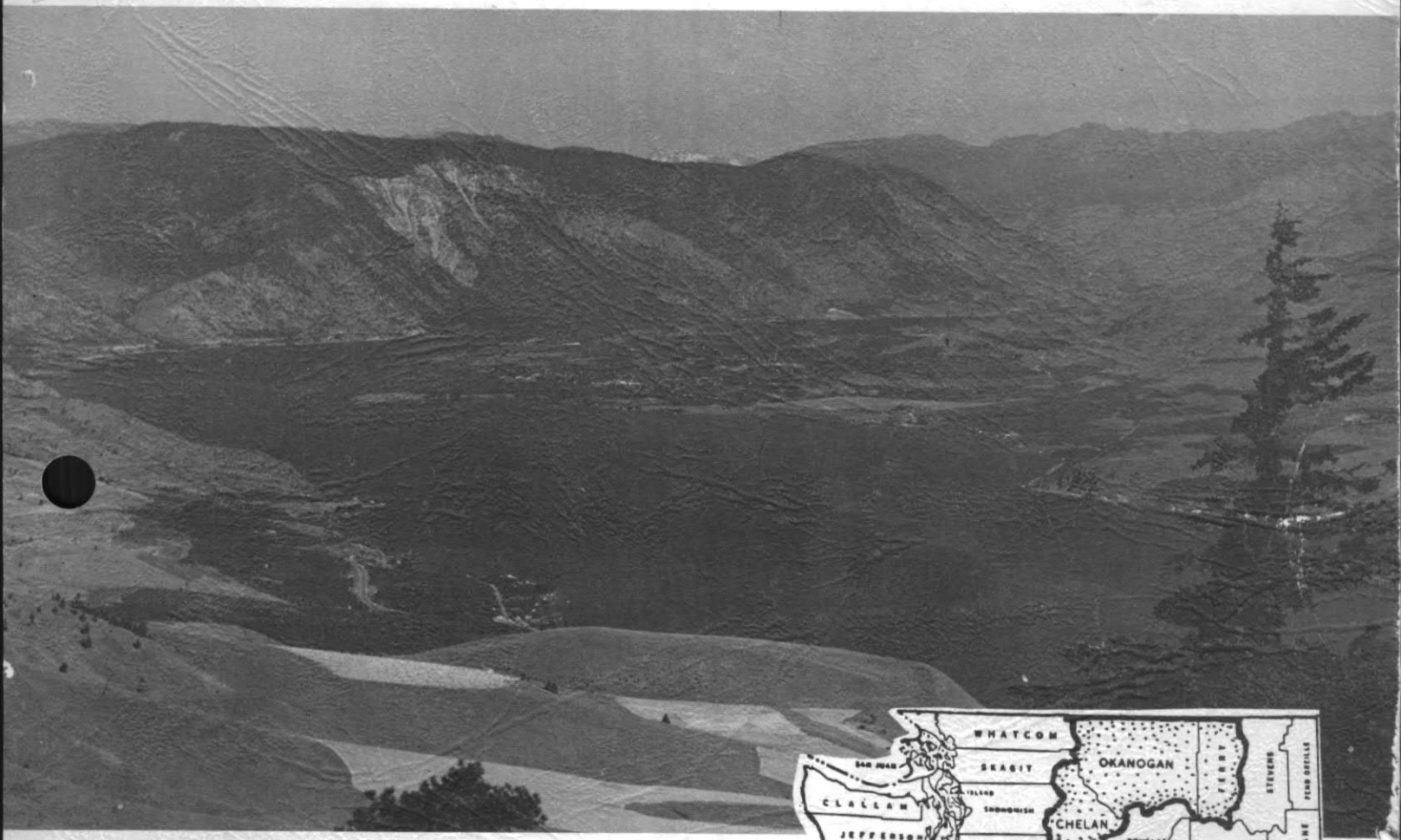
RECONNAISSANCE DATA ON LAKES IN WASHINGTON VOLUME 5

CHELAN, FERRY, KITTITAS, KLICKITAT, OKANOGAN, AND YAKIMA COUNTIES



STATE OF WASHINGTON
DANIEL J. EVANS, Governor

DEPARTMENT OF ECOLOGY
JOHN A. BIGGS, Director

Water-Supply Bulletin 43, Vol. 5

Prepared in Cooperation with
United States Department of the Interior
Geological Survey • 1976

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RECONNAISSANCE DATA ON LAKES IN WASHINGTON

VOLUME 5

CHELAN, FERRY, KITTITAS, KLICKITAT, OKANOGAN, AND YAKIMA COUNTIES

By

N. P. Dion, G. C. Bortleson, J. B. McConnell, and L. M. Nelson

Prepared in cooperation with

UNITED STATES GEOLOGICAL SURVEY

1976

The following factors are provided for conversion of English values used in this report to metric values:

Multiply	By	To obtain
Inches	2.54	centimetres (cm)
Feet (ft)	.3048	metres (m)
Miles (mi)	1.609	kilometres (km)
Cubic feet (ft^3)	.02832	cubic metres (m^3)
Square miles (sq mi)	2.590	square kilometres (km^2)
Acres	4047.	square metres (m^2)
	.4047	hectares (ha)
Cubic feet per second (ft^3/s)	.02832	cubic metres per second (m^3/s)

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ILLUSTRATION

RECONNAISSANCE DATA ON LAKES IN WASHINGTON
VOLUME 5

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ABSTRACT

A total of 87 lakes in six counties of east-central Washington was sampled using helicopter or boat to obtain information on their physical, cultural, and water-quality conditions. The basic data presented will be useful to planning groups involved in lake management and to sportsmen, tourists, and others interested in Washington's lakes.

INTRODUCTION

The State of Washington has more than 7,800 lakes, ponds, and reservoirs (Wolcott, 1964 and 1965), many of which provide excellent recreational opportunities and supply water for agricultural, municipal, and industrial purposes. These water bodies constitute an important part of the State's total water resources and are an integral part of the hydrology of many drainage basins.

This is the fifth of a seven-volume series of reports on Washington lakes and contains data from 87 lakes in Chelan, Ferry, Kittitas, Klickitat, Okanogan, and Yakima Counties in the east-central part of the State (fig. 1).

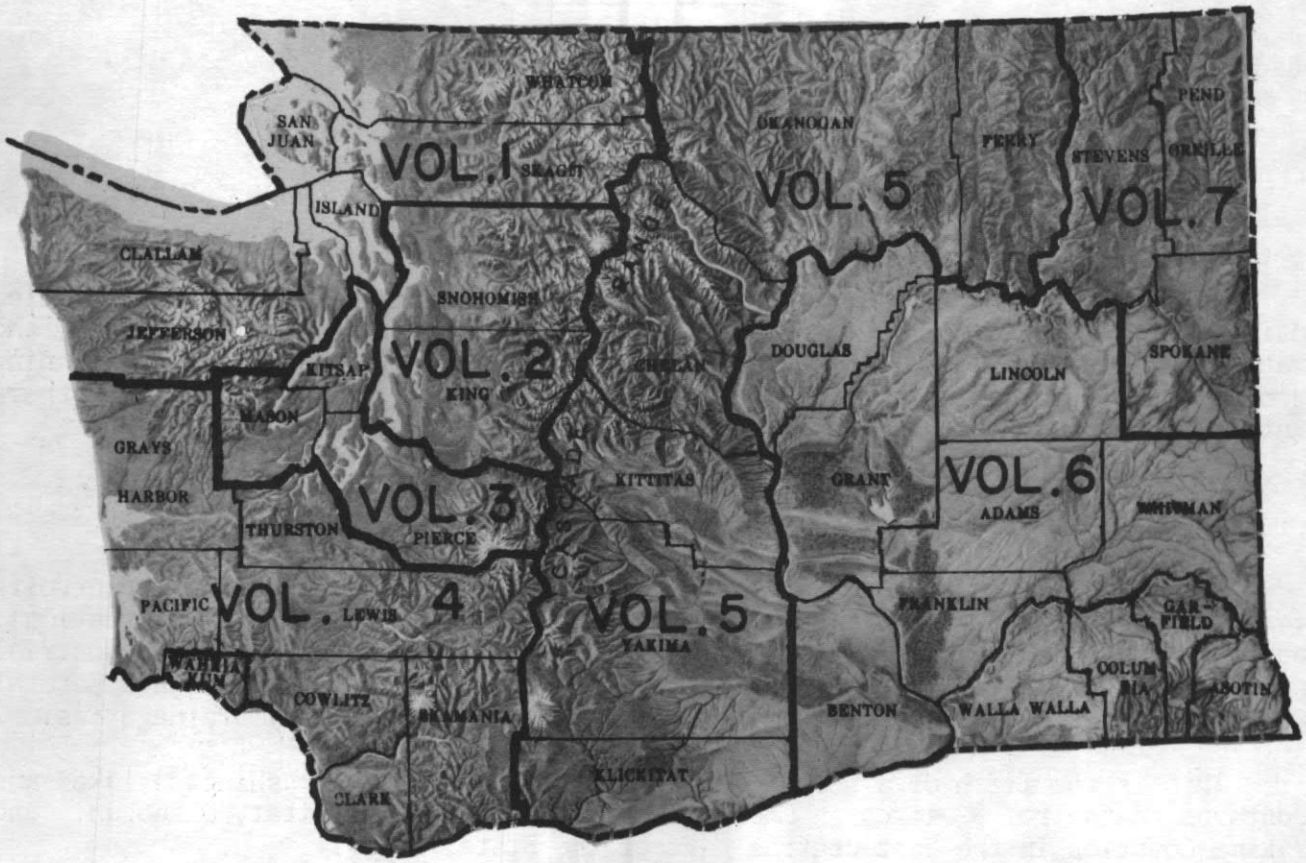

FIGURE 1.--Location of counties covered in each of seven-volume report series.

Purpose and Scope

Although both the importance and value of the Washington lakes are widely recognized, the quantity and types of information currently available for most of the lakes are not adequate to provide the understanding needed for wise management of the lakes. Thus, the need to obtain additional information about lakes resulted in the initiation in 1970 of a cooperative program between the Washington State Department of Ecology and the U.S. Geological Survey, whereby selected lakes in Washington would be investigated (Collings, 1973; Bortleson and others, 1974). Because the program--designed for the study of approximately 25 lakes per year during fiscal years 1970-74--deals with only a small fraction of the total number of lakes in the State, a reconnaissance study involving several hundred lakes was undertaken to provide preliminary information for use by planning groups as well as sportsmen, tourists, and others interested in preserving the water quality of Washington's lakes.

In general, the study consists of a data-collection program designed to (1) document the present water quality and the overall status of the lakes, and (2) provide basic data pertaining to the physical, cultural, and water- quality characteristics of the lakes.

More than 750 lakes in all but four counties of the State were studied; these are equally distributed between western and eastern Washington. Most of the lakes investigated were 20 acres or larger in size and were selected because they constitute shorelines of the State covered under the Shoreline Management Act of 1971 (Washington State Department of Ecology, 1973). However, some of the lakes listed as constituting shorelines of the State were not sampled; these included marshes with no open water or intermittent lakes which were dry at the time of visit.

Acknowledgments

The authors gratefully acknowledge the assistance of the State of Washington Department of Game for permission to reproduce many of the lake bathymetric maps. Many other bathymetric maps were reproduced from those in the reports by Wolcott (1964, 1965).

Occurrence of Lakes in Washington

Lakes in Washington occur under various geologic conditions. In the Puget Sound Lowland of western Washington most lakes occupy depressions in the surface of glacial drift--the sand, gravel, silt, clay, and till laid down by the Puget lobe of continental glaciers during the ice age. These depressions are either elongate troughs cut by the passing ice sheet or are more circular kettles formed by the melting of stagnant ice blocks.

In the adjacent foothills of the Cascade Range and Olympic Mountains, most lakes occupy depressions eroded into the bedrock by the passing continental glacier, while lakes in the higher mountains are in basins cut by local alpine glaciers.

In eastern Washington, lakes in the higher northern areas--the Okanogan Highlands and Selkirk Mountains--and on the eastern slope of the Cascade Range generally occur in glacier-cut depressions in bedrock. In the semiarid Columbia Plateau, underlain by basalt, most lakes occupy the more deeply cut parts of some coulees of the channeled scablands. Most of these coulees were cut by gigantic, catastrophic floods (Bretz, 1959) resulting from the breaking of ice dams and the rapid emptying of large glacial lakes.

Many lakes have been formed, or increased in size, by man's activities. Numerous reservoirs are located in mountain valleys and serve a variety of purposes, including municipal water supply, irrigation, electrical-power generation, flood control, and recreation. In lowland areas some natural lakes have been enlarged or new lakes have been formed by small dams. In the Columbia Basin Irrigation Project area of eastern Washington, several lakes have been enlarged and reservoirs (Banks Lake and Potholes Reservoir) have been created in conjunction with large-scale irrigation by water diverted from the Columbia River at Grand Coulee Dam. Also, numerous small lakes and ponds have resulted from irrigation in the area.

Data Collected and Definitions

The data collected and the lake parameters used in describing the individual lakes are explained here, prior to presentation of the data for each lake. The parameters are discussed in the sequence in which they appear on the data sheets. The definitions of additional limnological and hydrological terms used throughout the report are found in the Glossary (p. 11).

