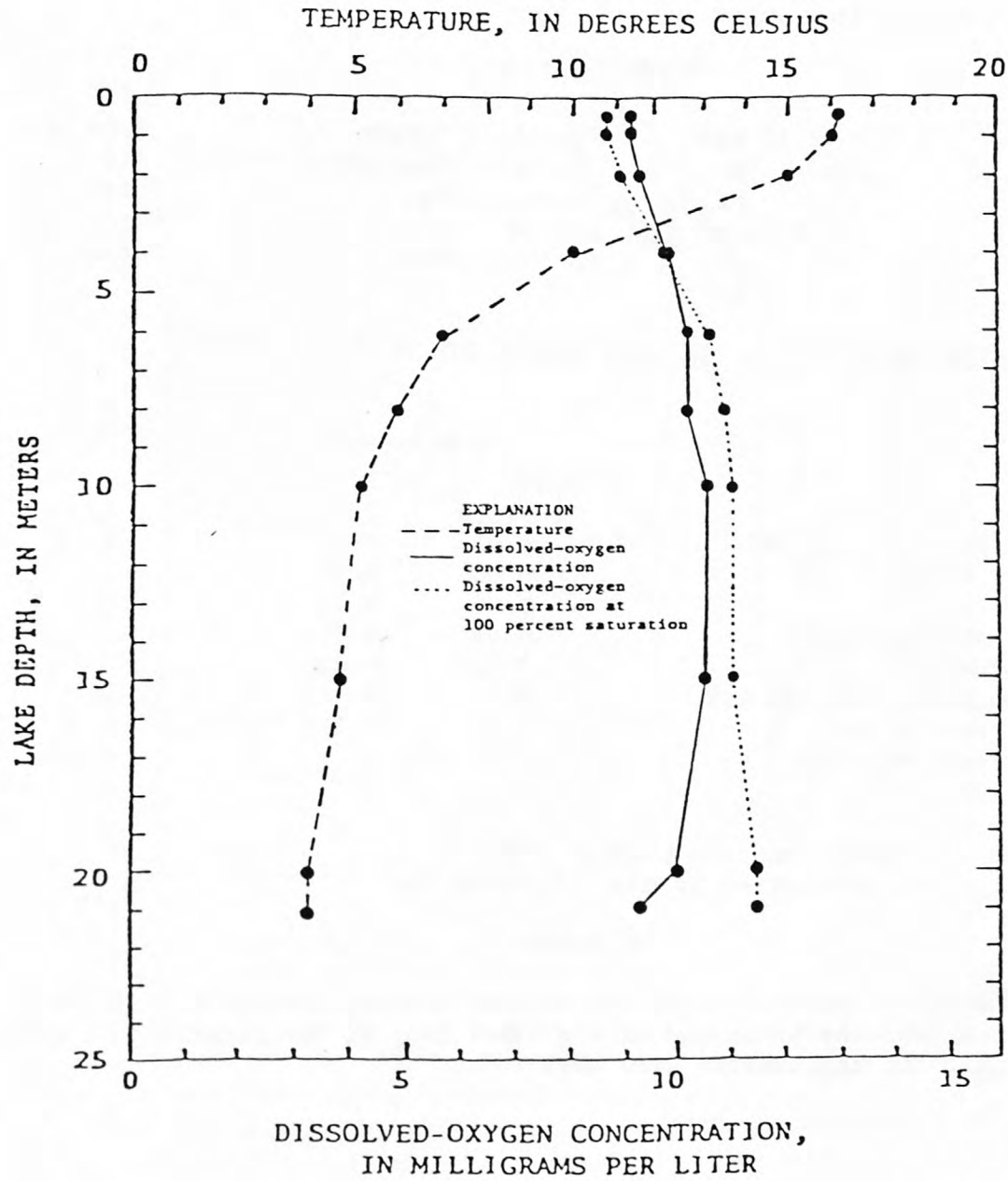
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

No aquatic plants were observed.



Mason Lake, King County. From U.S. Geological Survey, September 5, 1974.



Mason Lake. King County. From
U.S. Geological Survey, August 28, 1974.

OPAL LAKE KING COUNTY

Latitude 47°34'38" Longitude 121°15'8" T24N-R13E-S17
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	2.22 km^2	Shoreline length	1.04 km
Altitude	2067 m	Shoreline configuration	1.6
Lake area	3.2 ha	Basin geology	Igneous
Lake volume	0.01 hm^3	Inflow	Perennial
Mean depth	1 m	Outflow channel	Present
Maximum depth	3 m		

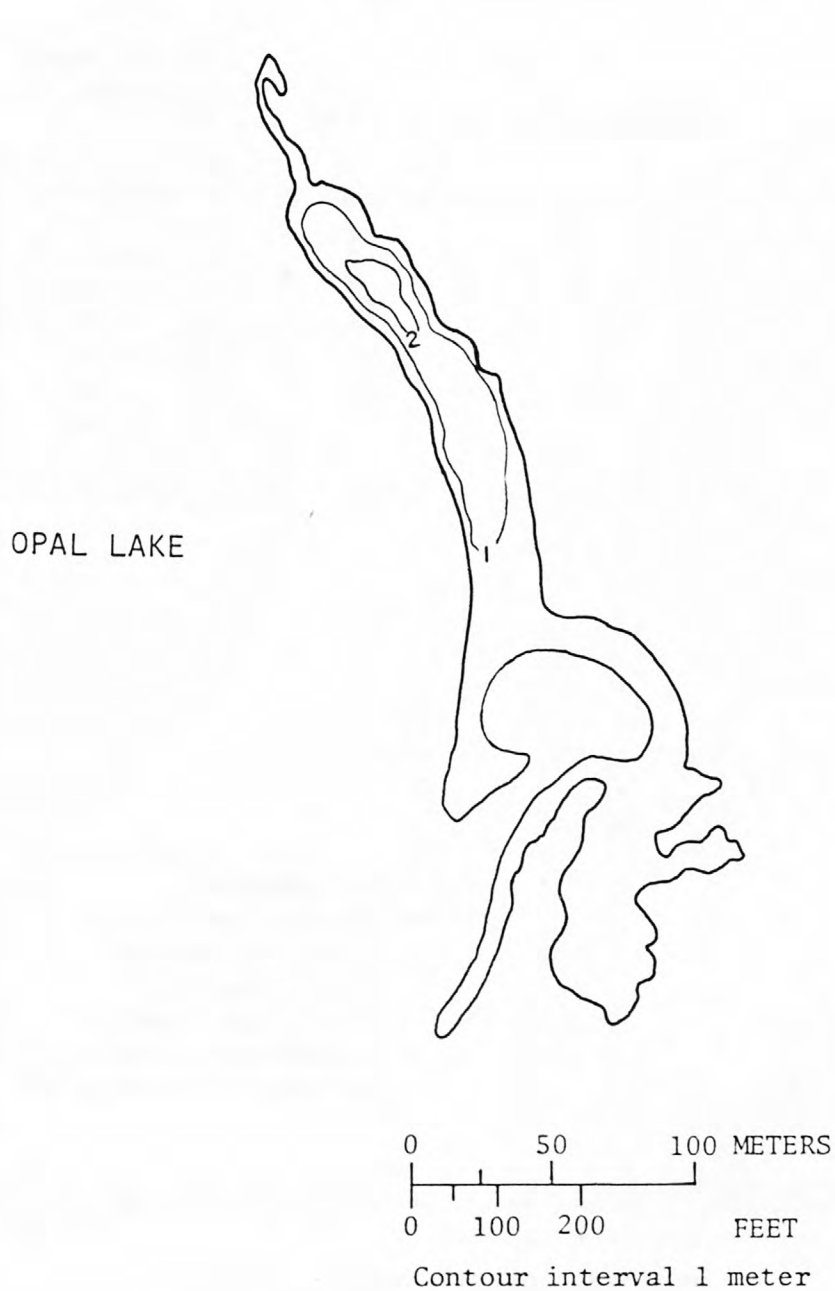
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/22/78	
Time	1530	1535
Depth (m)	surface	2.5
Total nitrite plus nitrate (N)	0.02	0.02
Total kjeldahl nitrogen (N)	0.06	0.08
Total ammonia (N)	0.00	0.01
Total organic nitrogen (N)	0.06	0.07
Total phosphorus (P)	0.027	0.008
Specific conductance (micromhos)	9	9
Water temperature (°C)	6.5	6.3
Secchi-disc visibility (m)	>3	
Dissolved oxygen	9.3	9.3

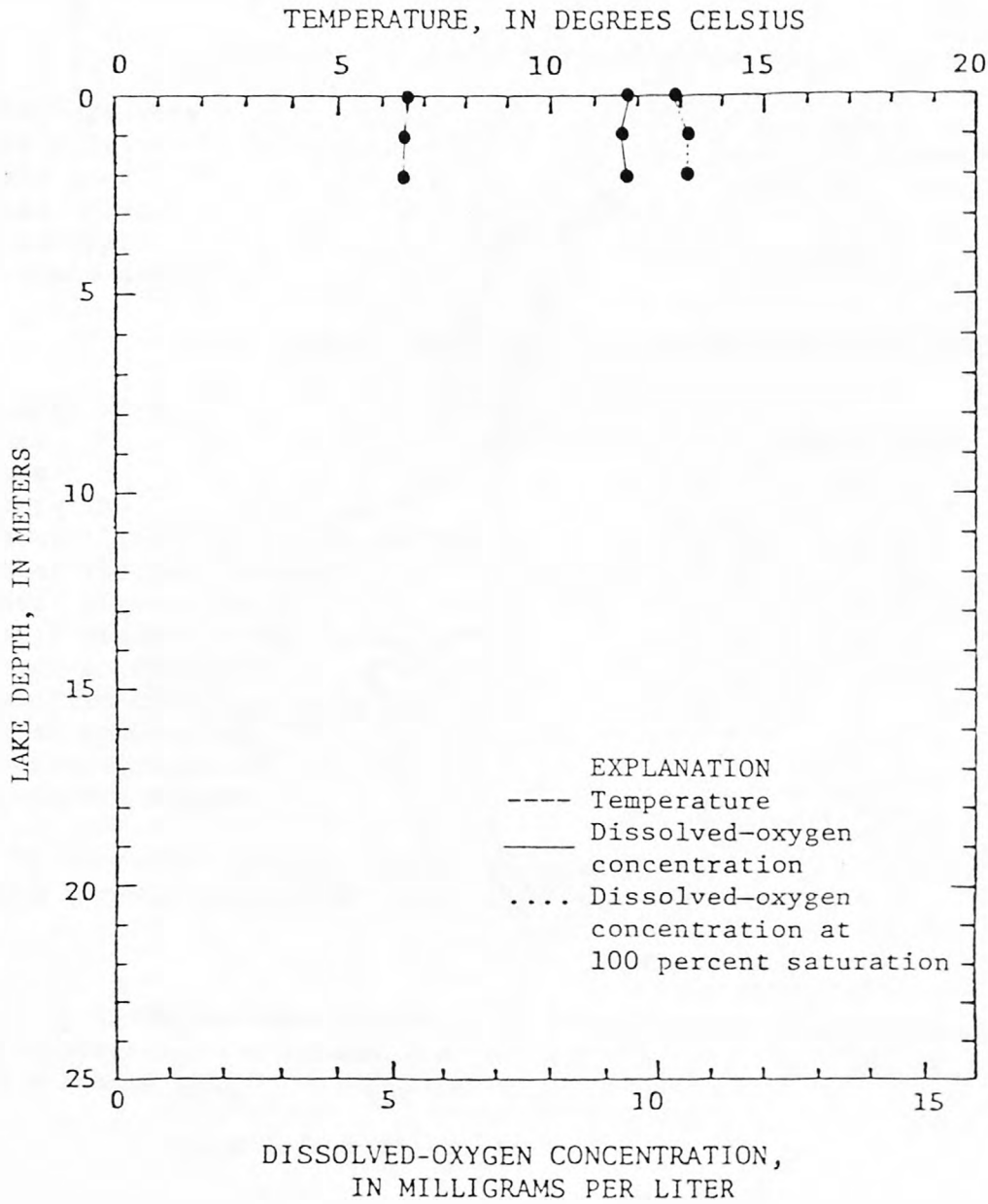
Lake shoreline covered by emersed plants 0-10%
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake with a stream channel running through it. There is an extensive swamp on the south end of the lake; most of the lakeshore is composed of forested till. No zooplankton were observed.



Opal Lake, King County. From
U.S. Geological Survey, August 22, 1978.



Opal Lake, King County. From
U.S. Geological Survey, August 22, 1978.

PHILIPPA LAKE KING COUNTY

Latitude 47°36'50" Longitude 121°37'8" T25N-R9E-S35
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	3.86	km^2	Shoreline length	3.06	km
Altitude	1020	m	Shoreline configuration	1.2	
Lake area	48.6	ha	Basin geology	Igneous	
Lake volume	25.89	hm^3	Inflow	Intermittent	
Mean depth	55	m	Outflow channel	Present	
Maximum depth	104	m			

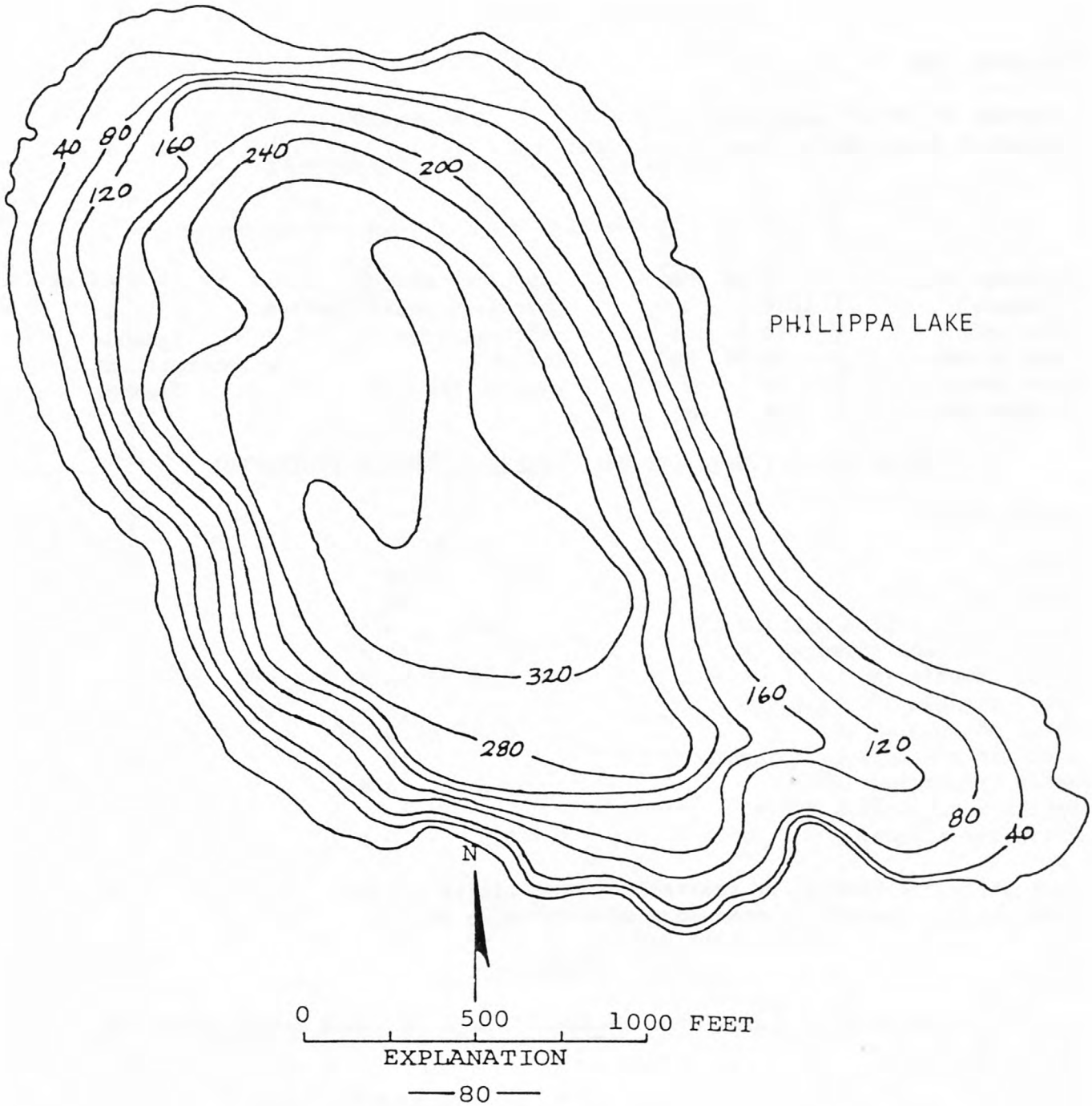
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	9/3/74	
Time	1240	1245
Depth (m)	1	60
Total nitrite plus nitrate (N)	0.02	0.10
Total kjeldahl nitrogen (N)	-----	-----
Total ammonia (N)	0.04	0.07
Total organic nitrogen (N)	-----	-----
Total phosphorus (P)	0.000	0.000
Specific conductance (micromhos)	9	10
Water temperature (°C)	13.3	3.8
Secchi-disc visibility (m)	20	
Dissolved oxygen	9.5	10.1

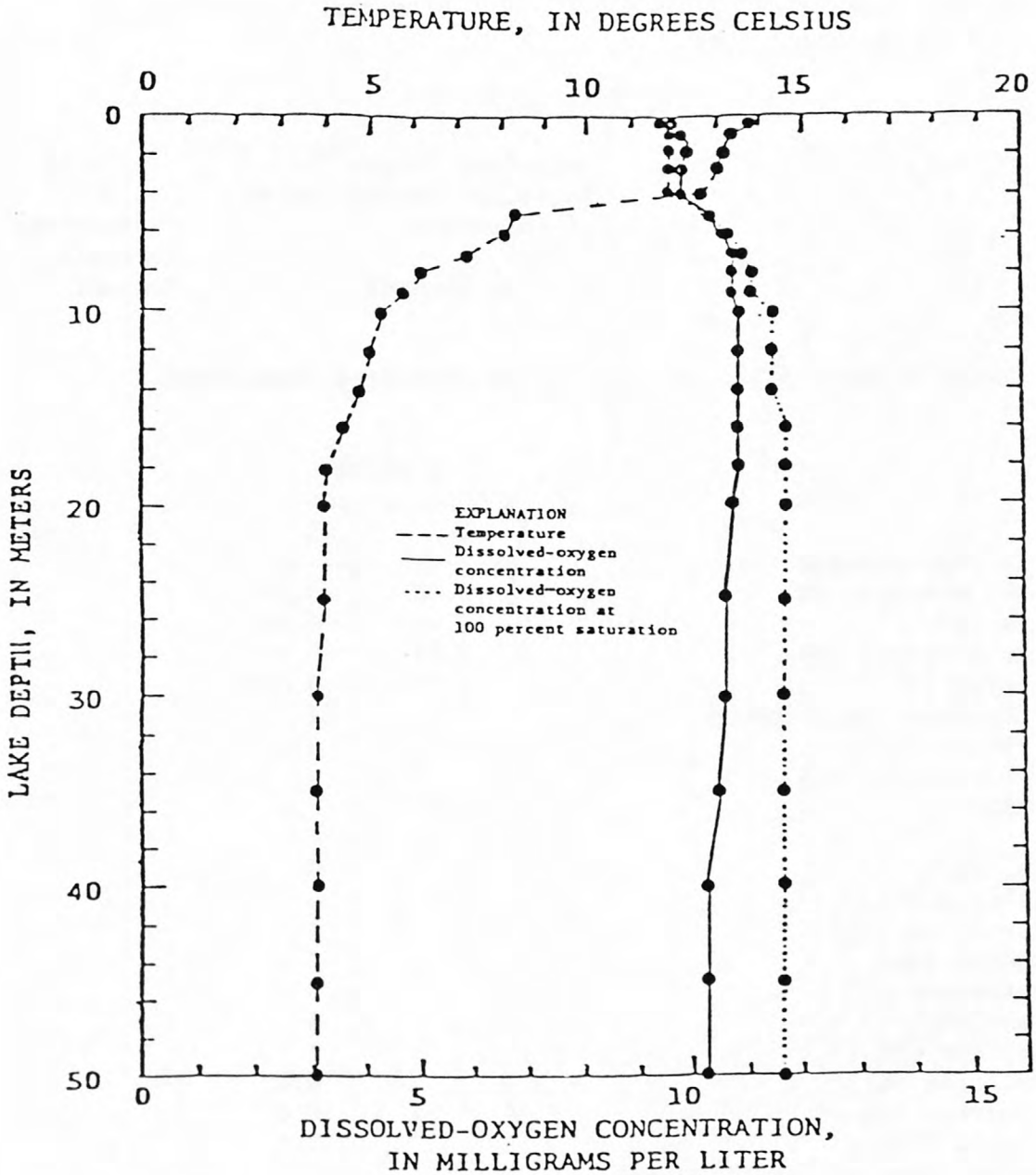
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

Very few aquatic plants were observed. Logs and wood debris cover the shoreline.



Philippa Lake, King County.
From U.S. Geological Survey, September 6, 1974.



Philippa Lake, King County. From
U.S. Geological Survey, September 3, 1974.

ROCK LAKE KING COUNTY

Latitude 47°38'32" Longitude 121°19'56" T25N-R11E-S25
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	1.03 km^2	Shoreline length	1.39 km
Altitude	1386 m	Shoreline configuration	1.3
Lake area	9.6 ha	Basin geology	Sedimentary
Lake volume	1.78 hm^3	Inflow	Perennial
Mean depth	19 m	Outflow channel	Present
Maximum depth	43 m		

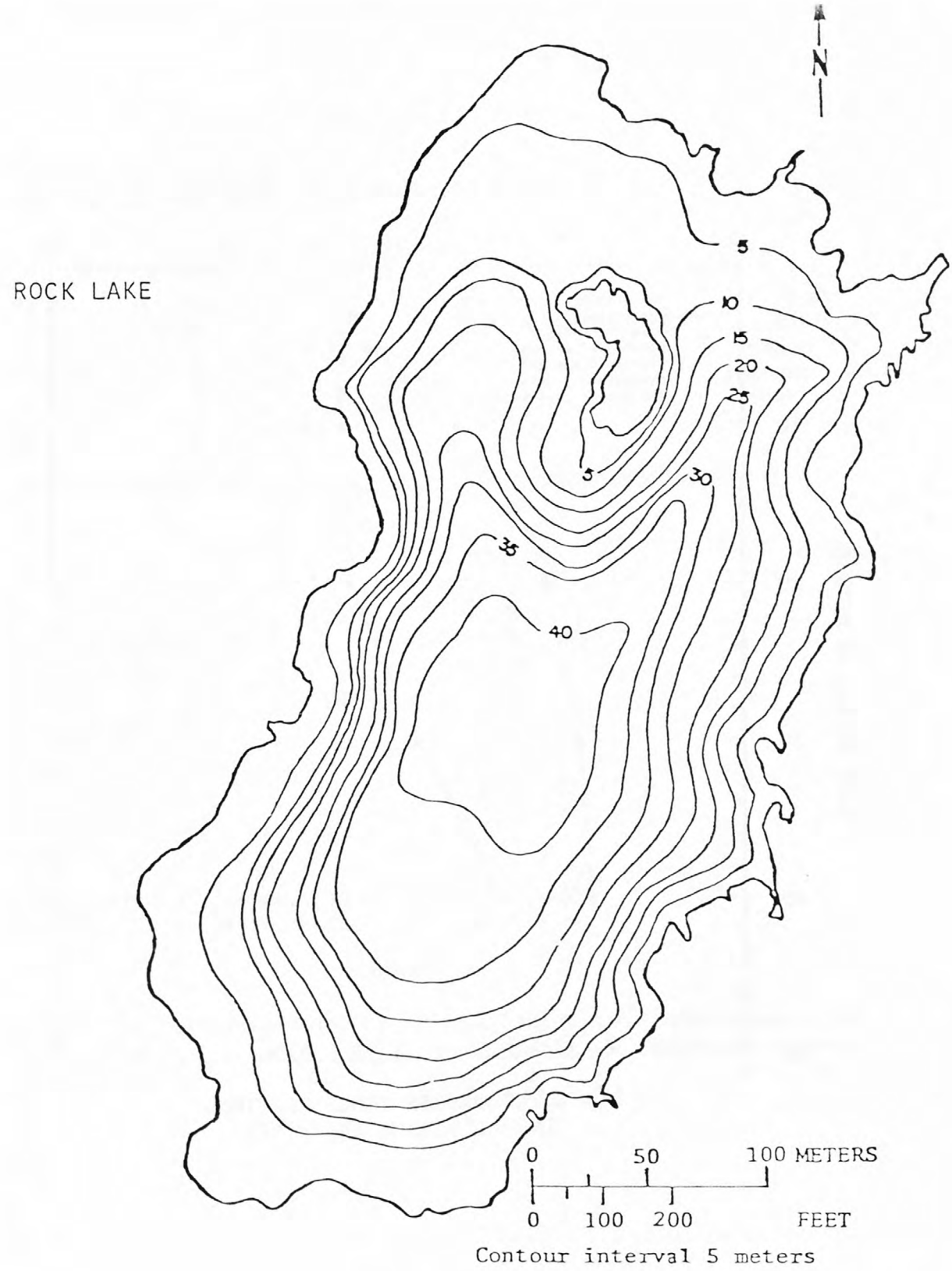
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/28/78	
Time	1400	1405
Depth (m)	1	45
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.08	0.06
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.07	0.05
Total phosphorus (P)	0.003	0.006
Specific conductance (micromhos)	8	11
Water temperature (°C)	12.0	4.2
Secchi-disc visibility (m)	20	
Dissolved oxygen	8.6	5.4
Hardness (Ca, Mg)		5
Dissolved calcium (Ca)		2.2
Dissolved magnesium (Mg)		0.4
Dissolved sodium (Na)		0.4
Dissolved potassium (K)		0.0
Alkalinity as $CaCO_3$		5
Dissolved sulfate (SO_4)		1.7
Dissolved chloride (Cl)		0.4
Dissolved fluoride (F)		0.0
Dissolved silica (SiO_2)		2.1
Dissolved solids (sum of constituents)		10