Lake name. The lake name was taken from U.S. Geological Survey topographic maps. Duplicate lake names are followed by location designations for uniqueness. Lakes that are not named on the topographic map and for which no local name is known are referred to as "unnamed," followed by a location designation. Only the proper name of the lake is given; in common usage the term "Lake" may either precede or follow the proper name. All adjectives (for example, Big, East, and Upper) follow the lake name. When a lake has two names, both are given, but priority is given to the topographic-map name. The lake names and respective data are listed alphabetically by counties.

Location. Latitude, longitude, township, range, and section location were determined from U.S. Geological Survey quadrangle maps. The location point is the lake outlet. For lakes without outlets, the southernmost shoreline point is used. The lakes are presented in the report according to the county in which the location point occurs.

Drainage basin. The major drainage system in which the lake is located was determined. Some of the lakes are in closed basins that have no surface outlets.

Physical data. Physical parameters were determined from topographic and bathymetric (bottom-contour) maps of the lakes. If bathymetric maps were not available, the lakes were sounded and charted by boat using a continuous-recording fathometer. For lakes with no boat access, a helicopter equipped with a fathometer, pontoons, and a conventional outboard motor was used to chart the lake. By use of aerial photographs and lake depths, the bathymetric data were digitized and transferred to computer cards which served as input to a computerized program that calculated lake morphometric parameters (for example, lake volume, surface area, and length of shoreline).

Drainage area.--The surface-drainage area that contributes water to the lake is given in square miles (sq mi). These areas were delineated on U.S. Geological Survey topographic maps and measured by planimeter. Some lakes are in drainage basins of low rainfall in which surface runoff to the lake may not be a significant factor. Nevertheless, in all cases the drainage area was determined according to topographic divide. The natural drainage area is often altered by the existence of canals, ditches, and diversions for irrigation, power supply, and other uses. In such cases the drainage area was not measured.

Surface altitude.--A single altitude in feet (ft) above mean sea level (msl), obtained from topographic maps, is given for each lake. If not specifically shown on the map, altitudes are estimated from the nearest contour line. The altitude of a reservoir is given as the level of the water surface at normal full reservoir capacity.

Surface area (A).--The surface area of the lake, in acres, was obtained from planimetry of the lake outline or from computerized calculations of digitized data.

Volume (V).--Lake volume, in acre-feet, was obtained either by computing and then summing the volumes of each stratum of water between successive contours on the bathymetric map or by calculating from digitized data. Because lake volume can vary between seasons and from year to year, the volume figures reported (as well as other morphometric data) are intended only to describe the general size of the lake.

Mean depth ($\bar{Z}$).--The mean depth, in feet, for a specified lake stage, was obtained by dividing the volume of the lake by its area.

Maximum depth (Z_m).--The difference in elevation, in feet, between the bottom and the surface of the lake. The maximum depth obtained from field surveys may not necessarily be shown on the bathymetric maps.

Length of shoreline (L).--The distance around, or perimeter, in miles, of the water surface touching the shore at a specified lake stage. The shoreline length depends on the fineness of detail of the shore outline on the bathymetric map.

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 old drainages or by the damming of streams to form a lake in the valley behind a dam.

High values for shoreline configuration suggest the presence of shallow water and protected bays--areas suitable for plant growth--and also indicate an increase in contact between land and water. Therefore, shoreline configuration is often an indirect indicator of plant growth capacity and enrichment potential from nearshore development and runoff.

Development of volume (D_V).--The development of volume is defined as the ratio of the mean depth ($\bar{Z}$) to the maximum depth (Z_m). Thus, lakes with a low D_V ratio are usually conical-shaped depressions, and lakes with a high D_V ratio are steep-sided with flat bottoms. Shallow lakes, which have large D_V values, tend to provide a greater opportunity for exposure of bottom sediments to overlying water and for circulation of bottom nutrients.

Bottom slope (Z_r).--The slope profile of a lake bottom, expressed as a percentage ratio of the maximum depth to the mean lake diameter (referred to by Hutchinson, 1957, p. 167, as relative depth) and given as

$$Z_r = \frac{Z_m \times 50\sqrt{\pi}}{\sqrt{A}} .$$

Bottom slope is a measure of the extent of shallow water and is important to the growth of rooted aquatic plants and potential for wind mixing of water with bottom sediments.

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 underlain by either (1) unconsolidated sedimentary deposits and (or) metasedimentary rocks, or (2) igneous rocks.

Inflow. Perennial or intermittent surface inflow is indicated, if known. Some lakes have no visible inflow, and water gain is from direct precipitation on the lake and (or) from ground-water seepage.

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

Cultural data. Data related to cultural development were obtained from topographic maps, aerial photographs, and shoreline reconnaissance by helicopter or boat.

Nearshore residential development.--The percentage of shoreline occupied by residential development was determined from aerial photographs.

Number of nearshore homes.--A count of the number of nearshore homes adjoining the lakefront was made from field observations, topographic maps, or aerial photographs.

Land use.--The drainage basins of the lakes were partitioned into various generalized land-use categories. Values given reflect the percentages of the basin used primarily for forest or for residential urban, residential suburban, or agricultural development. The lake surface is also given as a percentage of the total drainage basin. A general description of the land-use categories is as follows:

a. Residential urban.--Predominant use is for single-family residences, where apartment complexes and commercial or industrial activities also may be present.

b. Residential suburban.--Predominant use is single-family residences.

c. Agricultural.--Pasture or cropland.

d. Forest or unproductive.--Public and private forest lands and tree farms. Lands may include cleared or fallow unproductive land, meadows, wetlands, and seasonal recreational areas.

e. Lake surface.--Includes surface area of the lake and of upstream tributary lakes.

Public boat access to lake.--The presence of a public boat access is indicated. Most public boat access facilities are maintained by the State of Washington Department of Game. The location of the boat access (symbol ▲) is shown on the bathymetric map.

Water-quality data. From helicopters fitted with pontoons or from boats, vertical profiles of temperature and DO (dissolved oxygen) concentration were measured in the deepest part of each lake. Multiple sites were sampled on lakes with areas greater than 1,000 acres and on irregular-shaped lakes. Secchi-disc visibility was also determined. Water samples were collected for color, nutrient, and specific-conductance analyses at depths 3.0 feet below the water surface and 3-5 feet above the lake bottom. Lakes less than 5 feet deep were sampled at about one-third and two-thirds the depth of the lake. 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 during aerial reconnaissance. Samples for fecal-coliform bacteria were collected at selected nearshore sites, approximately 100 feet offshore at a depth of 1 foot below the water surface.

Information from most of the lakes was collected during the periods of July-September 1973 or May-September 1974. In 1974, six of the lakes were sampled four times by the U.S. Geological Survey. For those lakes, the data from the midsummer sample period are presented. All samples were collected and analyzed according to accepted standardized procedures (American Public Health Association and others, 1971; Brown and others, 1970; and Slack and others, 1973).

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. Whatever 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 depths included total nitrate, nitrite, ammonia and organic nitrogen, phosphorus, and orthophosphate.

Specific conductance.--Specific conductance is a measure of the water's ability to conduct an electric current and is expressed in micromhos per centimetre at 25°C (Celsius). Because the specific conductance is related to the number and specific chemical types 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 water 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, 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 of cold-water fisheries resources.

Color.--Color is one control of light transmission through water. High color values often result from the decomposition of vegetation, giving the water a brown, tea-like color and reducing water clarity. Color value is determined by a comparison of the water with standardized colored-glass discs and is reported in platinum-cobalt (Pt-Co) units.

Secchi-disc visibility.--Secchi-disc visibility is the depth at which a black and white disc (8 inches 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 salinity 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 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 hypolimnetic-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 litre) according to the Federal Water Pollution Control Administration (1968).

Emersed plants.--These are large plants that can be seen without magnification. Examples of emersed plants include cattails and sedges in which the leaves or other structures extend above the water surface. 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. Descriptive information.
2. Qualifying statements.
3. Availability of additional information.
4. Unusual lake or drainage-basin characteristics.

Bathymetric maps. Bathymetric maps are presented for most of the lakes. The map source and date of the survey are indicated. Some of the bathymetric maps produced by the U.S. Geological Survey are shown superimposed on the aerial photographs.

Aerial photographs. Vertical aerial photographs are presented for most of the lakes. Black-and-white photographs at approximate scales of 1:12,000 and 1:63,000 were obtained from the State of Washington Department of Natural Resources. For some of the lakes for which vertical photographs were not available, oblique photos taken in the field at the time of sampling were substituted.

GLOSSARY

Acre-foot. Volume of water required to cover 1 acre to a depth of 1 foot, and equal to 43,560 ft^3 (325,851 gallons).

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 a particular algal species. A condition when water looks green because of the abundance of planktonic algae.

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

Cirque. A deep, steep-walled recess in a mountain caused by glacial erosion.

Cultural eutrophication. The acceleration of the natural process of nutrient enrichment in a lake as a result of man's activities.

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

Epiphytic. Living, but not parasitic, on the surface of plants.

Eutrophication, eutrophic. The enrichment of water, a natural process that may be accelerated by the activities of man; pertains to waters in which primary productivity is generally high as a consequence of a large supply of available nutrients.

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

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

Limnology. The study of fresh waters, especially that of lakes.

Littoral. The shoreward region of a body of water.

Macrophyte. Large plants that can be seen without magnification; includes mosses and seed plants.

Marsh. Periodically wet or continually flooded areas where the surface is not deeply submerged, covered dominantly with sedges, cattails, rushes, or other plants that require marshy conditions for their growth.

Morphometry. Definition of physical shape and size, as of a water body.

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.

Plankton. Suspended 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 lives and completes its life cycle entirely below the surface of the water. Examples of submersed plants include water milfoil, pondweed, and elodea.

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

Zooplankton. The animal portion of the plankton.

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BASIC DATA

ANTILON LAKE CHELAN COUNTY

LATITUDE 47°57'39" LONGITUDE 120° 9' 5" T29N-R21E-36
CHELAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2325. FT		
LAKE AREA	110. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	2100. ACRE-FT		
MEAN DEPTH	19. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	47. FT		
SHORELINE LENGTH	3.8 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	2.6		
DEVELOPMENT OF VOLUME	0.40		
BOTTOM SLOPE	1.9 %		
BASIN GEOLOGY	IGNEOUS		
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

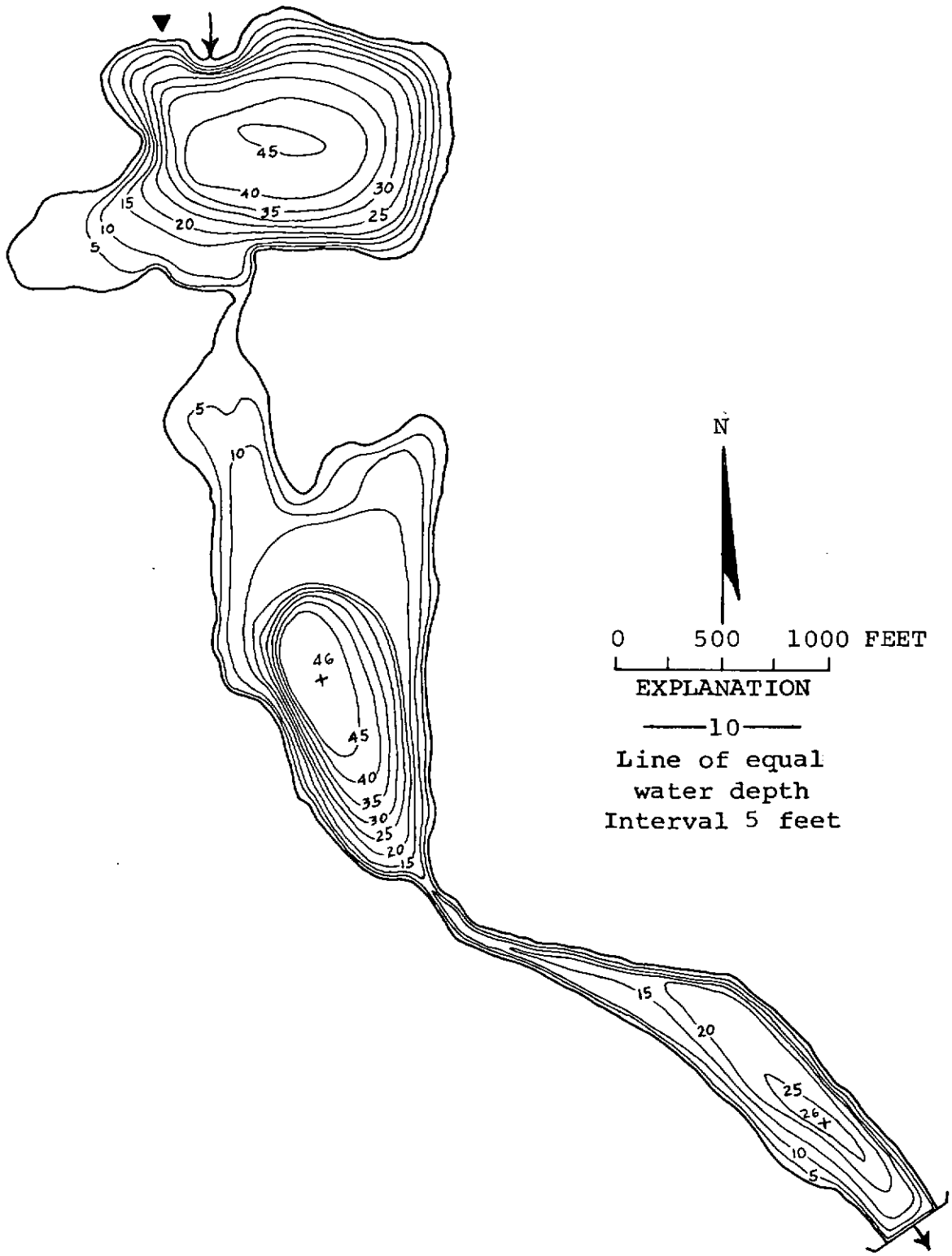
SAMPLE SITE	1		2	
DATE	7/29/74		7/29/74	
TIME	1035	1040	1140	1145
DEPTH (FT)	3.	59.	3.	69.
TOTAL NITRATE (N)	0.00	0.01	0.00	0.01
TOTAL NITRITE (N)	0.00	0.01	0.00	0.01
TOTAL AMMONIA (N)	0.05	1.7	0.01	1.3
TOTAL ORGANIC NITROGEN (N)	0.15	0.20	0.15	0.20
TOTAL PHOSPHORUS (P)	0.014	0.32	0.019	0.56
TOTAL ORTHOPHOSPHATE (P)	0.002	0.25	0.008	0.44
SPECIFIC CONDUCTANCE (MICROMHOS)	100	280	100	180
WATER TEMPERATURE (DEG C)	19.8	5.5	19.8	6.7
COLOR (PLATINUM-COBALT UNITS)	5	25	5	30
SECCHI-DISC VISIBILITY (FT)	16		15	
DISSOLVED OXYGEN	8.5	0.4	8.0	0.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