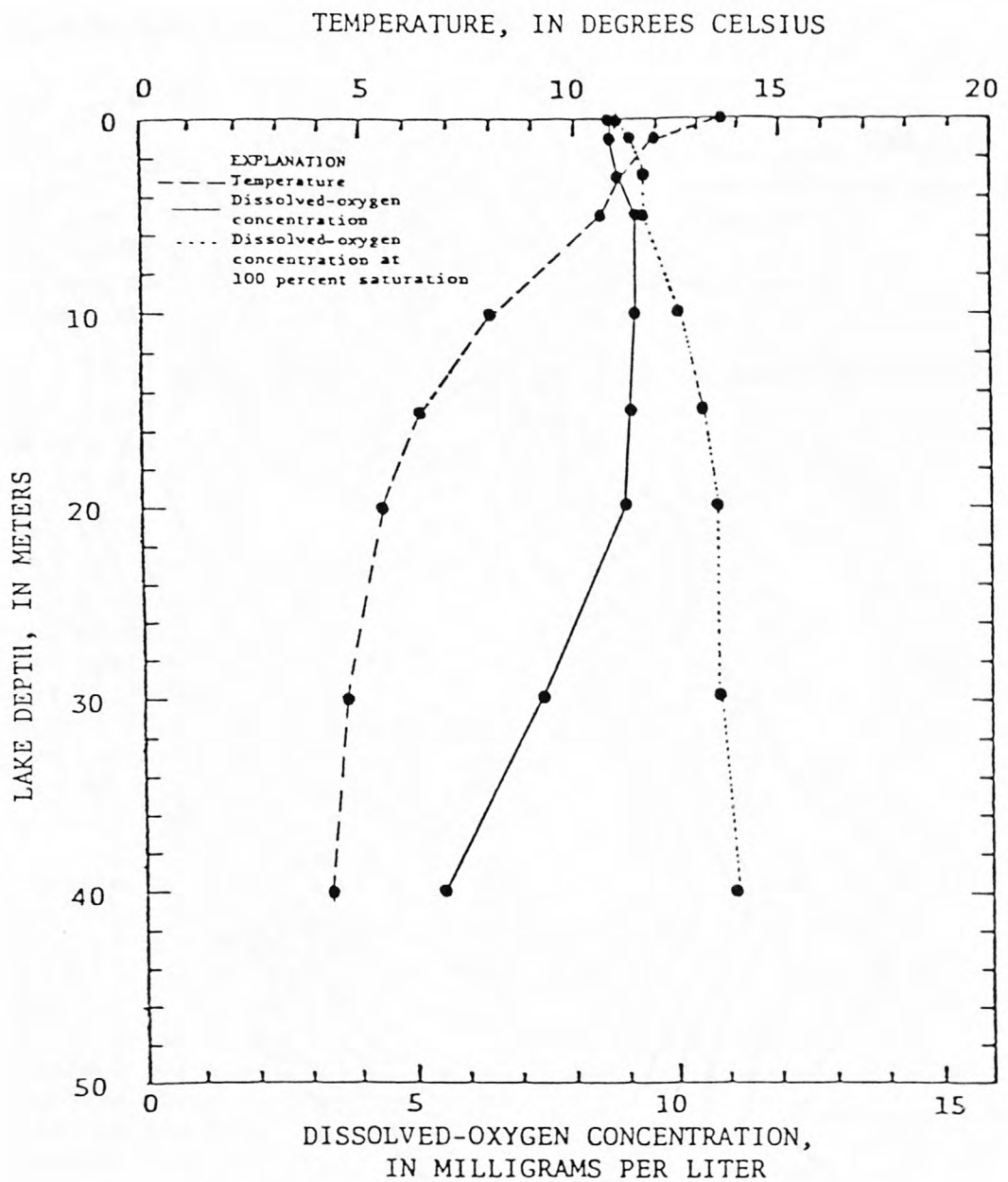
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, deep lake largely surrounded by bedrock and forested colluvial slopes. Zooplankton were moderately abundant. Dissolved oxygen was depleted in the deeper waters.



Rock Lake, King County. From
U.S. Geological Survey, August 28, 1978.



Rock Lake, King County. From
U.S. Geological Survey, August 28, 1978.

TAHL LAKE KING COUNTY

Latitude 47°34'31" Longitude 121°15'44" T24N-R13E-S18
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	0.22 km^2	Shoreline length	0.76 km
Altitude	1729 m	Shoreline configuration	1.6
Lake area	1.7 ha	Basin geology	Igneous
Lake volume	0.04 hm^3	Inflow	Intermittent
Mean depth	2 m	Outflow channel	Present
Maximum depth	6 m		

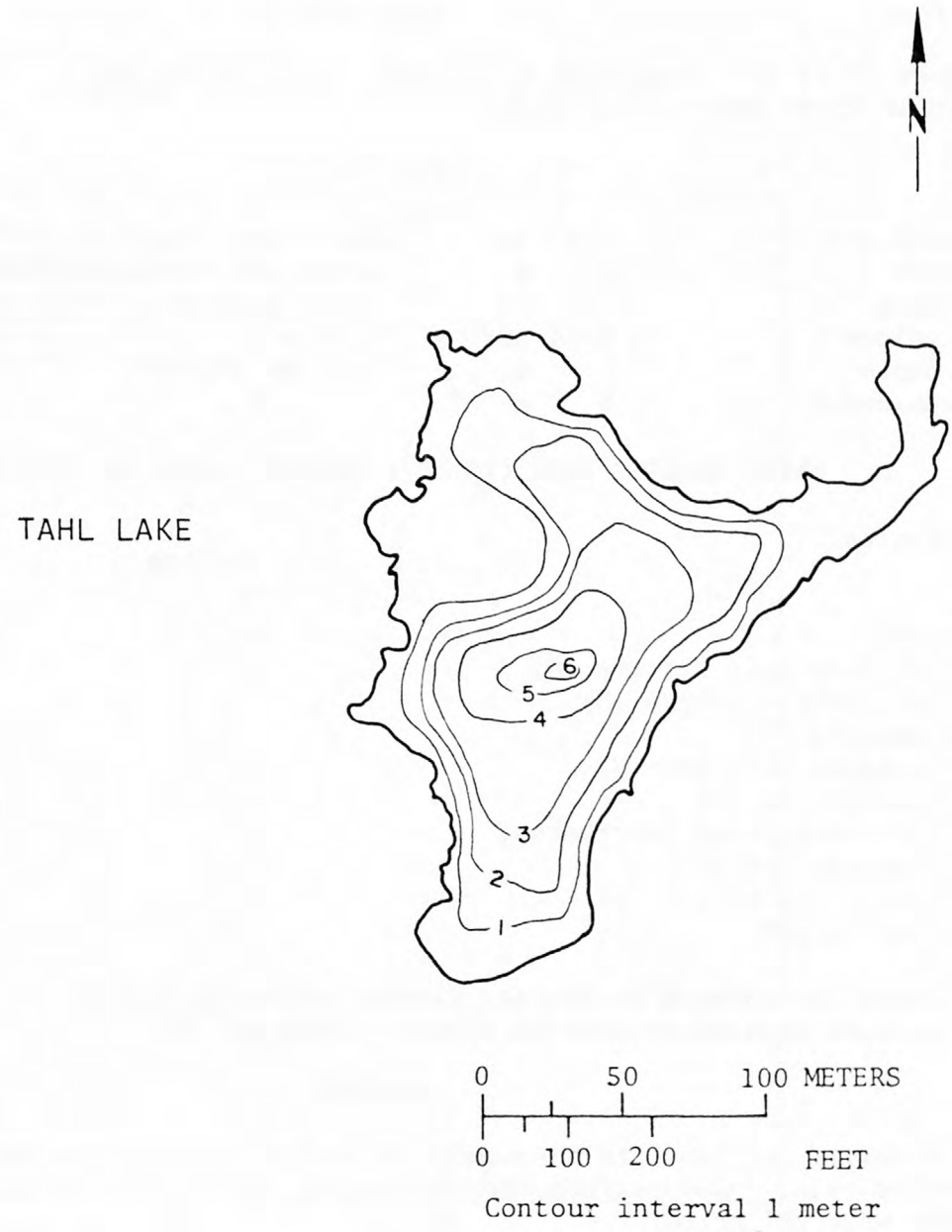
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1
Date	8/24/78
Time	1130
Depth (m)	surface
Total nitrite plus nitrate (N)	0.01
Total kjeldahl nitrogen (N)	0.06
Total ammonia (N)	0.01
Total organic nitrogen (N)	0.05
Total phosphorus (P)	0.001
Specific conductance (micromhos)	1
Water temperature (°C)	6.0
Secchi-disc visibility (m)	>7.5
Dissolved oxygen	-----

Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake surrounded by bedrock, talus, and minor amounts of vegetated talus. Zooplankton were moderately abundant. No dissolved-oxygen samples were collected.



Tahl Lake, King County. From
U.S. Geological Survey, August 24, 1978.

TANK, NORTH LAKE KING COUNTY

Latitude 47°34'1" Longitude 121°15'50" T24N-R13E-S18
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	0.10 km^2	Shoreline length	0.49 km
Altitude	1762 m	Shoreline configuration	1.5
Lake area	0.8 ha	Basin geology	Igneous
Lake volume	0.03 hm^3	Inflow	Intermittent
Mean depth	4 m	Outflow channel	Present
Maximum depth	5 m		

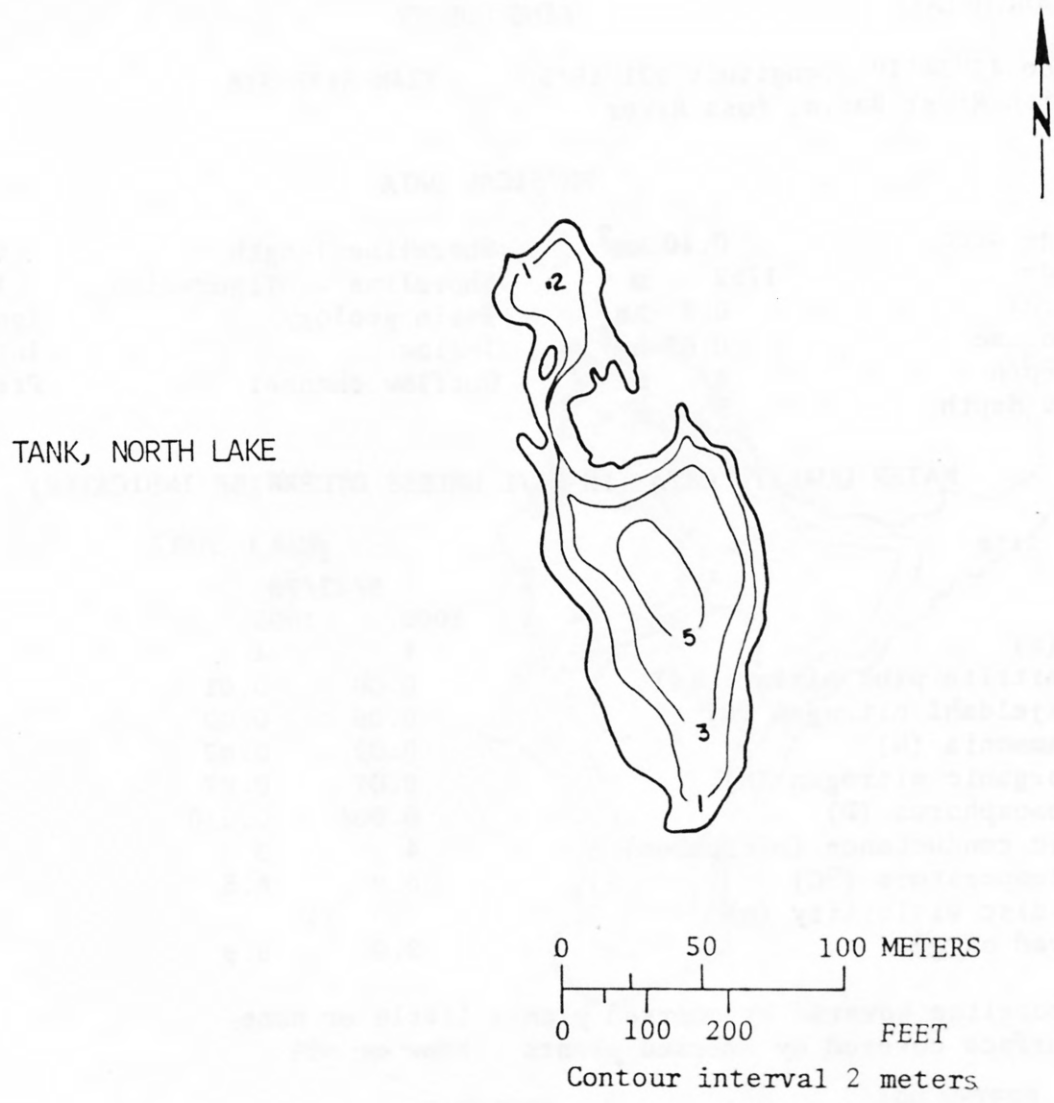
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/23/78	
Time	1000	1005
Depth (m)	1	4
Total nitrite plus nitrate (N)	0.00	0.01
Total kjeldahl nitrogen (N)	0.09	0.09
Total ammonia (N)	0.02	0.02
Total organic nitrogen (N)	0.07	0.07
Total phosphorus (P)	0.004	0.010
Specific conductance (micromhos)	4	3
Water temperature (°C)	6.9	6.8
Secchi-disc visibility (m)	>4	
Dissolved oxygen	9.0	8.9

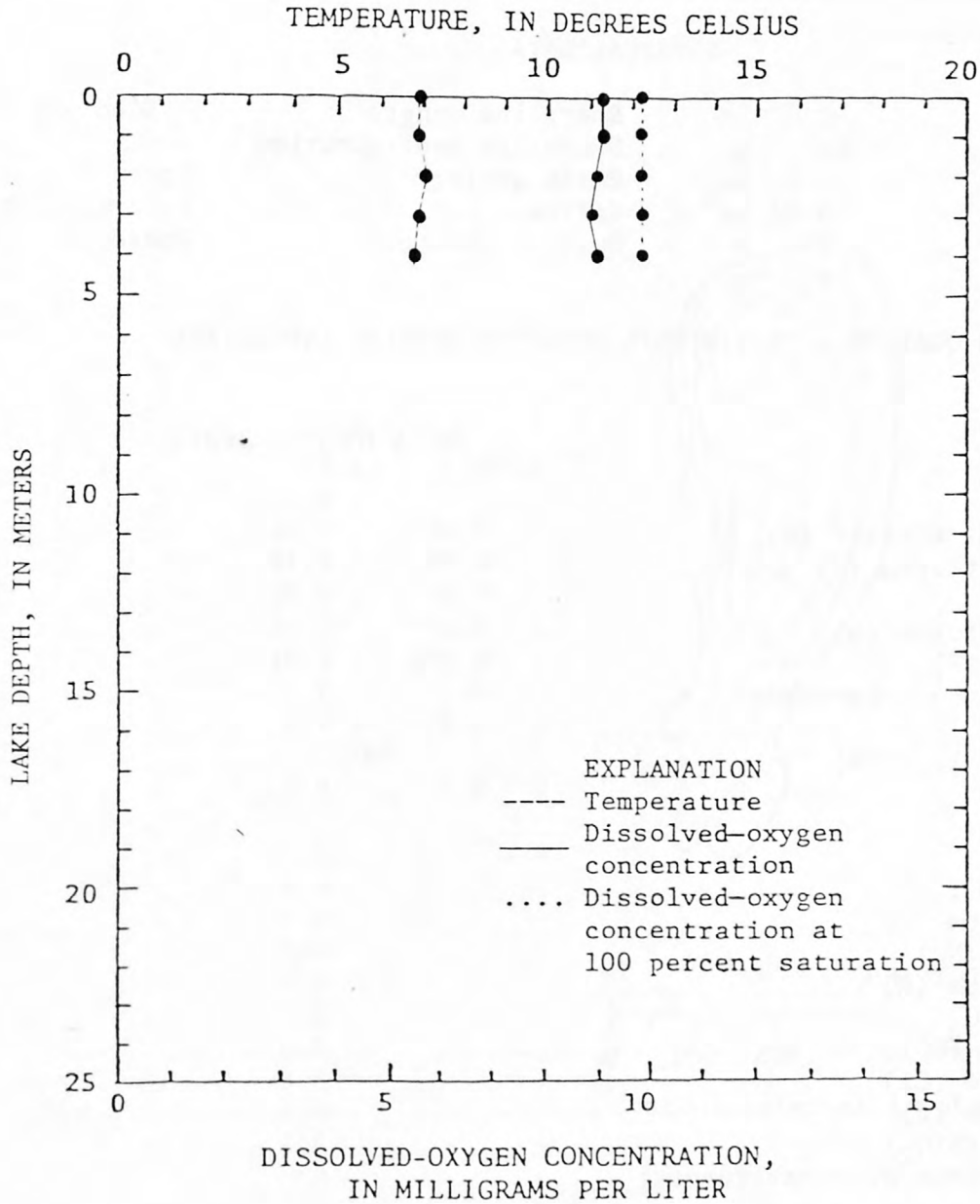
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake completely surrounded by bedrock and snowfields. The area draining into this lake is largely bedrock with only minor amounts of vegetation. No zooplankton were observed.



Tank, North Lake, King County. From
U.S. Geological Survey, August 23, 1978.



Tank, North Lake, King County. From U.S. Geological Survey, August 23, 1978.

TANK, SOUTH LAKE KING COUNTY

Latitude 47°33'40" Longitude 121°15'46" T24N-R13E-S19
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	0.07 km^2	Shoreline length	0.46 km
Altitude	1762 m	Shoreline configuration	1.5
Lake area	0.8 ha	Basin geology	Igneous
Lake volume	0.02 hm^3	Inflow	Intermittent
Mean depth	3 m	Outflow channel	Present
Maximum depth	4 m		

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

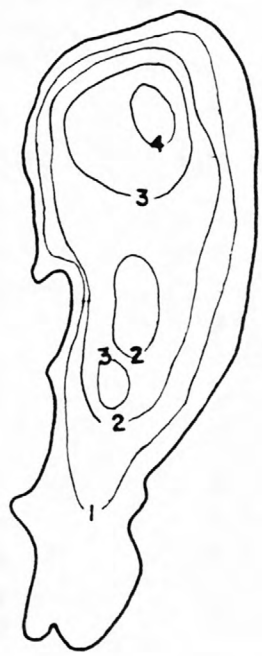
Sample site	1	
Date	8/23/78	
Time	1200	1205
Depth (m)	1	4
Total nitrite plus nitrate (N)	0.01	0.01
Total kjeldahl nitrogen (N)	0.09	0.10
Total ammonia (N)	0.02	0.02
Total organic nitrogen (N)	0.07	0.08
Total phosphorus (P)	0.003	0.012
Specific conductance (micromhos)	3	3
Water temperature (°C)	8.2	7.9
Secchi-disc visibility (m)	>4	
Dissolved oxygen	9.5	9.2
Hardness (Ca, Mg)		2
Dissolved calcium (Ca)		0.9
Dissolved magnesium (Mg)		0.1
Dissolved sodium (Na)		2.1
Dissolved potassium (K)		0.0
Alkalinity as $CaCO_3$		2
Dissolved sulfate (SO_4)		0.0
Dissolved chloride (Cl)		0.6
Dissolved fluoride (F)		0.0
Dissolved silica (SiO_2)		2.1
Dissolved solids (sum of constituents)		6

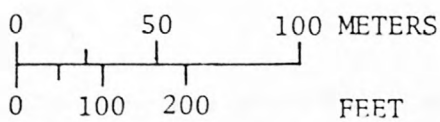
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake located in a small bedrock basin. Small areas of talus and wet soils are also present near the lake. Zooplankton were moderately abundant.

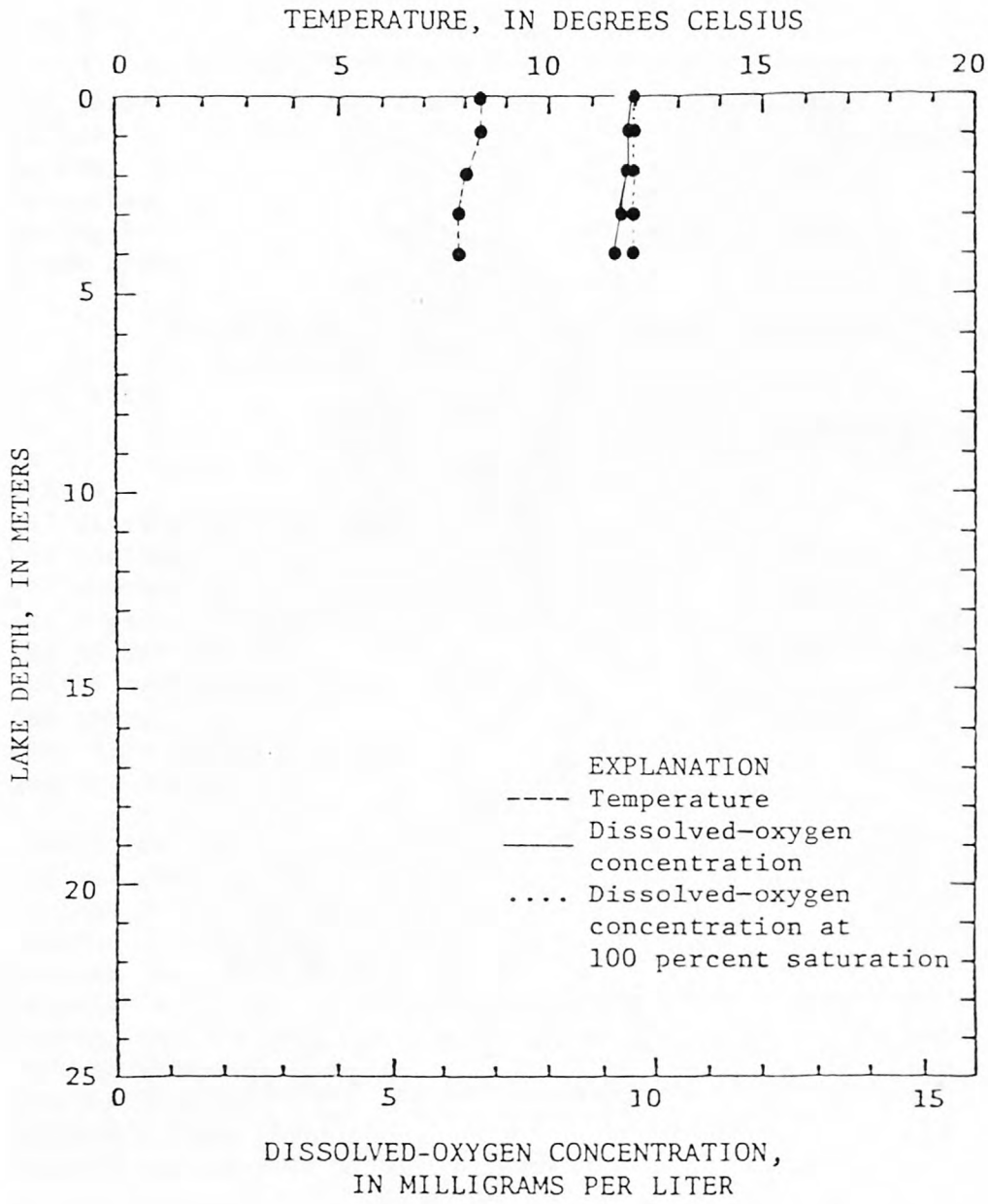
TANK, SOUTH LAKE





Contour interval 1 meter

Tank, South Lake, King County. From
U.S. Geological Survey, August 23, 1978.