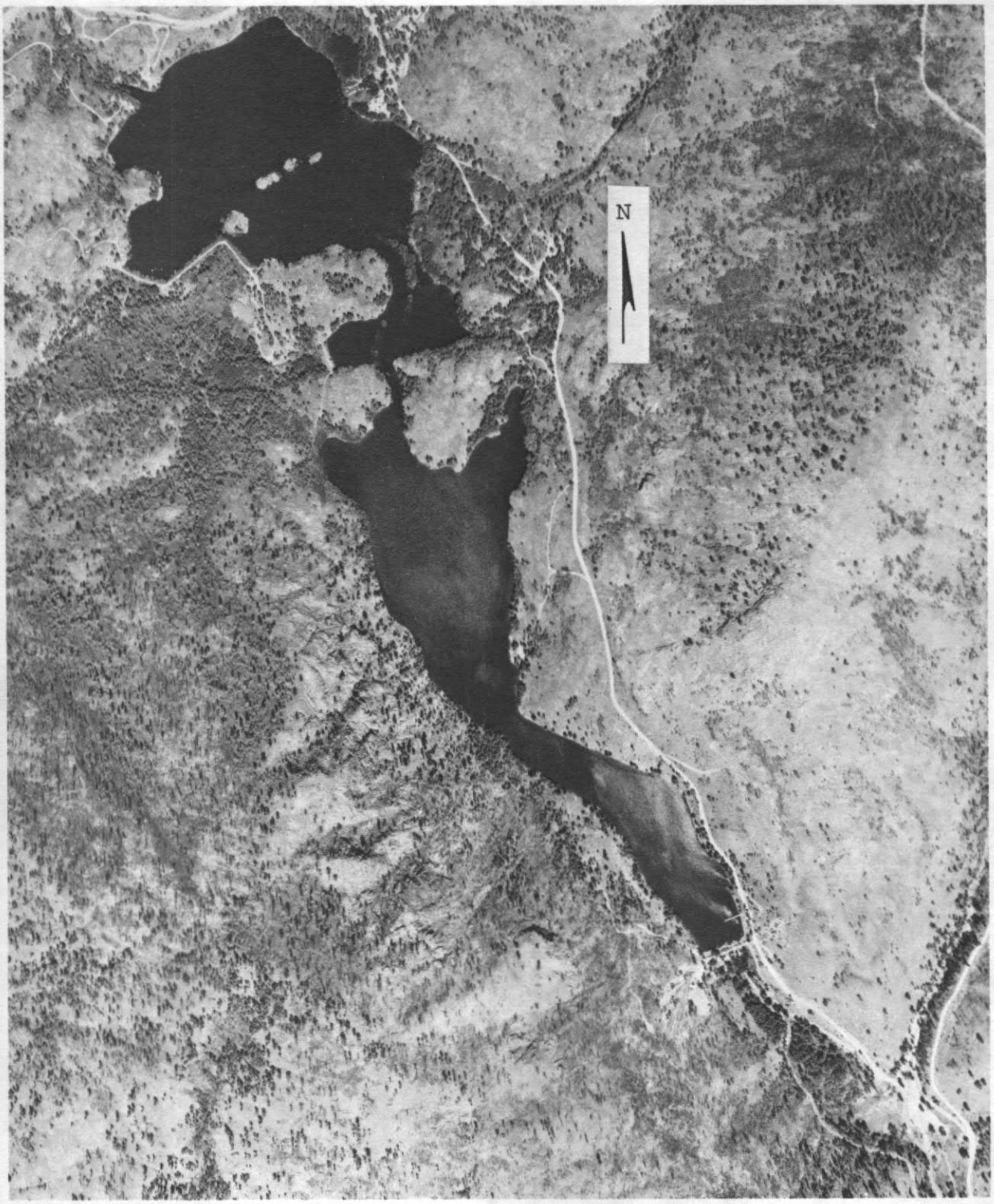
DATE	7/29/74
TIME	1100
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

A NATURAL LAKE ENLARGED BY DAMS IN 1913 AND AGAIN IN 1928. THE WATER IS USED FOR IRRIGATION PURPOSES. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE DRAINAGE AREA WAS NOT MEASURED BECAUSE THE LAKE RECEIVES WATER IMPORTED FROM OUTSIDE THE NATURAL DRAINAGE AREA.



Antilon Lake, Chelan County. From Washington Department of Game, January 4, 1950.



Antilon Lake, Chelan County. May 25, 1972. Approx. scale 1:12,000.

CHE[redacted] LAKE — CHELAN COUNTY

LATITUDE 47°50' 4" LONGITUDE 120° 0'42" T27N-R22E-13
CHELAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	924. SQ MI	RESIDENTIAL DEVELOPMENT	27 %
ALTITUDE	1110. FT		
LAKE AREA	33000. ACRES	NUMBER OF NEARSHORE HOMES	682
LAKE VOLUME (EST.)	35000000. ACRE-FT		
MEAN DEPTH (EST.)	1000. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	1600. FT		
SHORELINE LENGTH	110. MI	RESIDENTIAL URBAN	<1 %
SHORELINE CONFIGURATION	4.1	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.65	AGRICULTURAL	2 %
BOTTOM SLOPE	3.7 %	FOREST OR UNPRODUCTIVE	92 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	6 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

SAMPLE SITE	1		2		3		4		5	
DATE	7/29/74		7/29/74		7/29/74		7/29/74		7/29/74	
TIME	915	920	1100	1105	1200	1205	1330	1335	1430	1435
DEPTH (FT)	3.	20.	3.	115.	3.	115.	3.	115.	3.	115.
TOTAL NITRATE (N)	0.02	0.02	0.05	0.06	0.05	0.01	0.04	0.06	0.03	0.04
TOTAL NITRITE (N)	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
TOTAL AMMONIA (N)	0.01	0.01	0.01	0.05	0.04	0.04	0.02	0.02	0.02	0.05
TOTAL ORGANIC NITROGEN (N)	0.04	0.03	0.04	0.01	0.00	0.01	0.02	0.01	0.01	0.13
TOTAL PHOSPHORUS (P)	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.001
TOTAL ORTHOPHOSPHATE (P)	0.002	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.002	0.000
SPECIFIC CONDUCTANCE (MICROMHOS)	50	50	50	50	50	50	50	50	50	50
WATER TEMPERATURE (DEG C)	21.2	18.9	19.1	12.0	19.1	11.0	16.0	10.5	14.0	10.5
COLOR (PLATINUM-COBALT UNITS)	0	0	0	0	0	0	0	0	0	0
SECCHI-DISC VISIBILITY (FT)	>23		30		36		30		30	
DISSOLVED OXYGEN	8.5	9.0	9.8	11.6	10.2	11.6	10.8	11.4	10.8	11.2

LAKE SHORELINE COVERED BY EMERSED PLANTS — LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS — NONE OR <1 %

DATE	7/29/74
TIME	930
NUMBER OF FECAL COLIFORM SAMPLES	18
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	5
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE LARGEST NATURAL LAKE IN WASHINGTON. LAKE STAGE IS REGULATED BY A DAM OWNED BY THE CHELAN COUNTY P.U.D. THE WATER IS USED FOR IRRIGATION AND HYDRO-POWER PRODUCTION. RECREATIONAL USE OF THE LAKE IS HEAVY. THE PRINCIPAL TRIBUTARY TO THE LAKE IS THE STEHEKIN RIVER. NEARSHORE SLOPES ARE LOCALLY VERY STEEP. A LAKE-STAGE RECORDER HAS BEEN MAINTAINED ON THE LAKE SINCE 1927. NO AQUATIC MACROPHYTES WERE OBSERVED. VARIOUS ASPECTS OF THE LAKE HAVE BEEN STUDIED BY WHETTEN (1967) AND CUNNINGHAM AND PINE (1968). THE LAKE WATER IS BLUEISH-GREEN IN COLOR.

Chelan Lake, Chelan County. From
U.S. Geological Survey, July 29, 1974.

CHIWAUKUM LAKE CHELAN COUNTY

LATITUDE 47*43'18" LONGITUDE 120*52'41" T26N-R16E-29
WENATCHEE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	3.43 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	5210. FT		
LAKE AREA	58. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	4100. ACRE-FT		
MEAN DEPTH	71. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	130. FT		
SHORELINE LENGTH	1.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.57	AGRICULTURAL	0 %
BOTTOM SLOPE	7.0 %	FOREST OR UNPRODUCTIVE	96 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	4 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

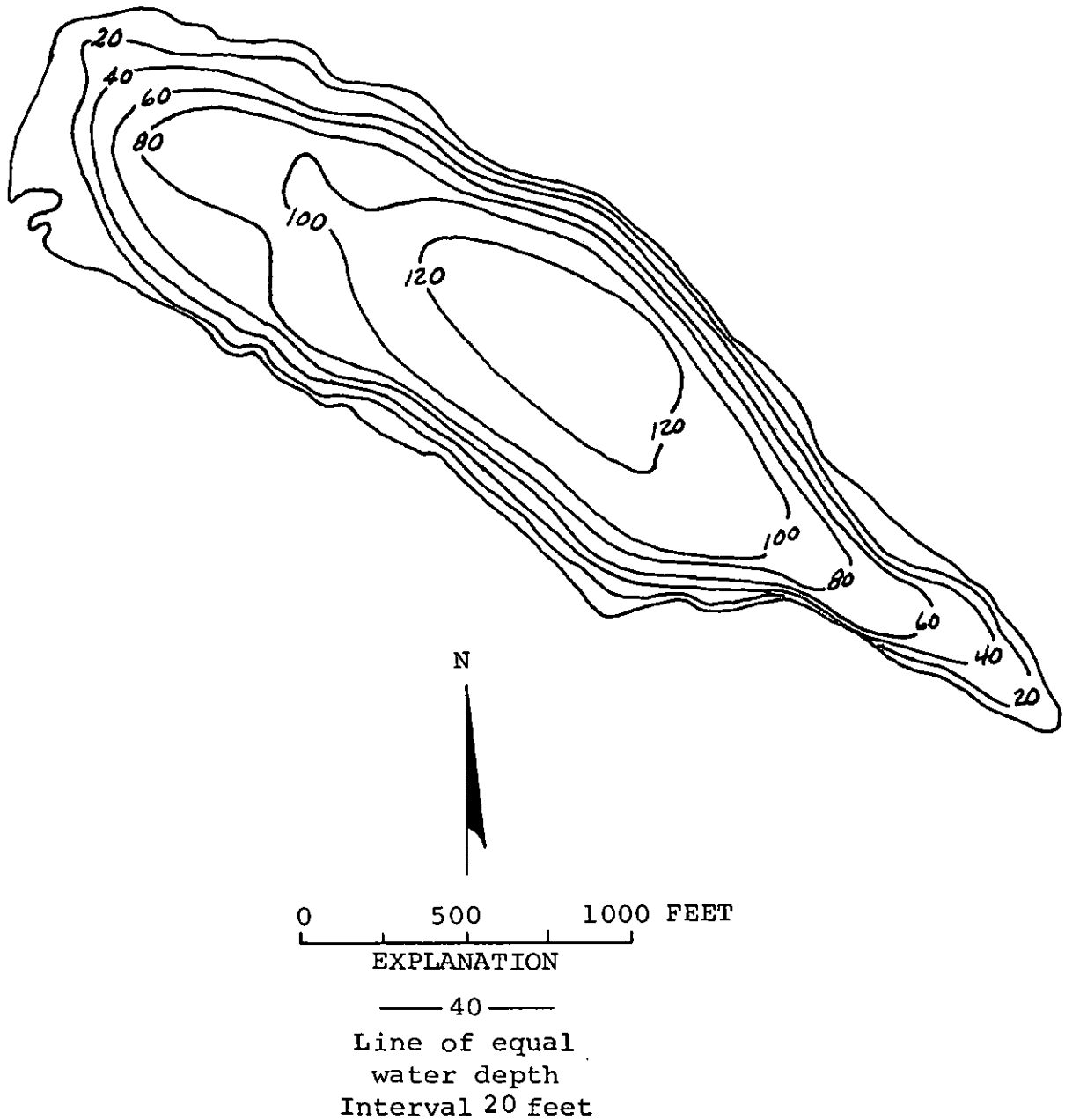
SAMPLE SITE	1	
DATE	8/ 1/74	
TIME	1330	1335
DEPTH (FT)	3.	115.
TOTAL NITRATE (N)	0.02	0.04
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.02	0.03
TOTAL ORGANIC NITROGEN (N)	0.03	0.00
TOTAL PHOSPHORUS (P)	0.001	0.002
TOTAL ORTHOPHOSPHATE (P)	0.001	0.001
SPECIFIC CONDUCTANCE (MICROMHOS)	13	13
WATER TEMPERATURE (DEG C)	10.3	4.0
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	34	
DISSOLVED OXYGEN	10.2	9.8