Tank, South Lake, King County. From U.S. Geological Survey, August 23, 1978.

THOMPSON LAKE KING COUNTY

Latitude 47°27'27" Longitude 121°35'9" T23N-R10E-S19
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	0.96	km^2	Shoreline length	2.25	km
Altitude	1113	m	Shoreline configuration	1.6	
Lake area	17.0	ha	Basin geology	Igneous	
Lake volume	1.07	hm^3	Inflow	Intermittent	
Mean depth	6	m	Outflow channel	Present	
Maximum depth	16	m			

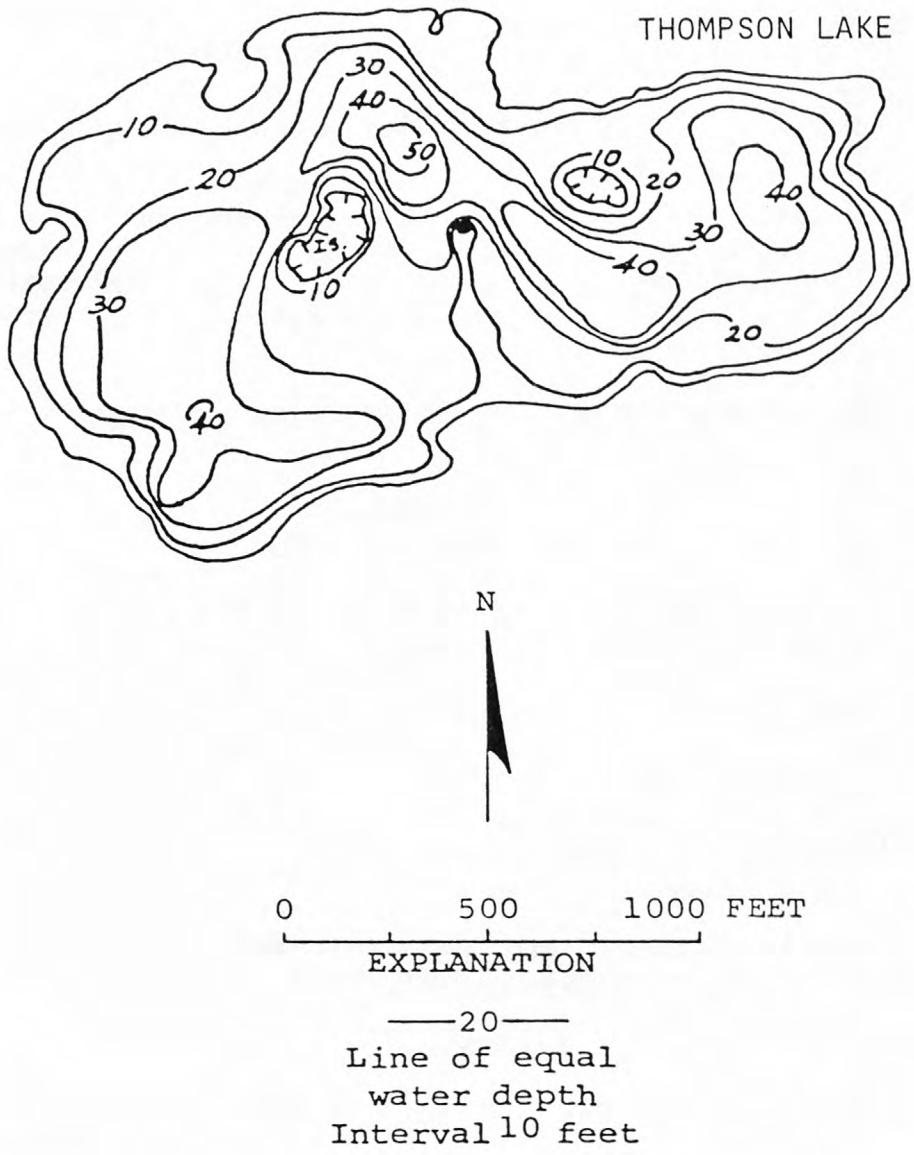
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	7/16/73	
Time	1300	1305
Depth (m)	1	9
Total nitrite plus nitrate (N)	0.02	0.02
Total kjeldahl nitrogen (N)	-----	-----
Total ammonia (N)	0.03	0.03
Total organic nitrogen (N)	-----	-----
Total phosphorus (P)	0.002	0.002
Specific conductance (micromhos)	9	9
Water temperature (°C)	16.7	8.9
Secchi-disc visibility (m)	>10	
Dissolved oxygen	9.0	10.2

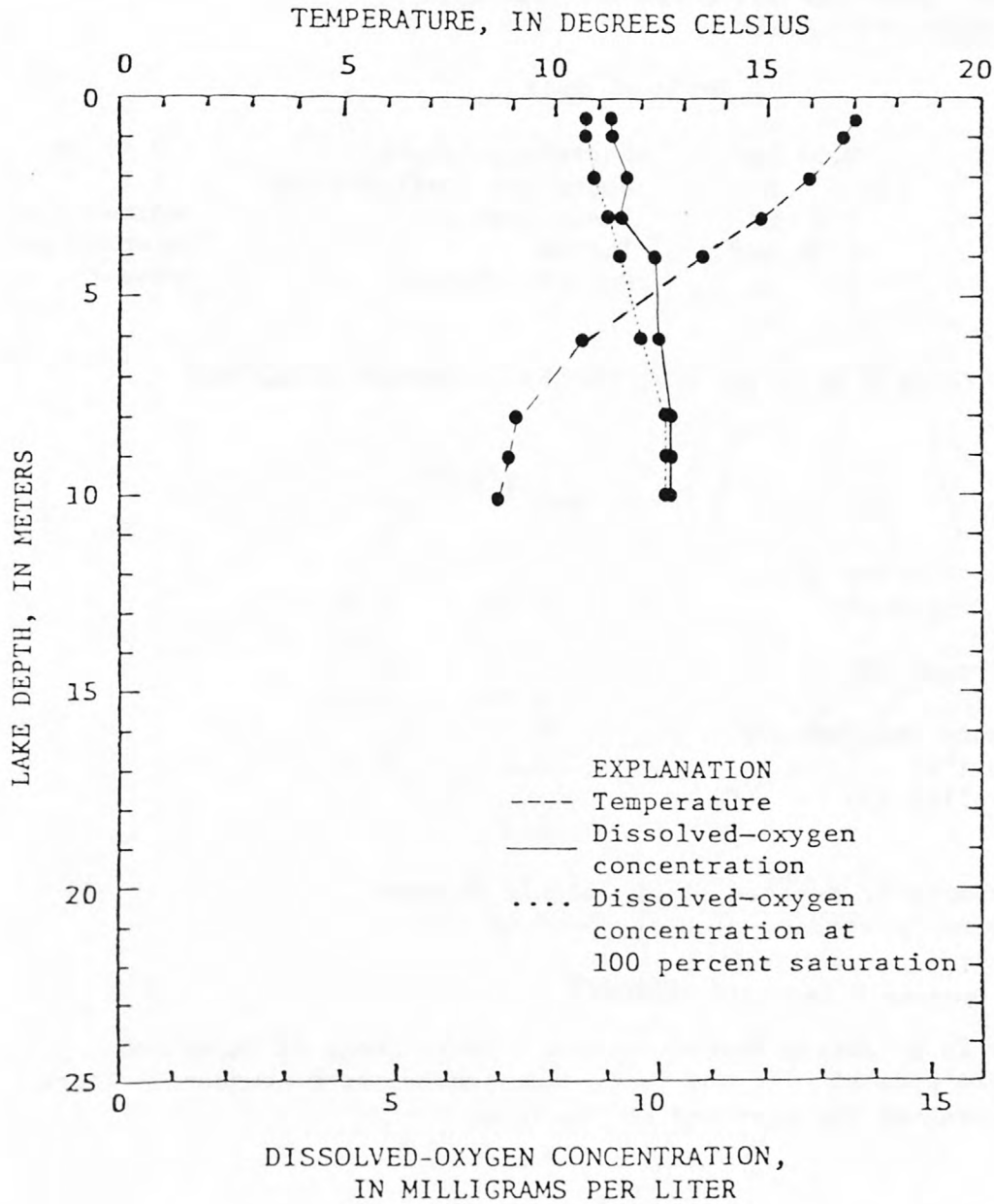
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

No aquatic plants were observed. The lake has several islands.



Thompson Lake, King County. From U.S. Geological Survey, September 5, 1974.



Thompson Lake, King County. From U.S. Geological Survey, July 16, 1973.

TOP LAKE KING COUNTY

Latitude 47°39'25" Longitude 121°20'14" T25N-R11E-S24
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	0.37 km^2	Shoreline length	0.46 km
Altitude	1445 m	Shoreline configuration	1.1
Lake area	1.4 ha	Basin geology	Sedimentary
Lake volume	0.09 hm^3	Inflow	Intermittent
Mean depth	6 m	Outflow channel	Present
Maximum depth	11 m		

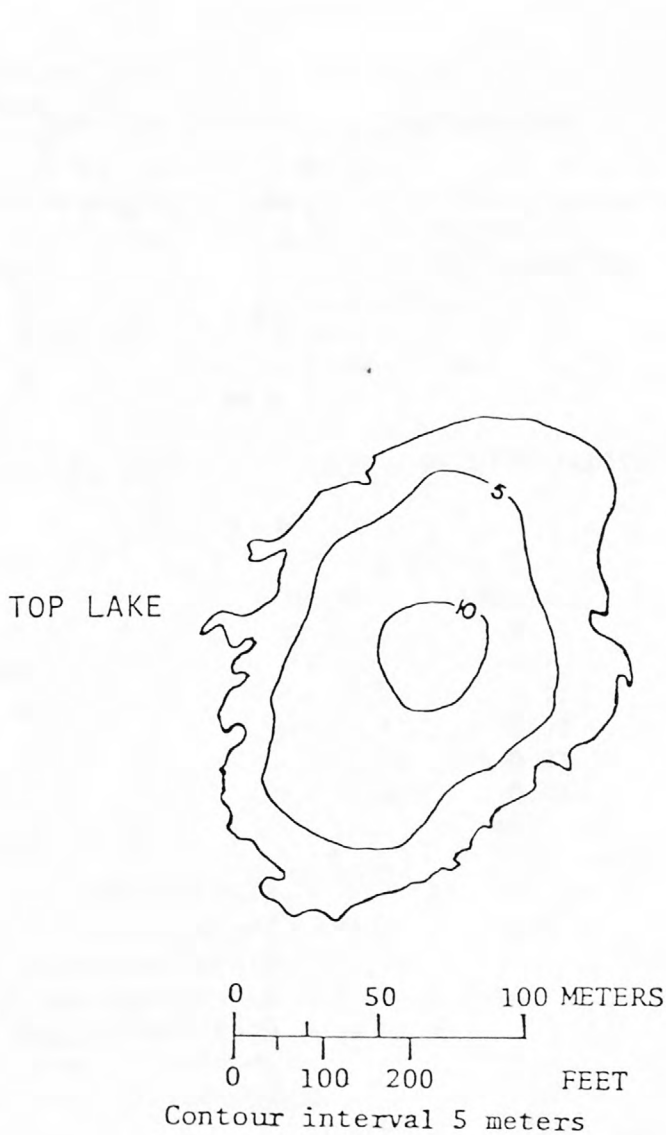
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/28/78	
Time	1800	1805
Depth (m)	1	9
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.15	0.06
Total ammonia (N)	0.01	0.01
Total organic nitrogen (N)	0.14	0.05
Total phosphorus (P)	0.004	0.004
Specific conductance (micromhos)	35	44
Water temperature (°C)	13.3	20.7
Secchi-disc visibility (m)	>9.5	
Dissolved oxygen	8.3	8.5