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

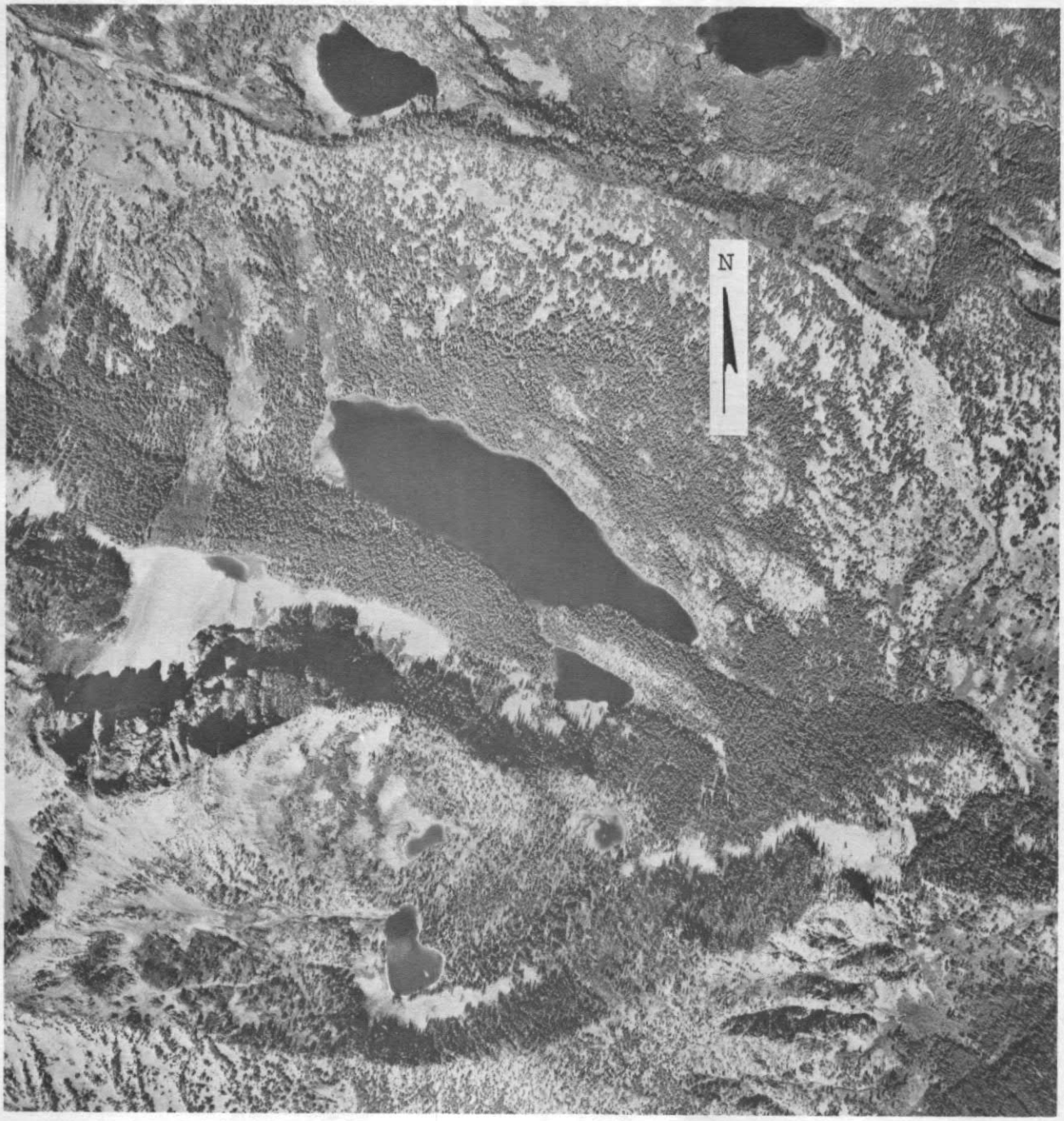
DATE	8/ 1/74
TIME	1330
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

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. August 19, 1970. Approx. scale 1:17,000.

COLCHUCK LAKE CHELAN COUNTY

LATITUDE 47*29'41" LONGITUDE 120*50' 5" T23N-R16E-10
WENATCHEE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.41 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	5570. FT		
LAKE AREA	78. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	9100. ACRE-FT		
MEAN DEPTH	120. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	200. FT		
SHORELINE LENGTH	1.8 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.58	AGRICULTURAL	0 %
BOTTOM SLOPE	9.6 %	FOREST OR UNPRODUCTIVE	87 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	13 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

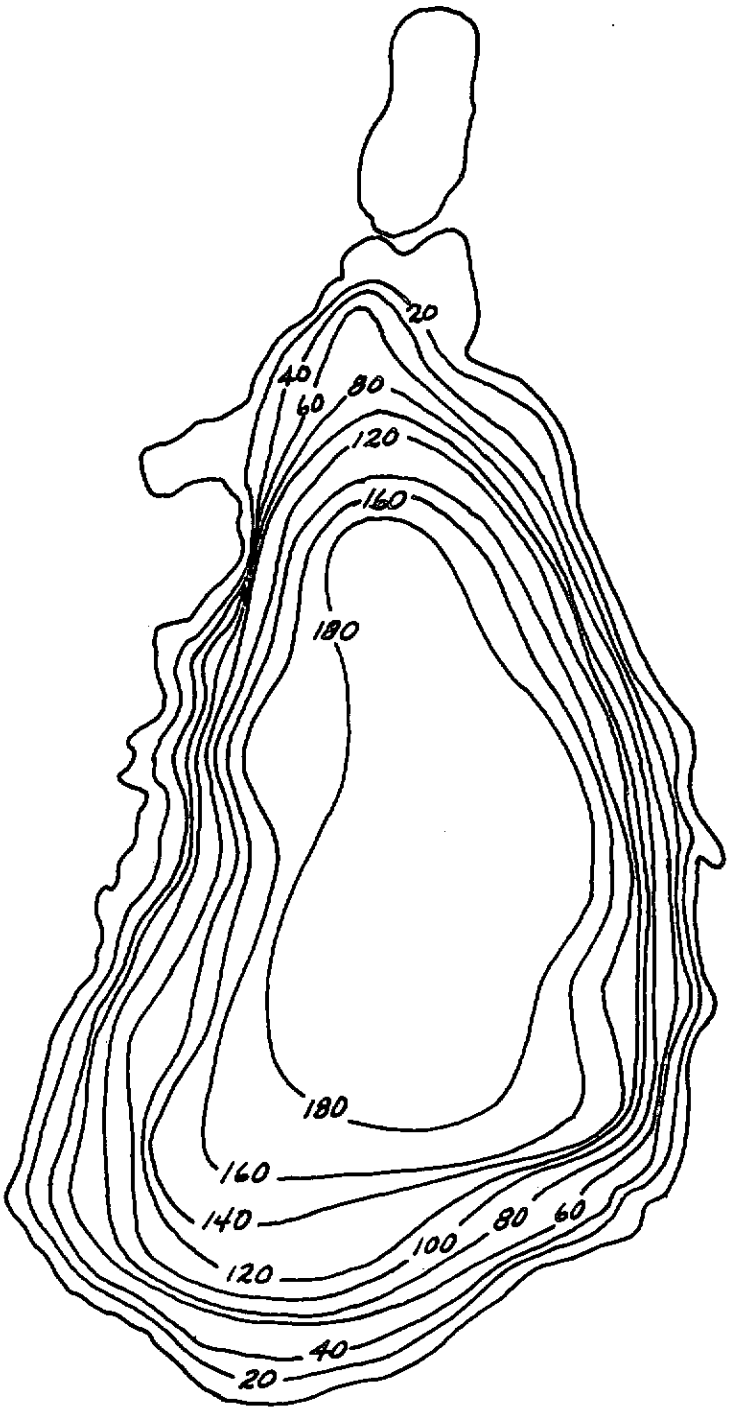
SAMPLE SITE	1	
DATE	7/31/74	
TIME	1330	1335
DEPTH (FT)	3.	164.
TOTAL NITRATE (N)	0.02	0.06
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.04
TOTAL ORGANIC NITROGEN (N)	0.07	0.08
TOTAL PHOSPHORUS (P)	0.002	0.007
TOTAL ORTHOPHOSPHATE (P)	0.001	0.003
SPECIFIC CONDUCTANCE (MICROMHOS)	19	19
WATER TEMPERATURE (DEG C)	14.0	3.8
COLOR (PLATINUM-COBALT UNITS)	--	--
SECCHI-DISC VISIBILITY (FT)	30	
DISSOLVED OXYGEN	8.7	9.4

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	7/31/74
TIME	1330
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS IN A STEEP-WALLED GLACIAL CIRQUE AND IS STABILIZED BY A SMALL DAM AT THE OUTLET. FLOATING LOGS WERE OBSERVED ALONG THE SHORELINE. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. THE WATER CONTAINED A LARGE POPULATION OF ZOOPLANKTON. COLOR DETERMINATIONS WERE NOT MADE BECAUSE THE WATER WAS TURBID WITH GLACIAL SILT.



N

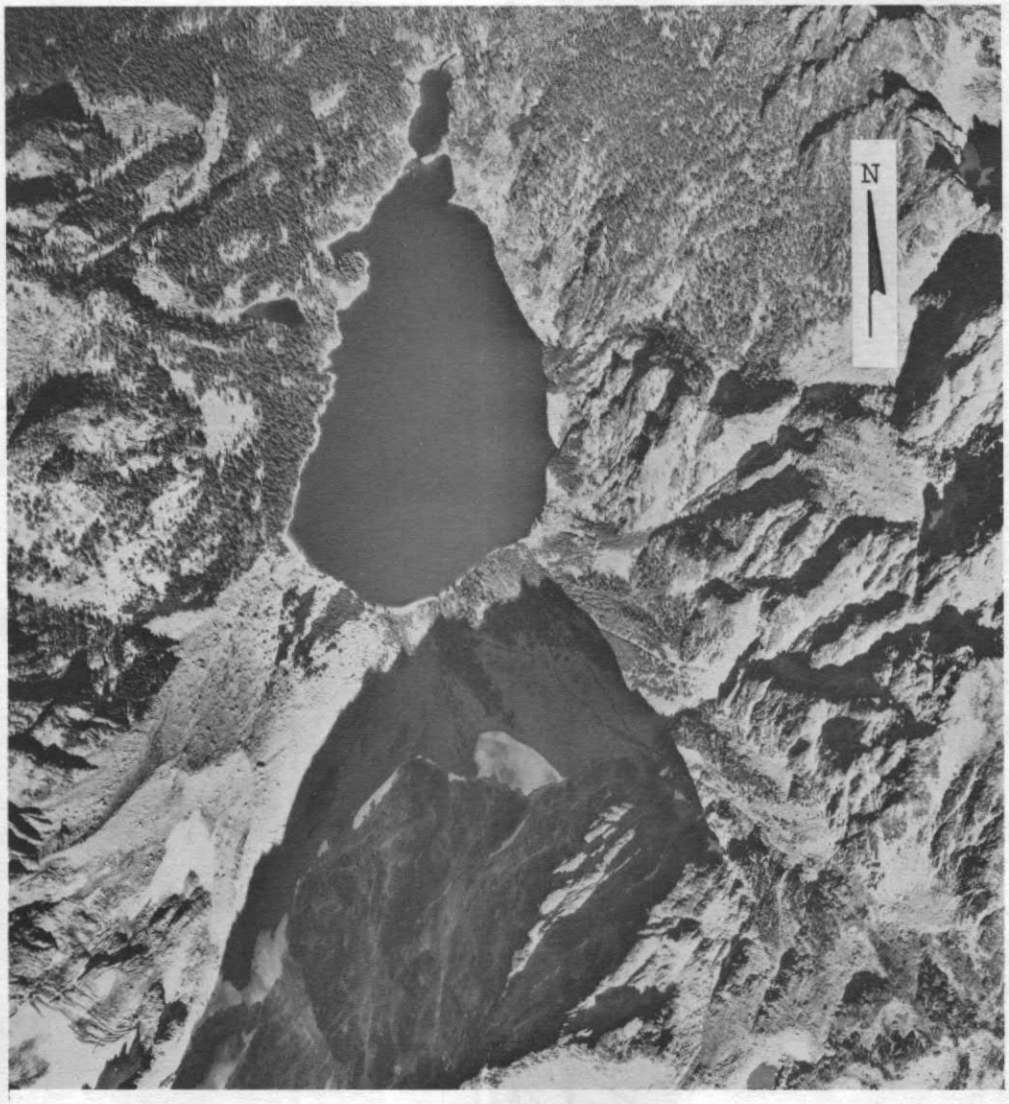
0 500 1000 FEET

EXPLANATION

— 40 —

Line of equal water depth Interval 20 feet

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



Colchuck Lake, Chelan County. September 19, 1974. Approx. scale 1:15,000.