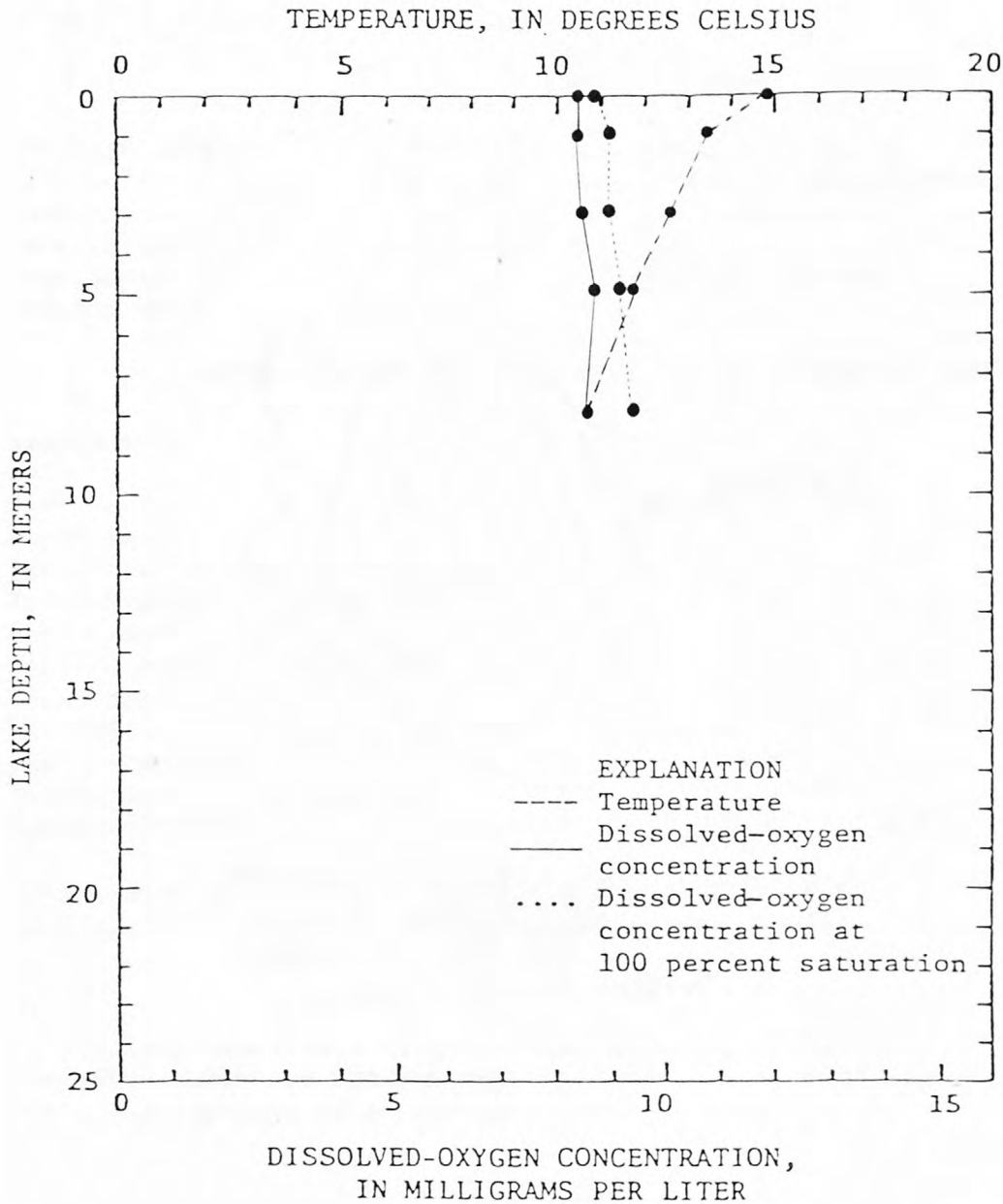
Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

A small lake in a largely forested basin. Small areas of talus and vegetated talus are present near the lake. Zooplankton were abundant. There was a log jam located at the east end of the lake.



Top Lake, King County. From
U.S. Geological Survey, August 28, 1978.



Top Lake, King County. From
U.S. Geological Survey, August 28, 1978.

TOP LAKE POTHOLE KING COUNTY

Latitude 47°39'23" Longitude 121°20'2" T25N-R11E-S24
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	0.47 km^2	Shoreline length	0.25 km
Altitude	1311 m	Shoreline configuration	1.2
Lake area	0.4 ha	Basin geology	Sedimentary
Lake volume	0.01 hm^3	Inflow	Intermittent
Mean depth	2 m	Outflow channel	Present
Maximum depth	3 m		

WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

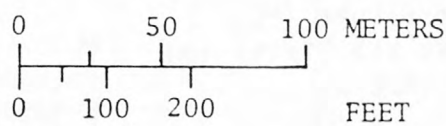
Sample site	1	
Date	8/28/78	
Time	1900	1905
Depth (m)	1	3
Total nitrite plus nitrate (N)	-----	-----
Total kjeldahl nitrogen (N)	0.20	0.12
Total ammonia (N)	0.02	0.01
Total organic nitrogen (N)	0.18	0.11
Total phosphorus (P)	0.003	0.013
Specific conductance (micromhos)	39	40
Water temperature (°C)	13.2	11.5
Secchi-disc visibility (m)	>3	
Dissolved oxygen	8.8	8.7

Lake shoreline covered by emersed plants Little or none
Lake surface covered by emersed plants None or <1%

REMARKS

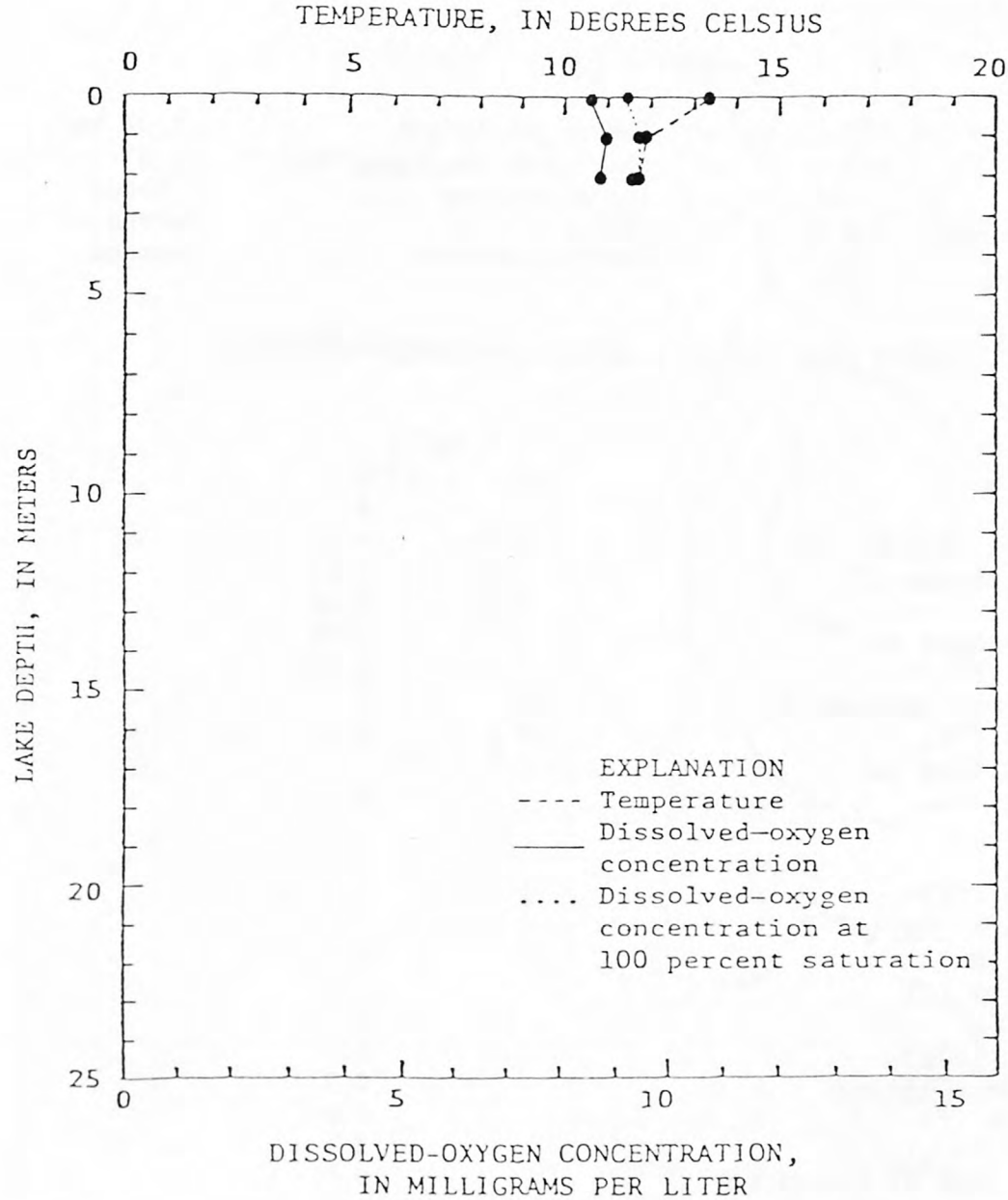
A small, shallow lake that contained numerous floating logs. Forested colluvial slopes and minor amounts of talus are present around the lake. Zooplankton and freshwater shrimp were abundant.

TOP LAKE POTHOLE LAKE



Contour interval 1 meter

Top Lake Pothole Lake, King County. From U.S. Geological Survey, August 28, 1978.



Top Lake Pothole King County, From U.S. Geological Survey, August 28, 1978.

TROUT LAKE KING COUNTY

Latitude 47°37'10" Longitude 121°18'44" T25N-R12E-S31
Snohomish River Basin, Foss River

PHYSICAL DATA

Drainage area	34.66	km^2	Shoreline length	1.07	km
Altitude	985	m	Shoreline configuration	1.2	
Lake area	6.3	ha	Basin geology	Igneous	
Lake volume	0.21	hm^3	Inflow	Perennial	
Mean depth	3	m	Outflow channel	Present	
Maximum depth	11	m			