CORTEZ (THREE) LAKE CHELAN COUNTY

LATITUDE 47°21'48" LONGITUDE 120°13'21" T22N-R21E-29
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.30 SQ MI	RESIDENTIAL DEVELOPMENT	16 %
ALTITUDE	866. FT		
LAKE AREA	44. ACRES	NUMBER OF NEARSHORE HOMES	7
LAKE VOLUME	790. ACRE-FT		
MEAN DEPTH	18. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	28. FT		
SHORELINE LENGTH	1.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	1 %
DEVELOPMENT OF VOLUME	0.64	AGRICULTURAL	12 %
BOTTOM SLOPE	1.8 %	FOREST OR UNPRODUCTIVE	64 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	23 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

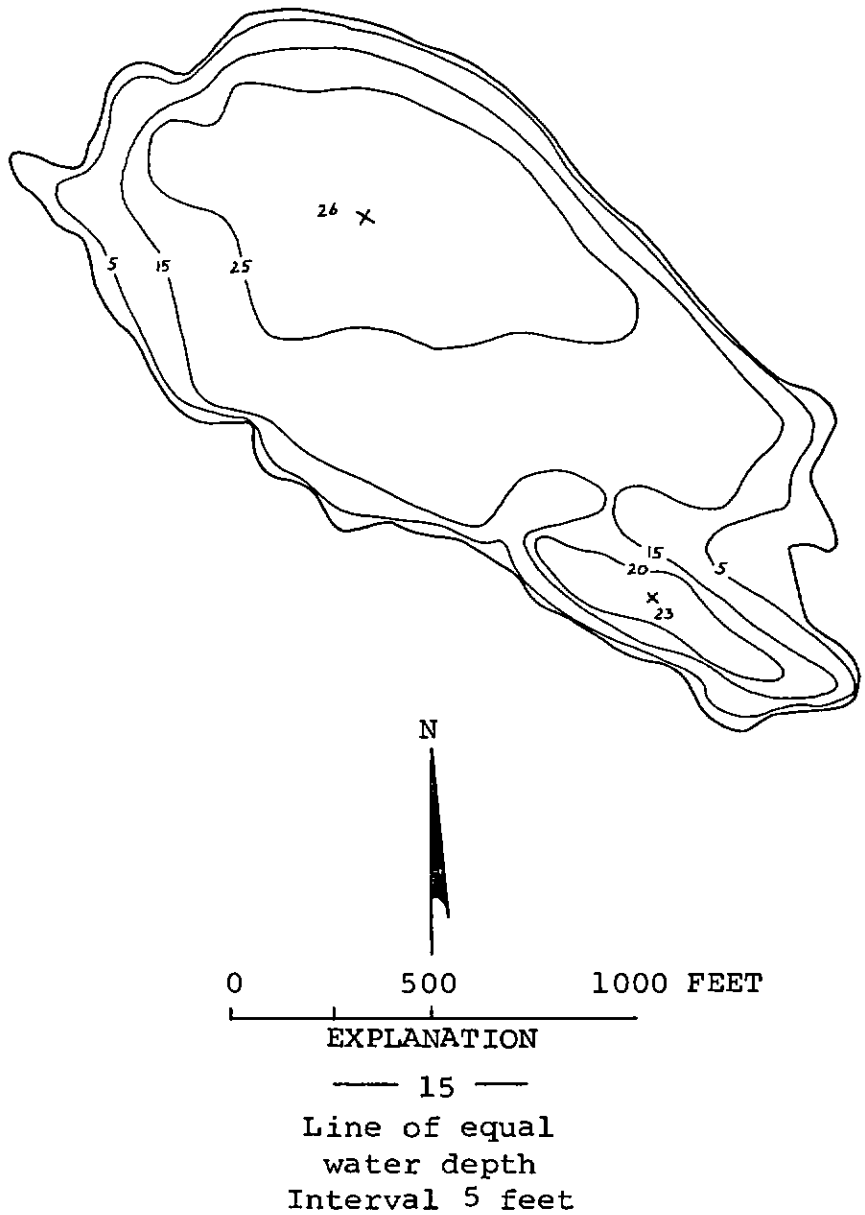
SAMPLE SITE	1	
DATE	7/26/74	
TIME	1255	1300
DEPTH (FT)	3.	16.
TOTAL NITRATE (N)	0.02	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.05
TOTAL ORGANIC NITROGEN (N)	0.44	0.52
TOTAL PHOSPHORUS (P)	0.024	0.037
TOTAL ORTHOPHOSPHATE (P)	0.003	0.011
SPECIFIC CONDUCTANCE (MICROMHOS)	230	250
WATER TEMPERATURE (DEG C)	23.6	20.0
COLOR (PLATINUM-COBALT UNITS)	15	15
SECCHI-DISC VISIBILITY (FT)	6	
DISSOLVED OXYGEN	10.8	3.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/26/74
TIME	1305
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	12
FECAL COLIFORM, MEAN (COL./100ML)	5

REMARKS

AN IRRIGATION RESERVOIR FED BY DIVERSIONS FROM STEMILT CREEK AND DRAINAGE FROM MEADOW LAKE. MOST OF THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS. AN ALGAL BLOOM WAS OBSERVED.



Cortez (Three) Lake, Chelan County. From Washington Department of Game, December 1948.

Cortez (Three) Lake, Chelan County. August 31, 1972. Approx. scale 1:12,000.

DRY (GRASS) LAKE CHELAN COUNTY

LATITUDE 47°55' 6" LONGITUDE 120°10'53" T28N-R21E-22
CHELAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.72 SQ MI	RESIDENTIAL DEVELOPMENT	2 %
ALTITUDE	1163. FT		
LAKE AREA	96. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	590. ACRE-FT		
MEAN DEPTH	6. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	11. FT		
SHORELINE LENGTH	2.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.56	AGRICULTURAL	71 %
BOTTOM SLOPE	0.48 %	FOREST OR UNPRODUCTIVE	8 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	21 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

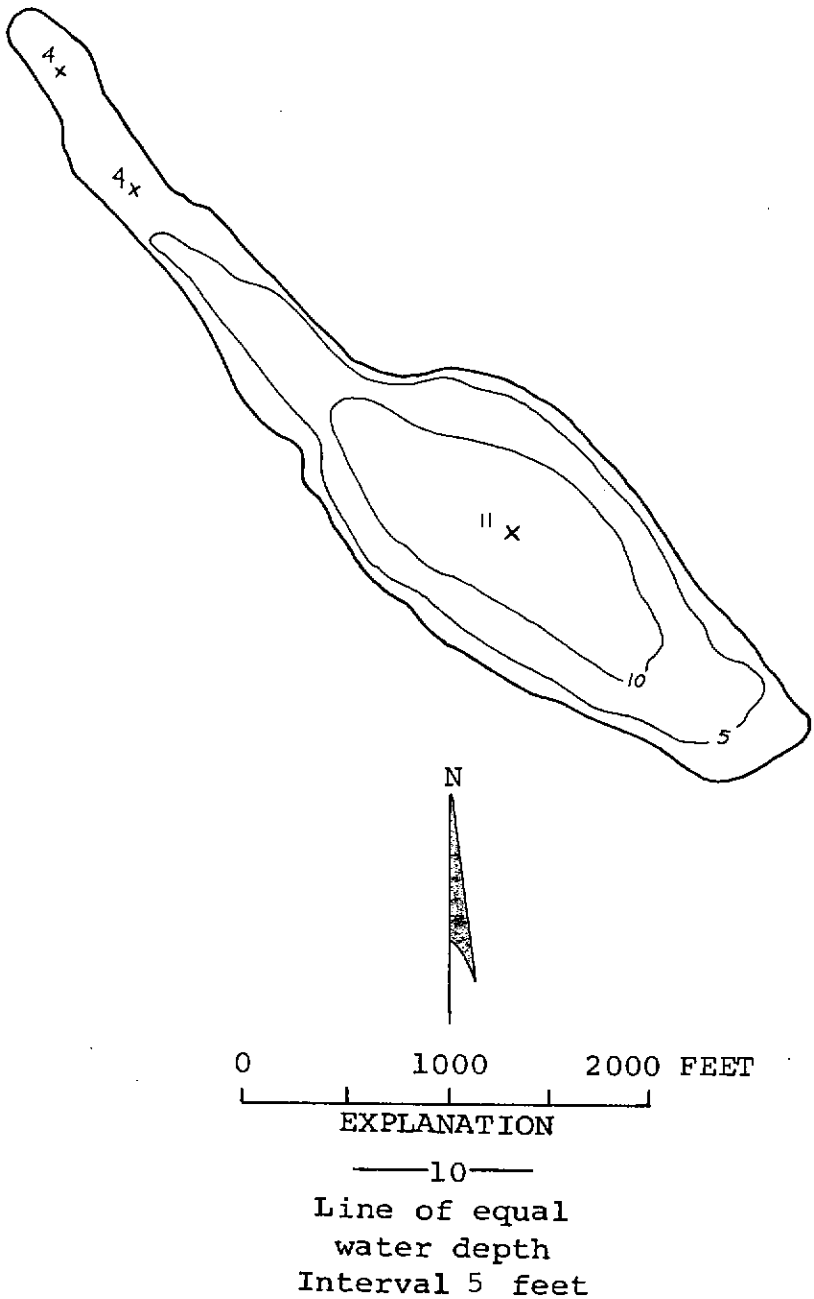
SAMPLE SITE	1	
DATE	7/29/74	
TIME	1245	1250
DEPTH (FT)	3.	8.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.05
TOTAL ORGANIC NITROGEN (N)	0.80	0.74
TOTAL PHOSPHORUS (P)	0.048	0.035
TOTAL ORTHOPHOSPHATE (P)	0.007	0.005
SPECIFIC CONDUCTANCE (MICROMHOS)	510	510
WATER TEMPERATURE (DEG C)	22.3	22.0
COLOR (PLATINUM-COBALT UNITS)	15	15
SECCHI-DISC VISIBILITY (FT)	8	
DISSOLVED OXYGEN	10.8	11.2

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/29/74
TIME	1300
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS SURROUNDED BY FRUIT ORCHARDS AND IS FED INTERMITTENTLY BY ROSES LAKE. THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (RUSHES AND CATTAILS). THE LAKE BOTTOM IS BROWN SILT AND COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (COONTAIL). A LARGE AMOUNT OF EPIPHYTIC GREEN ALGAE WAS OBSERVED.



Dry (Grass) Lake, Chelan County. From Washington Department of Game, September 1946.

Dry (Grass) Lake, Chelan County. May 25, 1972. Approx. scale 1:12,000.

EIGHTMILE LAKE CHELAN COUNTY

LATITUDE 47°31'15" LONGITUDE 120°51'28" T24N-R16E-33
WENATCHEE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	5.85 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	4641. FT		
LAKE AREA	65. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	2200. ACRE-FT		
MEAN DEPTH	33. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	83. FT		
SHORELINE LENGTH	1.8 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.40	AGRICULTURAL	0 %
BOTTOM SLOPE	4.4 %	FOREST OR UNPRODUCTIVE	98 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	2 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

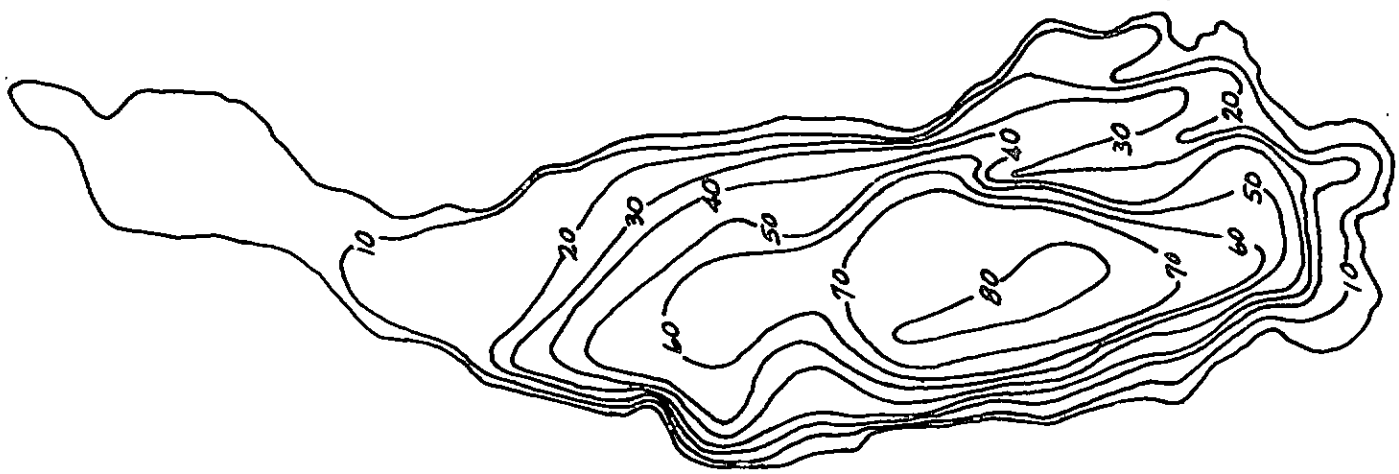
SAMPLE SITE	1	
DATE	7/31/74	
TIME	1430	1435
DEPTH (FT)	3.	75.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.05	0.03
TOTAL ORGANIC NITROGEN (N)	0.03	0.08
TOTAL PHOSPHORUS (P)	0.003	0.005
TOTAL ORTHOPHOSPHATE (P)	0.001	0.001
SPECIFIC CONDUCTANCE (MICROMHOS)	18	18
WATER TEMPERATURE (DEG C)	11.8	4.7
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	36	
DISSOLVED OXYGEN	9.8	10.2

LAKE SHORELINE COVERED BY EMERSED PLANTS	LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/31/74
TIME	1430
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS STABILIZED BY A SMALL ROCK DAM AT THE OUTLET. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. FLOATING LOGS, BUT NO AQUATIC MACROPHYTES, WERE OBSERVED.



N

0 500 1000 FEET

EXPLANATION

— 20 —

Line of equal water depth Interval 10 feet

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

Eightmile Lake, Chelan County. August 19, 1970. Approx. scale 1:18,000.

FISH LAKE CHELAN COUNTY

LATITUDE 47°49'42" LONGITUDE 120°42'35" T27N-R17E-22
WENATCHEE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	5.51 SQ MI	RESIDENTIAL DEVELOPMENT	12 %
ALTITUDE	1929. FT		
LAKE AREA	530. ACRES	NUMBER OF NEARSHORE HOMES	20
LAKE VOLUME	15000. ACRE-FT		
MEAN DEPTH	27. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	45. FT		
SHORELINE LENGTH	5.0 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	1 %
DEVELOPMENT OF VOLUME	0.61	AGRICULTURAL	0 %
BOTTOM SLOPE	0.83 %	FOREST OR UNPRODUCTIVE	84 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	15 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

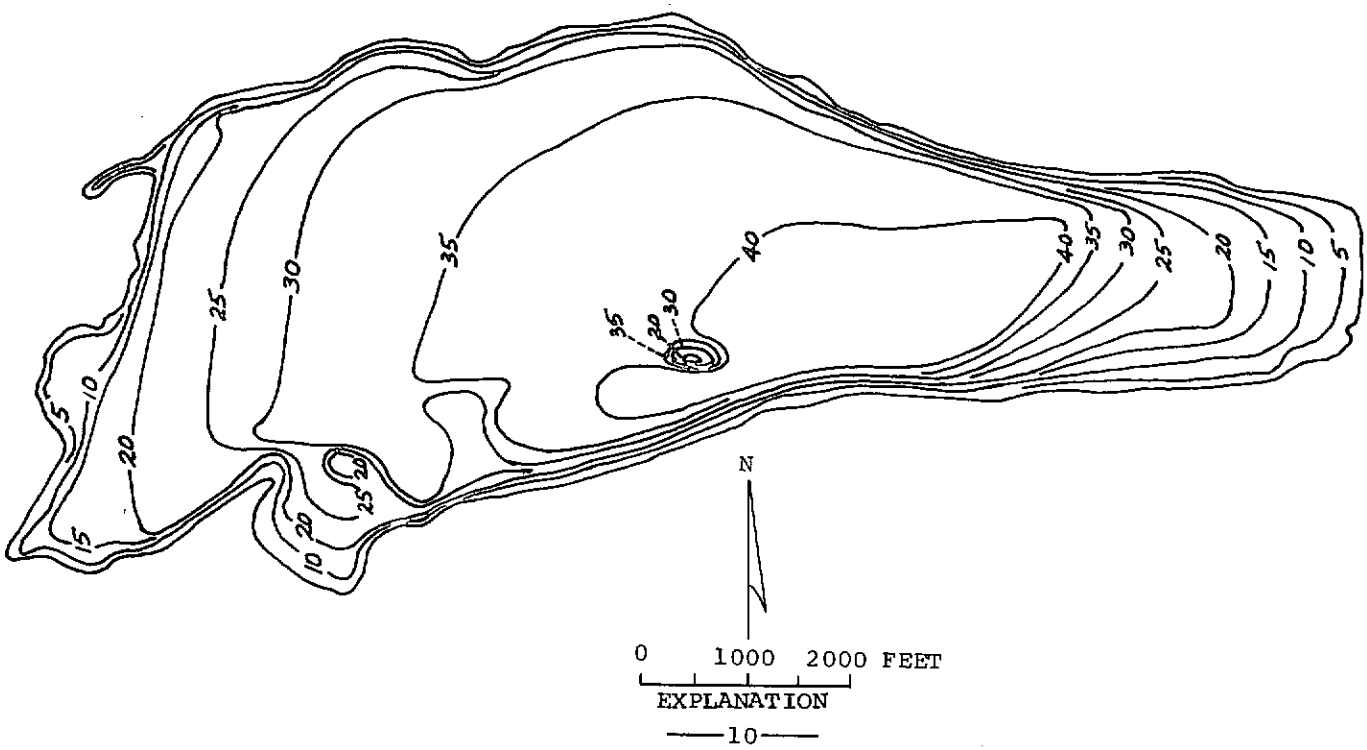
SAMPLE SITE	1	
DATE	7/18/74	
TIME	1825	1835
DEPTH (FT)	3.	33.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.03
TOTAL ORGANIC NITROGEN (N)	0.24	0.25
TOTAL PHOSPHORUS (P)	0.036	0.031
DISSOLVED ORTHOPHOSPHATE (P)	0.003	0.005
SPECIFIC CONDUCTANCE (MICROMHOS)	84	82
WATER TEMPERATURE (DEG C)	18.0	17.0
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	9.6	8.1

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/18/74
TIME	1850
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	8
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

A LARGE MARSH OCCURS AT THE WEST END OF THE LAKE. IN 1974 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE ON AUGUST 22, 1974. MUCH OF THE LITTORAL BOTTOM IS MUCK AND SILT. A HIGH ALGAL DENSITY WAS OBSERVED.



Fish Lake, Chelan County. From
U.S. Geological Survey, July 23, 1974.

Fish Lake, Chelan County. August 28, 1972. Approx. scale 1:22,000.

KLONAQUA, LOWER LAKE CHELAN COUNTY

LATITUDE 47*35'49" LONGITUDE 121* 3'50" T24N-R14E-3
WENATCHEE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.24 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	5090. FT		
LAKE AREA	63. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	4700. ACRE-FT		
MEAN DEPTH	74. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	160. FT		
SHORELINE LENGTH	1.4 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.47	AGRICULTURAL	0 %
BOTTOM SLOPE	8.5 %	FOREST OR UNPRODUCTIVE	84 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	16 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

SAMPLE SITE	1	
DATE	8/ 1/74	
TIME	1200	1205
DEPTH (FT)	3.	102.
TOTAL NITRATE (N)	0.02	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.03
TOTAL ORGANIC NITROGEN (N)	0.01	0.02
TOTAL PHOSPHORUS (P)	0.002	0.002
TOTAL ORTHOPHOSPHATE (P)	0.000	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	9	9
WATER TEMPERATURE (DEG C)	11.5	3.8
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	51	
DISSOLVED OXYGEN	9.6	7.6

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	8/ 1/74
TIME	1230
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<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.

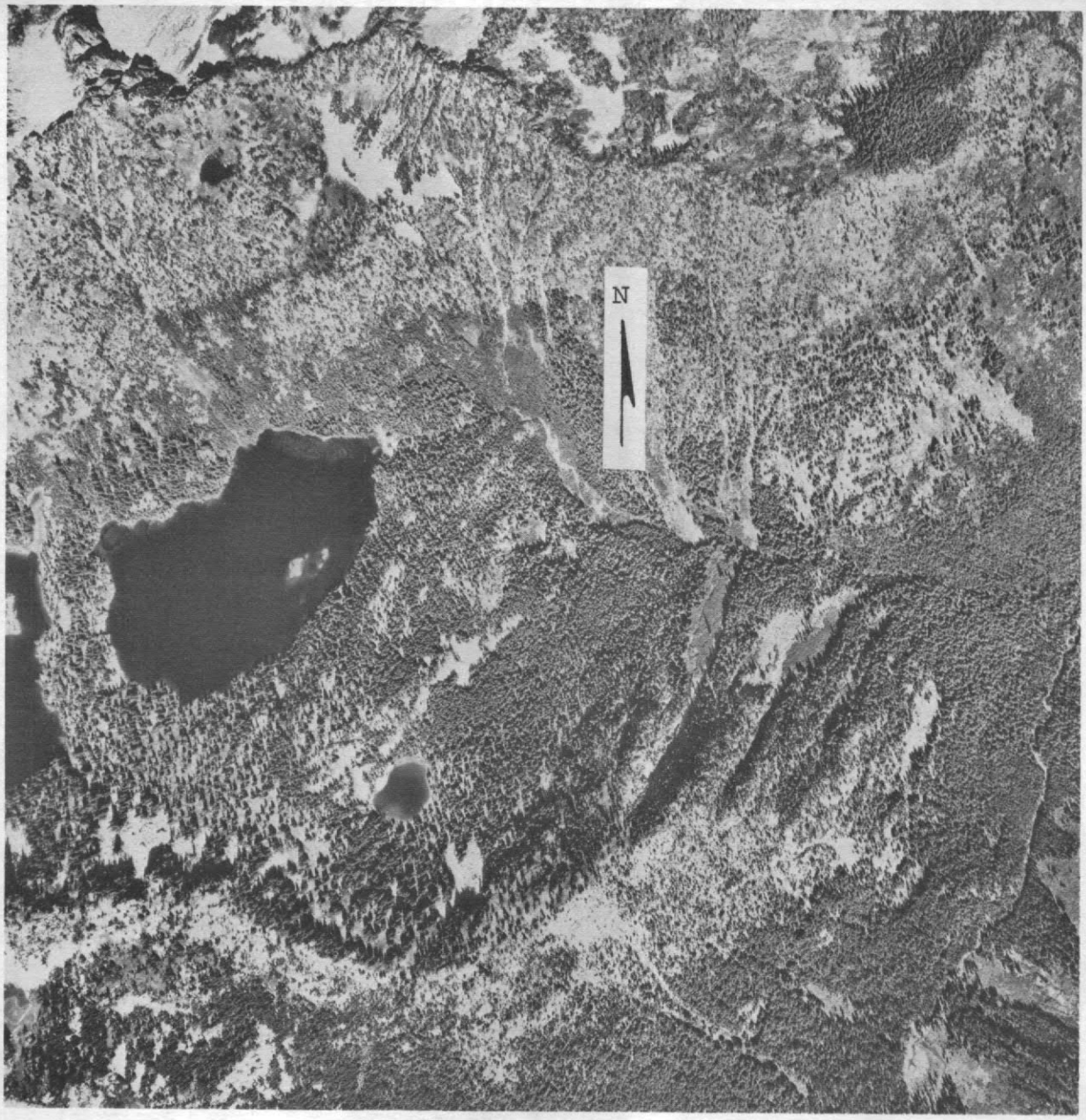
N

0 500 1000 FEET

EXPLANATION

— 40 —
Line of equal
water depth
Interval 20 feet

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



Klonaqua, Lower Lake, Chelan County.
August 18, 1970. Approx. scale 1:16,000.

KLONAQUA, UPPER LAKE CHELAN COUNTY

LATITUDE 47*35'42" LONGITUDE 121* 4'28" T24N-R14E-3
WENATCHEE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.77 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	5187. FT		
LAKE AREA	62. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	4300. ACRE-FT		
MEAN DEPTH	69. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	160. FT		
SHORELINE LENGTH	1.8 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.44	AGRICULTURAL	0 %
BOTTOM SLOPE	8.4 %	FOREST OR UNPRODUCTIVE	87 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	13 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

SAMPLE SITE	1	
DATE	8/ 1/74	
TIME	1100	1105
DEPTH (FT)	3.	66.
TOTAL NITRATE (N)	0.02	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.02	0.03
TOTAL ORGANIC NITROGEN (N)	0.04	0.02
TOTAL PHOSPHORUS (P)	0.001	0.002
TOTAL ORTHOPHOSPHATE (P)	0.001	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	8	8
WATER TEMPERATURE (DEG C)	7.8	4.0
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	59	
DISSOLVED OXYGEN	10.1	9.8

LAKE SHORELINE COVERED BY EMERSED PLANTS	LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	8/ 1/74
TIME	1100
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<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.
August 27, 1970. Approx. scale 1:15,000.