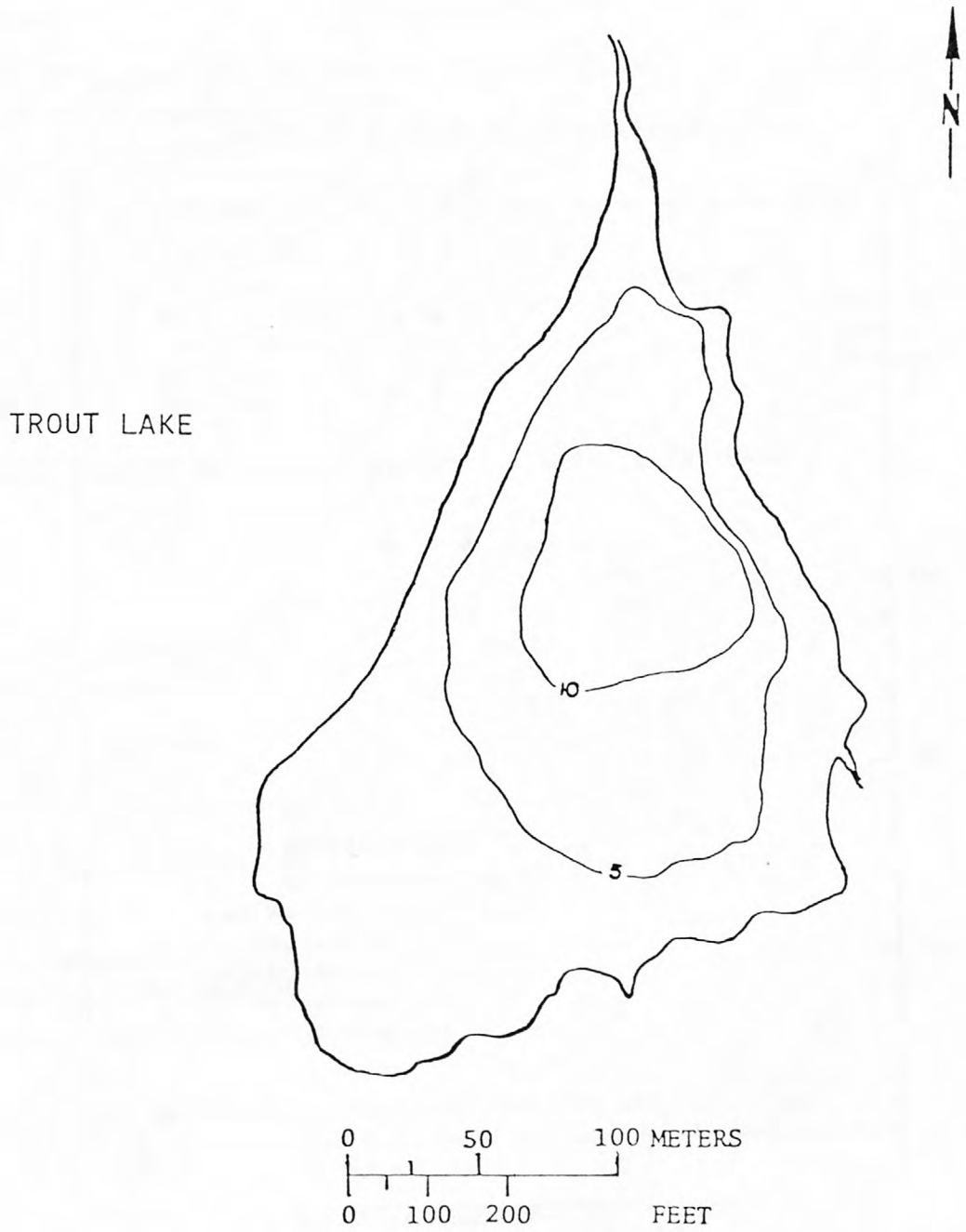
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/29/78	
Time	1730	1735
Depth (m)	1	9
Total nitrite plus nitrate (N)	0.01	0.01
Total kjeldahl nitrogen (N)	0.05	0.13
Total ammonia (N)	0.04	0.04
Total organic nitrogen (N)	0.01	0.09
Total phosphorus (P)	0.006	0.021
Specific conductance (micromhos)	13	11
Water temperature (°C)	14.6	12.3
Secchi-disc visibility (m)	>9	
Dissolved oxygen	8.6	8.3
Hardness (Ca, Mg)		4
Dissolved calcium (Ca)		1.1
Dissolved magnesium (Mg)		0.4
Dissolved sodium (Na)		0.7
Dissolved potassium (K)		0.2
Alkalinity as $CaCO_3$		4
Dissolved sulfate (SO_4)		1.4
Dissolved chloride (Cl)		0.5
Dissolved fluoride (F)		0.0
Dissolved silica (SiO_2)		2.1
Dissolved solids (sum of constituents)		9

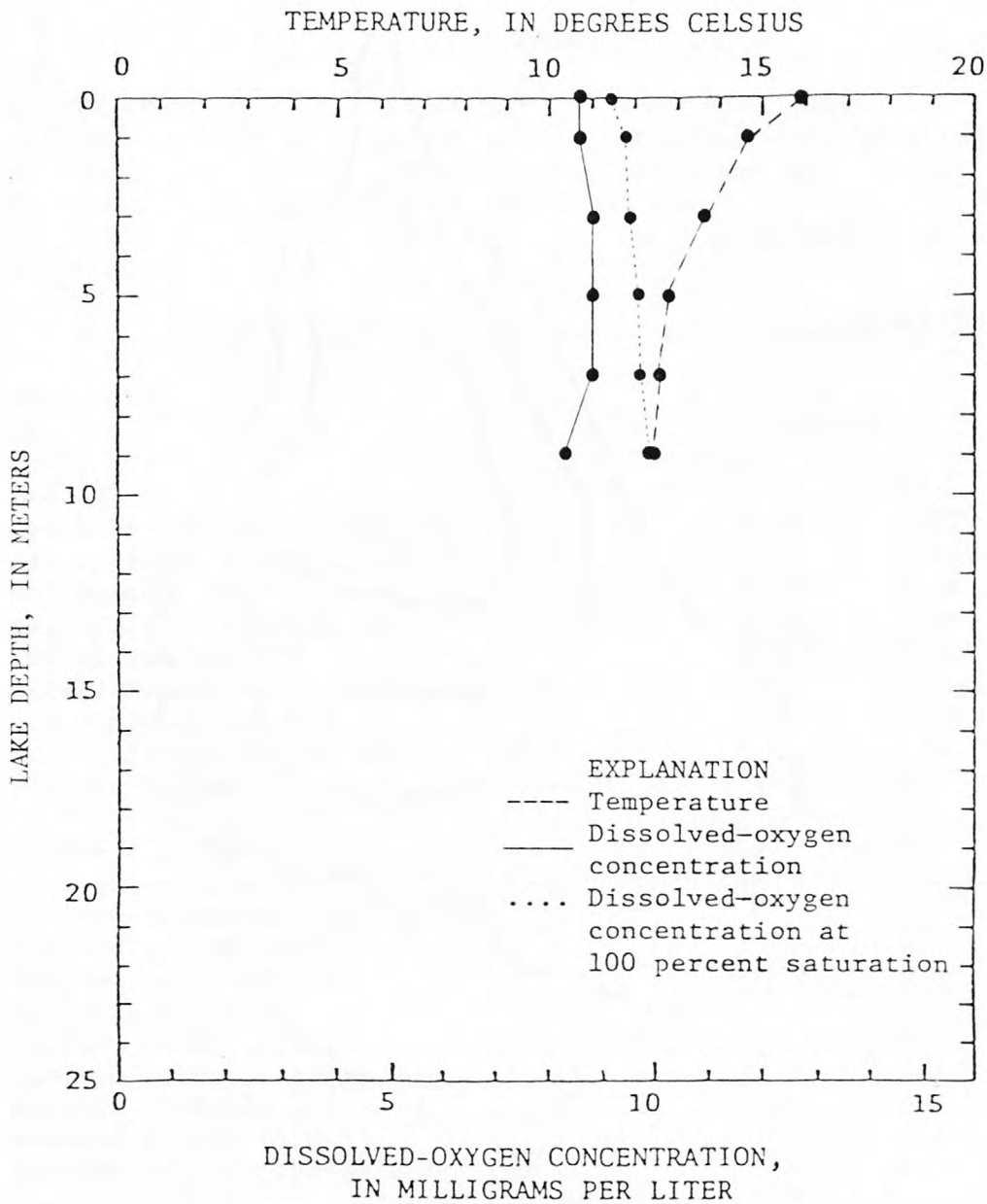
Lake shoreline covered by emersed plants 26-50%
Lake surface covered by emersed plants None or <1%

REMARKS

A small, shallow lake with a large wet area to the south of the lake. Most of the lake is surrounded by forested colluvial slopes, but minor amounts of vegetated talus and bedrock are also present. Zooplankton were moderately abundant; considerable emerged vegetation was present. Bottom sediments contain abundant organic matter.



Trout Lake, King County. From
U.S. Geological Survey, August 29, 1978.



Trout Lake, King County. From U.S. Geological Survey, August 29, 1978.

TUSCOHATCHIE LAKE KING COUNTY

Latitude 47°26'22" Longtitude 121°29'57" T23N-R10E-S35
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	4.56	km^2	Shoreline length	1.45	km
AItitude	1043	m	Shoreline configuration	1.2	
Lake area	10.5	ha	Basin geology	Igneous	
Lake volume	2.1	hm^3	Inflow	Perennial	
Mean depth	19	m	Outflow channel	Present	
Maximum depth	40	m			

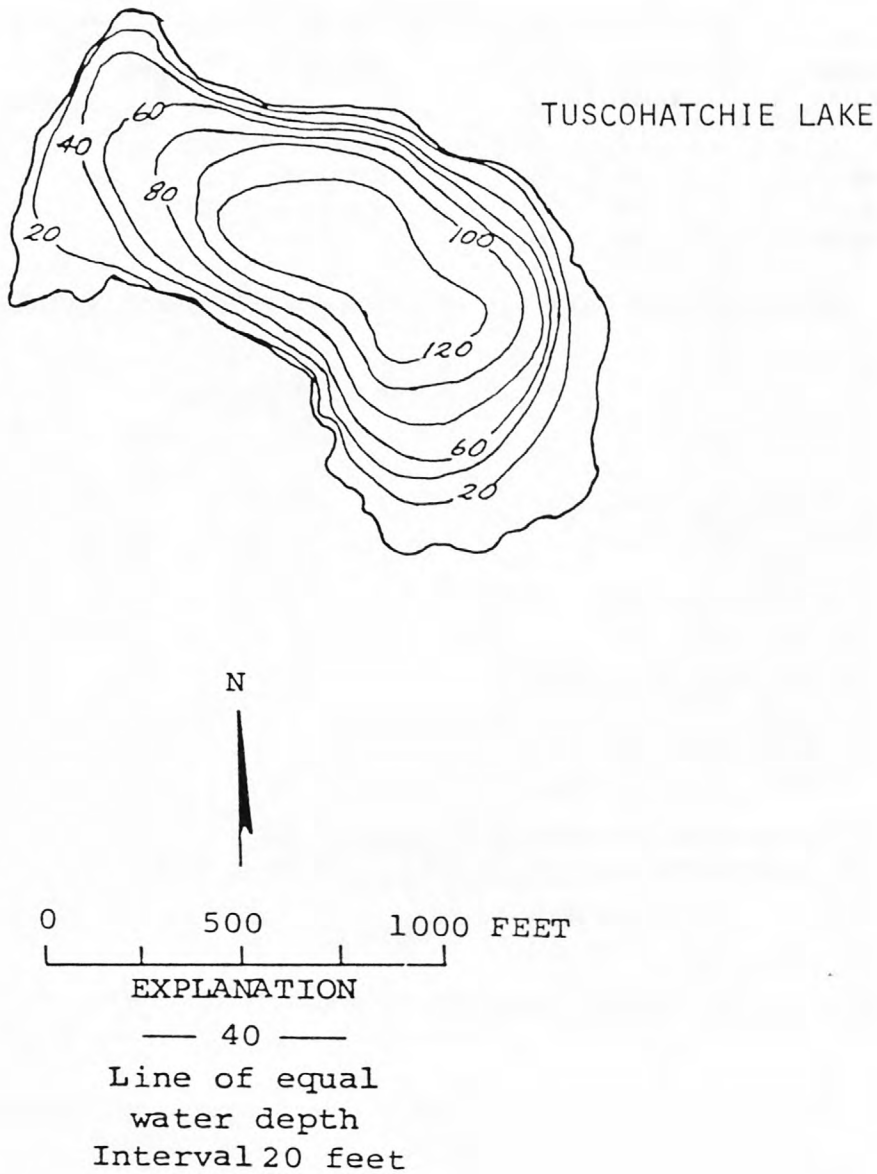
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/28/74	
Time	1630	1635
Depth (m)	1	38
Total nitrite plus nitrate (N)	0.02	0.06
Total kjeldahl nitrogen (N)	0.13	0.13
Total ammonia (N)	0.03	0.03
Total organic nitrogen (N)	0.10	0.10
Total phosphorus (P)	0.002	0.004
Specific conductance (micromhos)	14	15
Water temperature (°C)	15.3	4.0
Secchi-disc visibility (m)	12	
Dissolved oxygen	9.2	5.2