LOCH EILEEN LAKE CHELAN COUNTY

LATITUDE 47*44'24" LONGITUDE 120*53'12" T26N-R16E-19
WENATCHEE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.69 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	5508. FT		
LAKE AREA	25. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	990. ACRE-FT		
MEAN DEPTH	41. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	76. FT		
SHORELINE LENGTH	0.77 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.53	AGRICULTURAL	0 %
BOTTOM SLOPE	6.5 %	FOREST OR UNPRODUCTIVE	94 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	6 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

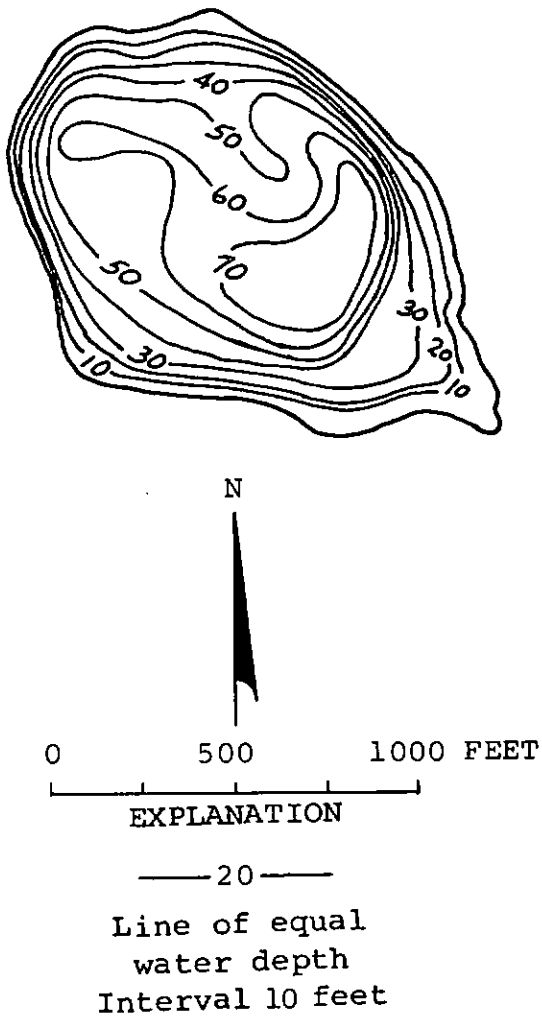
SAMPLE SITE	1	
DATE	8/ 1/74	
TIME	1500	1505
DEPTH (FT)	3.	62.
TOTAL NITRATE (N)	0.02	0.03
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.04
TOTAL ORGANIC NITROGEN (N)	0.00	0.03
TOTAL PHOSPHORUS (P)	0.003	0.005
TOTAL ORTHOPHOSPHATE (P)	0.001	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	10	10
WATER TEMPERATURE (DEG C)	10.3	5.1
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	38	
DISSOLVED OXYGEN	9.4	10.1

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

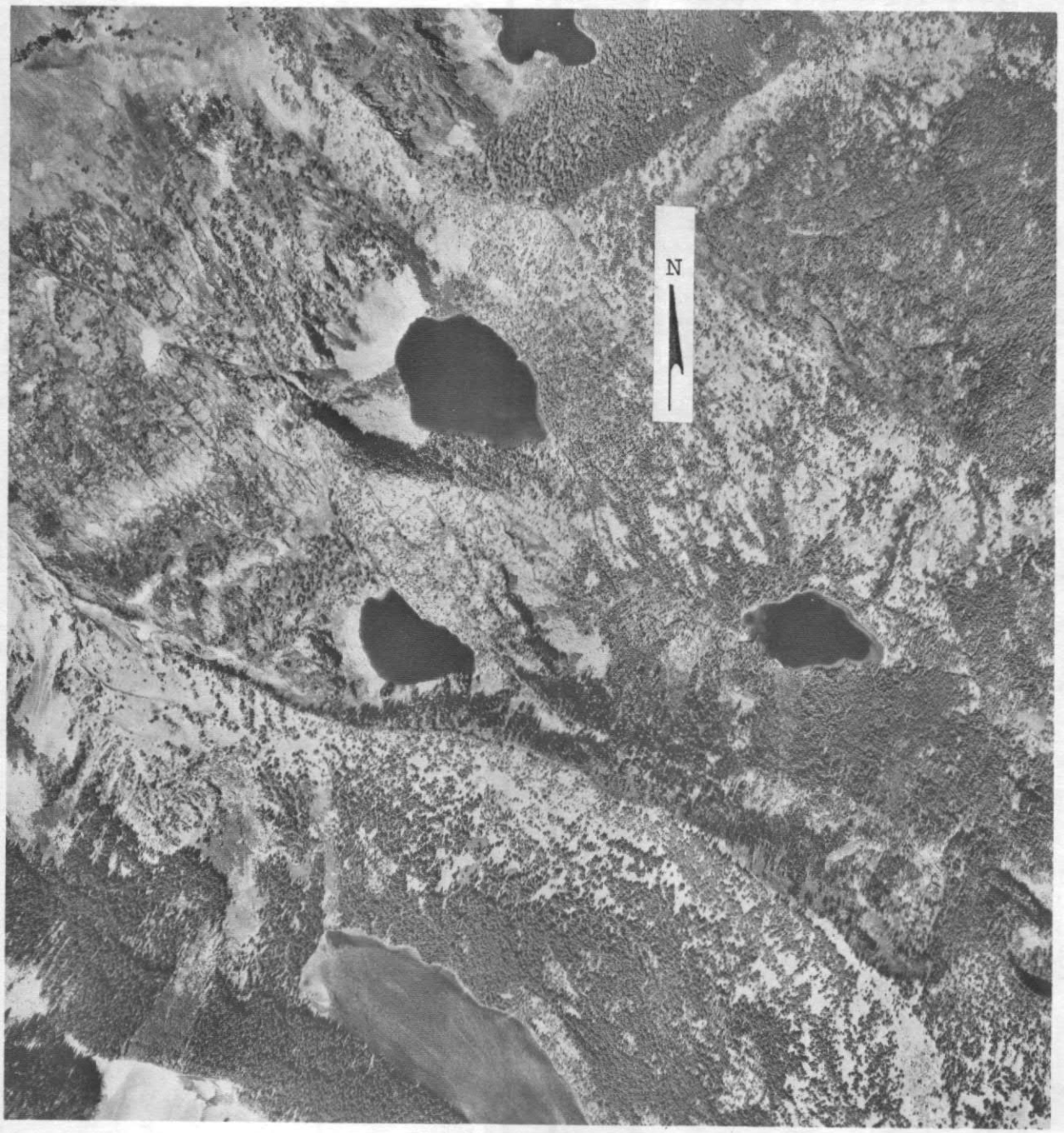
DATE	8/ 1/74
TIME	1500
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

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. August 19, 1970. Approx. scale 1:18,000.

MEADOW LAKE CHELAN COUNTY

LATITUDE 47*21'29" LONGITUDE 120*13' 8" T22N-R21E-32
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	5.85 SQ MI	RESIDENTIAL DEVELOPMENT	10 %
ALTITUDE	866. FT		
LAKE AREA	40. ACRES	NUMBER OF NEARSHORE HOMES	4
LAKE VOLUME	270. ACRE-FT		
MEAN DEPTH	7. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	10. FT		
SHORELINE LENGTH	1.0 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.67	AGRICULTURAL	12 %
BOTTOM SLOPE	0.67 %	FOREST OR UNPRODUCTIVE	87 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	1 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

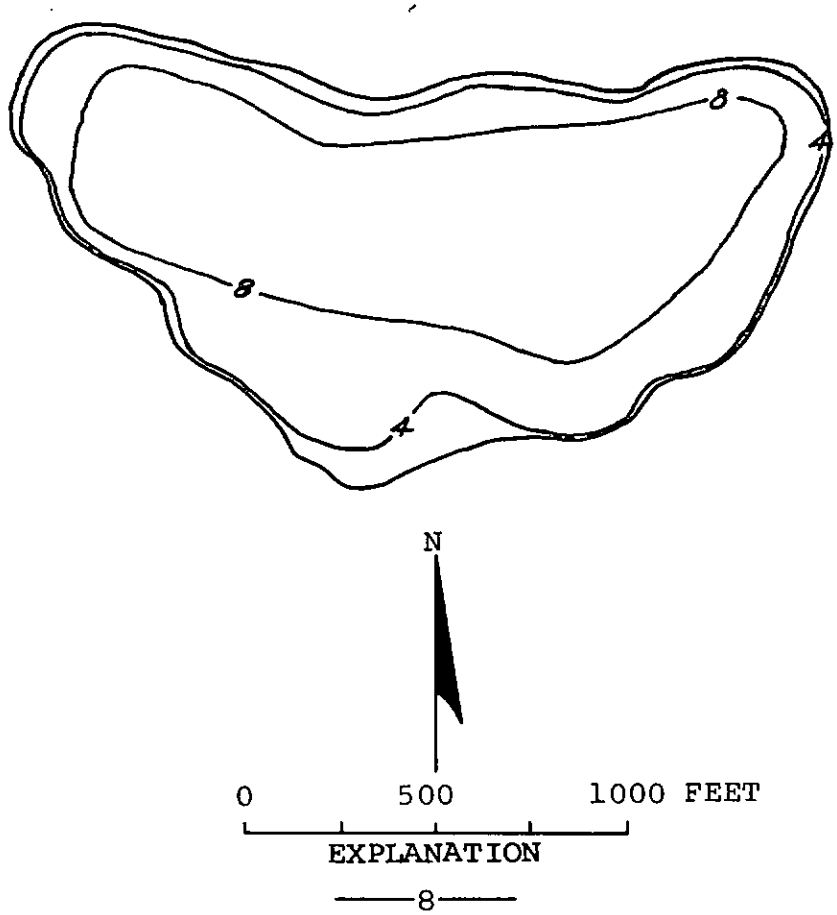
	1	
SAMPLE SITE		
DATE	7/26/74	
TIME	1200	1205
DEPTH (FT)	3.	7.
TOTAL NITRATE (N)	0.01	0.02
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.30	0.30
TOTAL ORGANIC NITROGEN (N)	2.0	1.7
TOTAL PHOSPHORUS (P)	0.18	0.25
TOTAL ORTHOPHOSPHATE (P)	0.034	0.036
SPECIFIC CONDUCTANCE (MICROMHOS)	350	350
WATER TEMPERATURE (DEG C)	22.8	21.8
COLOR (PLATINUM-COBALT UNITS)	60	50
SECCHI-DISC VISIBILITY (FT)	2	
DISSOLVED OXYGEN	9.6	0.2

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/26/74
TIME	1220
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	18
FECAL COLIFORM, MEAN (COL./100ML)	8

REMARKS

A SHALLOW ARTIFICIAL RESERVOIR BUILT ABOUT 1920 TO STORE WATER FROM STEMILT CREEK. PARTIALLY SURROUNDED BY APPLE ORCHARDS. AN ALGAL BLOOM AND FLOATING DEBRIS WERE OBSERVED. MOST OF THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (CATTAIL, RUSHES, AND WILLOW). THE LITTORAL BOTTOM IS MUCK AND SILT.



Meadow Lake, Chelan County. From
U.S. Geological Survey, July 16, 1974.

Meadow Lake, Chelan County. September 2, 1972. Approx. scale 1:12,000.

ROSES (ALKALI) LAKE CHELAN COUNTY

LATITUDE 47°54'18" LONGITUDE 120° 9'35" T28N-R21E-26
CHELAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.82 SQ MI	RESIDENTIAL DEVELOPMENT	12 %
ALTITUDE	1164. FT		
LAKE AREA	130. ACRES	NUMBER OF NEARSHORE HOMES	6
LAKE VOLUME	3100. ACRE-FT		
MEAN DEPTH	23. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	31. FT		
SHORELINE LENGTH	2.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.76	AGRICULTURAL	69 %
BOTTOM SLOPE	1.1 %	FOREST OR UNPRODUCTIVE	6 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	25 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