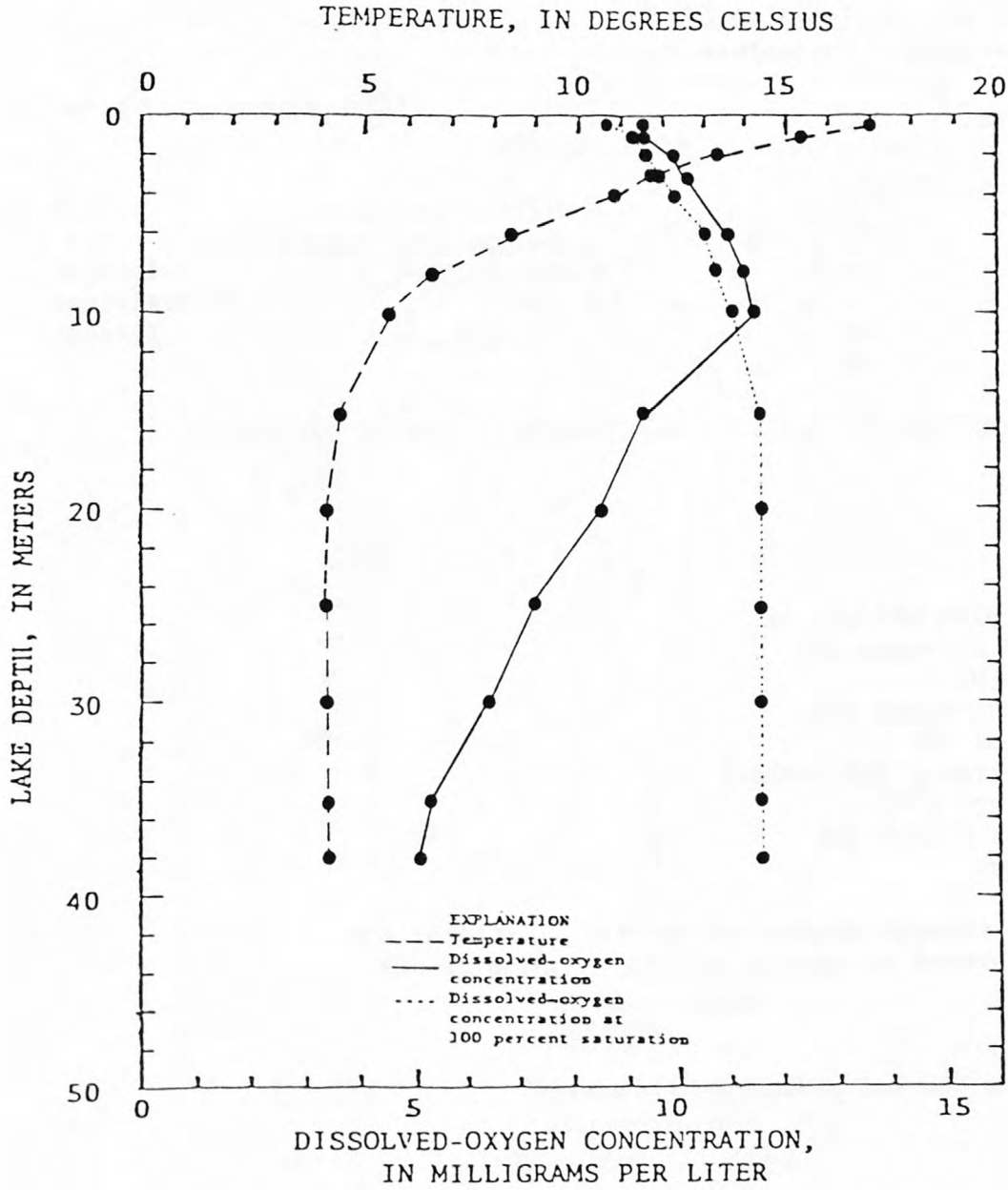
Lake shoreline covered by emersed plants 1-10%
Lake surface covered by emersed plants None or <1%

REMARKS

The lake has a large inflow from Upper Tuscohatchie Lake.



Tuscohatchie Lake, King County. From U.S. Geological Survey, September 17, 1974.



Tuscohatchie Lake, King County. From U.S. Geological Survey, August 28, 1974.

WILDCAT, UPPER LAKE KING COUNTY

Latitude 47°29'14" Longitude 121°29'9" T23N-R10E-S11
Snohomish River Basin, Snoqualmie River

PHYSICAL DATA

Drainage area	1.19	km^2	Shoreline length	2.25	km
Altitude	1286	m	Shoreline configuration	1.4	
Lake area	19.4	ha	Basin geology	Igneous	
Lake volume	4.44	hm^3	Inflow	Intermittent	
Mean depth	22	m	Outflow channel	Present	
Maximum depth	58	m			

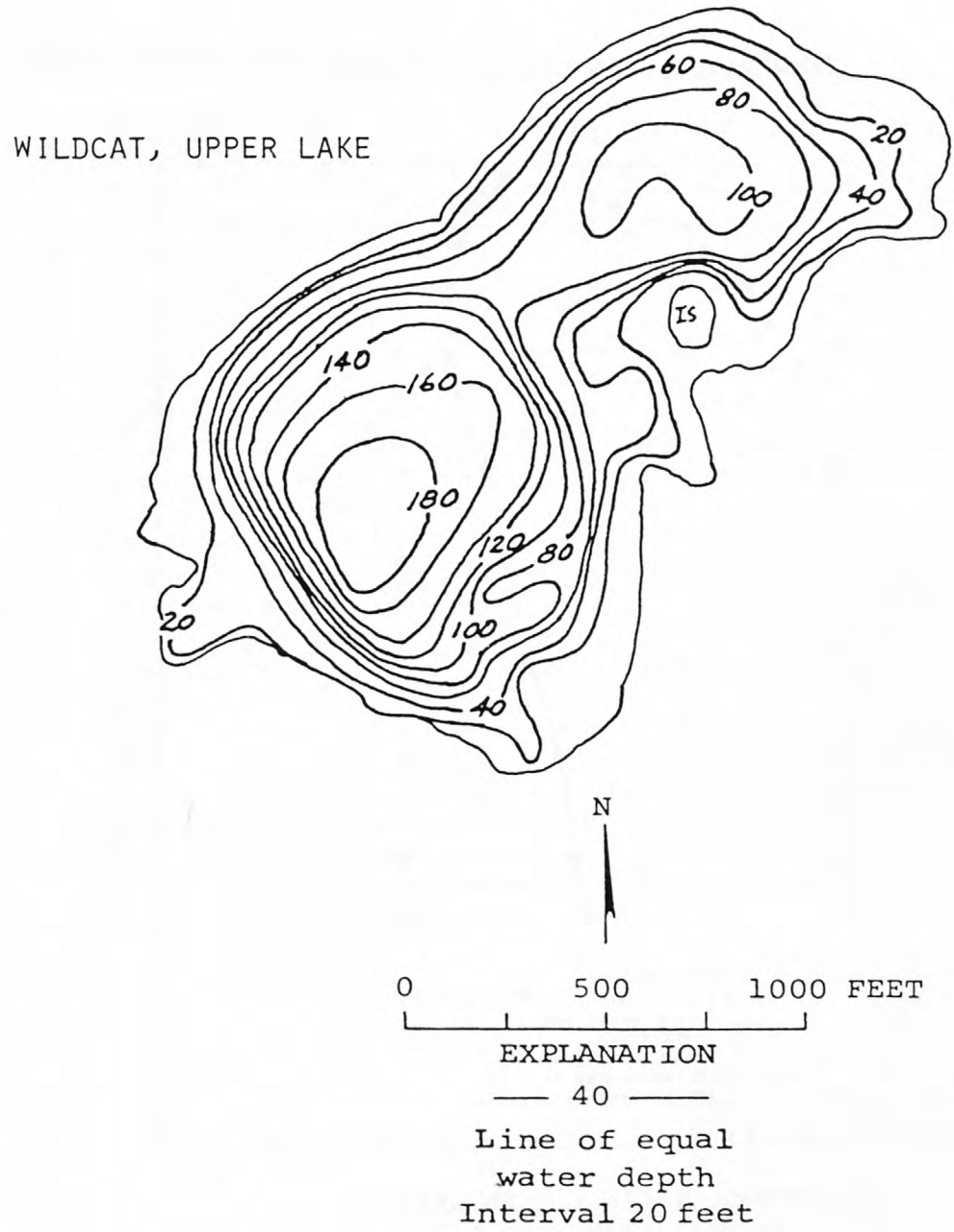
WATER QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

Sample site	1	
Date	8/29/74	
Time	1100	1105
Depth (m)	1	38
Total nitrite plus nitrate (N)	0.01	0.02
Total kjeldahl nitrogen (N)	0.08	0.10
Total ammonia (N)	0.01	0.02
Total organic nitrogen (N)	0.07	0.08
Total phosphorus (P)	0.000	0.000
Specific conductance (micromhos)	10	6
Water temperature (°C)	10.8	4.0
Secchi-disc visibility (m)	18	
Dissolved oxygen	9.8	8.0

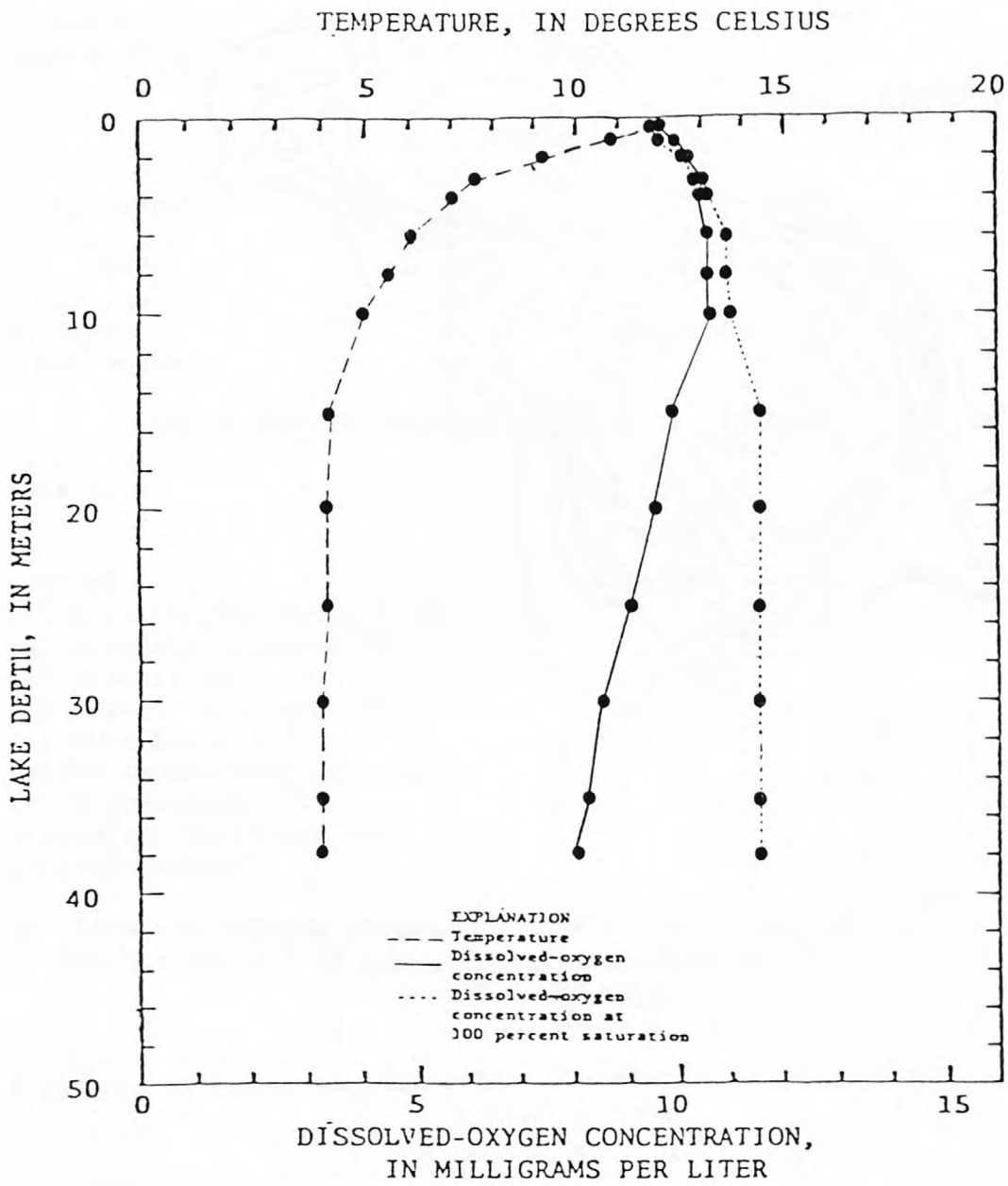
Lake shoreline covered by emersed plants	Little or none
Lake surface covered by emersed plants	None or <1%

REMARKS

No emersed or submersed plants were observed.



Wildcat, Upper Lake, King County. From U.S. Geological Survey, September 7, 1974.



Wildcat, Upper Lake, King County. From U.S. Geological Survey, August 29, 1978.

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