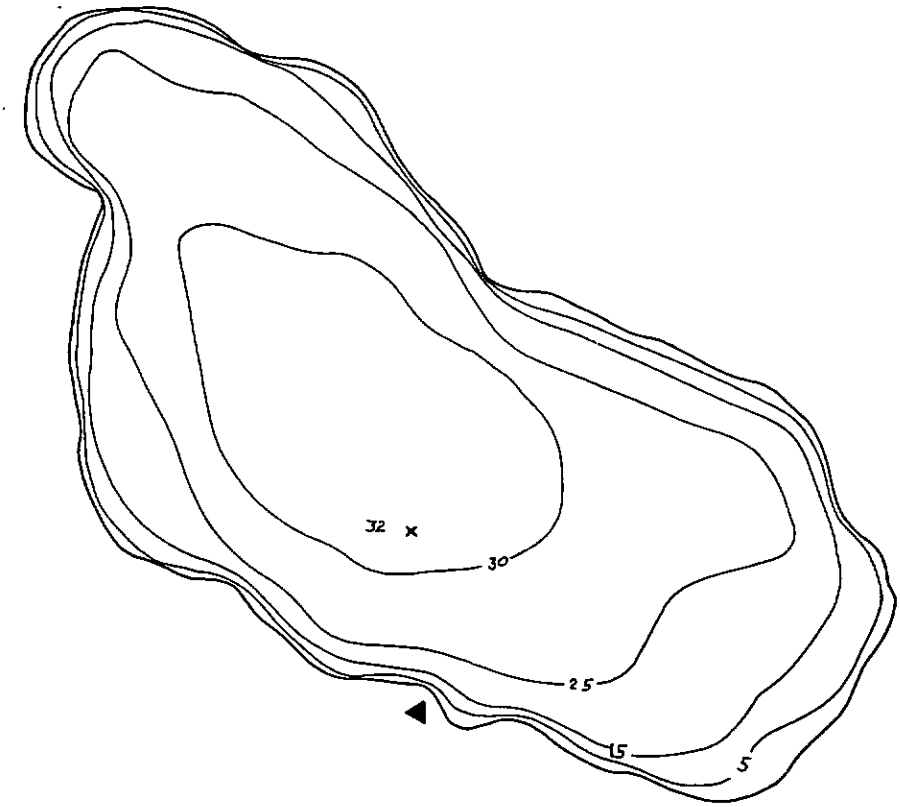
SAMPLE SITE	1	
DATE	7/29/74	
TIME	1325	1330
DEPTH (FT)	3.	26.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.08	1.4
TOTAL ORGANIC NITROGEN (N)	0.02	1.2
TOTAL PHOSPHORUS (P)	0.073	0.25
TOTAL ORTHOPHOSPHATE (P)	0.007	0.17
SPECIFIC CONDUCTANCE (MICROMHOS)	530	550
WATER TEMPERATURE (DEG C)	23.0	18.9
COLOR (PLATINUM-COBALT UNITS)	15	20
SECCHI-DISC VISIBILITY (FT)	7	
DISSOLVED OXYGEN	9.1	0.3

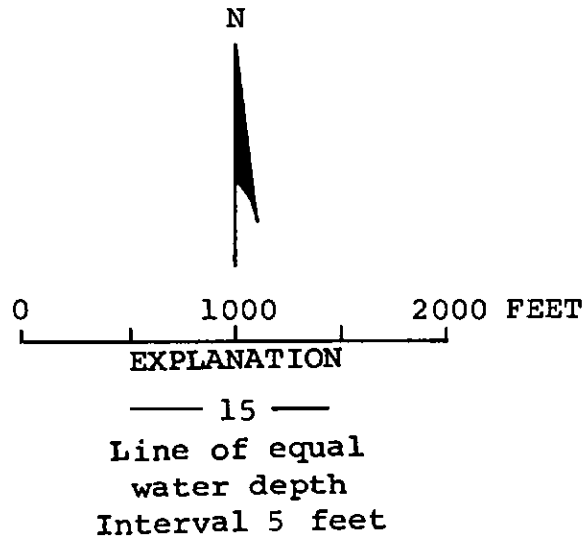
LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/29/74
TIME	1340
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE LAKE IS PARTIALLY SURROUNDED BY FRUIT ORCHARDS. THE WATER IS USED FOR IRRIGATION PURPOSES. MOST OF THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS. THE LITTORAL BOTTOM IS MOSTLY MUCK AND SILT. AN ALGAL BLOOM WAS OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.





Roses (Alkali) Lake, Chelan County. From Washington Department of Game, February 5, 1947.

Roses (Alkali) Lake, Chelan County. May 25, 1972. Approx. scale 1:12,000.

SNOW, LOWER LAKE CHELAN COUNTY

LATITUDE 47°29'23" LONGITUDE 120°44' 2" T23N-R17E-17
WENATCHEE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	4.58 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	5415. FT		
LAKE AREA	65. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	770. ACRE-FT		
MEAN DEPTH	12. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	42. FT		
SHORELINE LENGTH	2.5 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.28	AGRICULTURAL	0 %
BOTTOM SLOPE	2.2 %	FOREST OR UNPRODUCTIVE	92 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	8 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

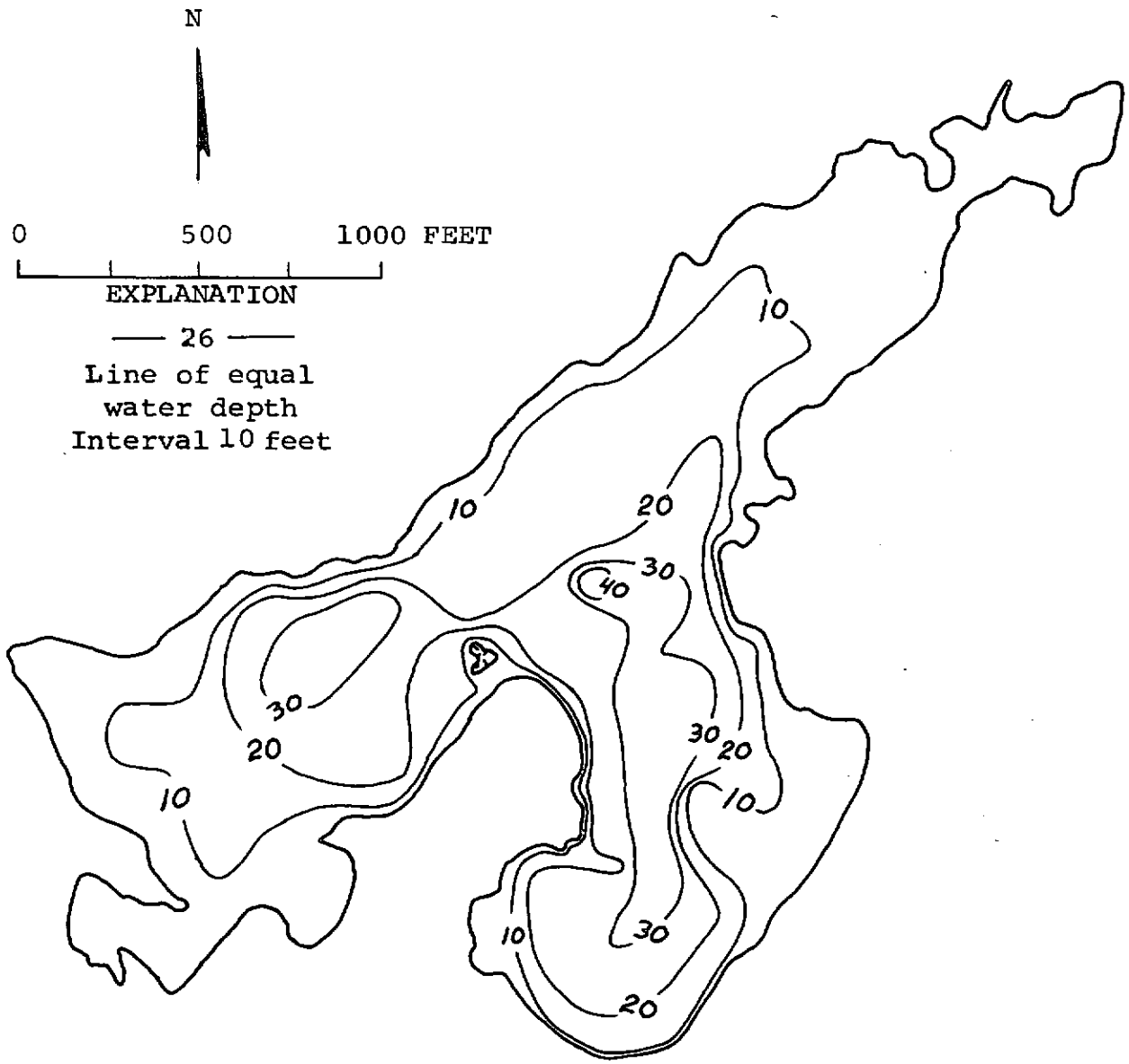
SAMPLE SITE	1	
DATE	7/31/74	
TIME	1015	1020
DEPTH (FT)	3.	30.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.04
TOTAL ORGANIC NITROGEN (N)	0.20	0.14
TOTAL PHOSPHORUS (P)	0.003	0.003
TOTAL ORTHOPHOSPHATE (P)	0.000	0.000
SPECIFIC CONDUCTANCE (MICROMHOS)	7	7
WATER TEMPERATURE (DEG C)	15.2	11.0
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	>34	
DISSOLVED OXYGEN	8.4	9.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

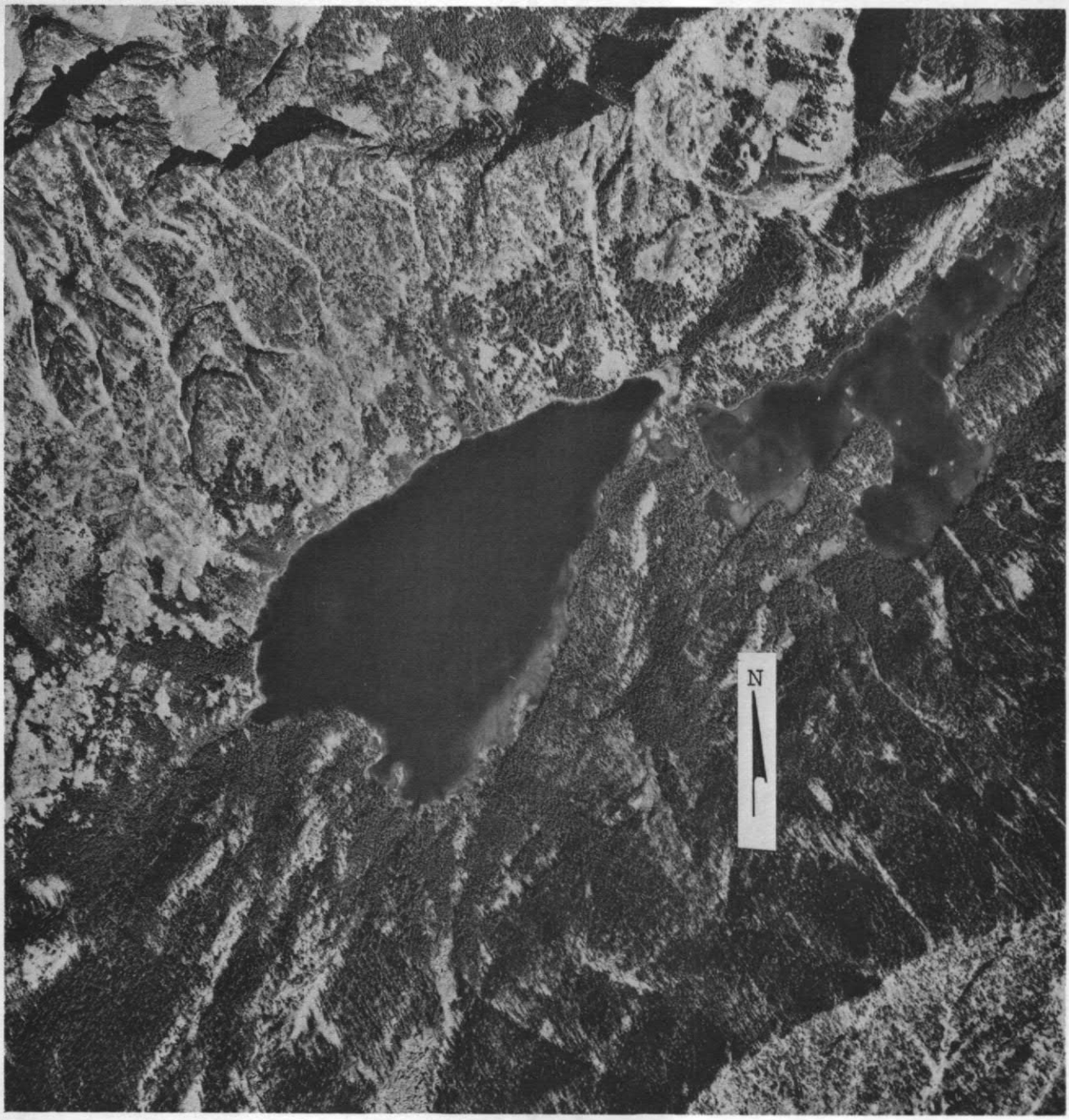
DATE	7/31/74
TIME	1000
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS PART OF THE U.S. BUREAU OF RECLAMATION SNOW LAKES PROJECT. LAKE STAGE IS CONTROLLED BY A DAM AND CONTROL GATE AT THE OUTLET AND THE WATER IS USED FOR IRRIGATION PURPOSES. WHEN FULL, THE LAKE WATER BACKS INTO UPPER SNOW LAKE. FLOATING LOGS WERE OBSERVED AT THE EAST AND WEST ENDS OF THE LAKE. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. WATER SAMPLES CONTAINED ABUNDANT ZOOPLANKTON. THE LAKE HAS NUMEROUS SMALL ISLANDS AND SHALLOW ZONES.



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



Snow, Lower Lake, Chelan County. August 21, 1970. Approx. scale 1:15,000.

SNOW. UPPER LAKE CHELAN COUNTY

LATITUDE 47*29' 9" LONGITUDE 120*44'57" T23N-R17E-17
WENATCHEE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	3.92 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	5415. FT		
LAKE AREA	120. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	17000. ACRE-FT		
MEAN DEPTH	140. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	280. FT		
SHORELINE LENGTH	2.4 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.51	AGRICULTURAL	0 %
BOTTOM SLOPE	11. %	FOREST OR UNPRODUCTIVE	93 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	7 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

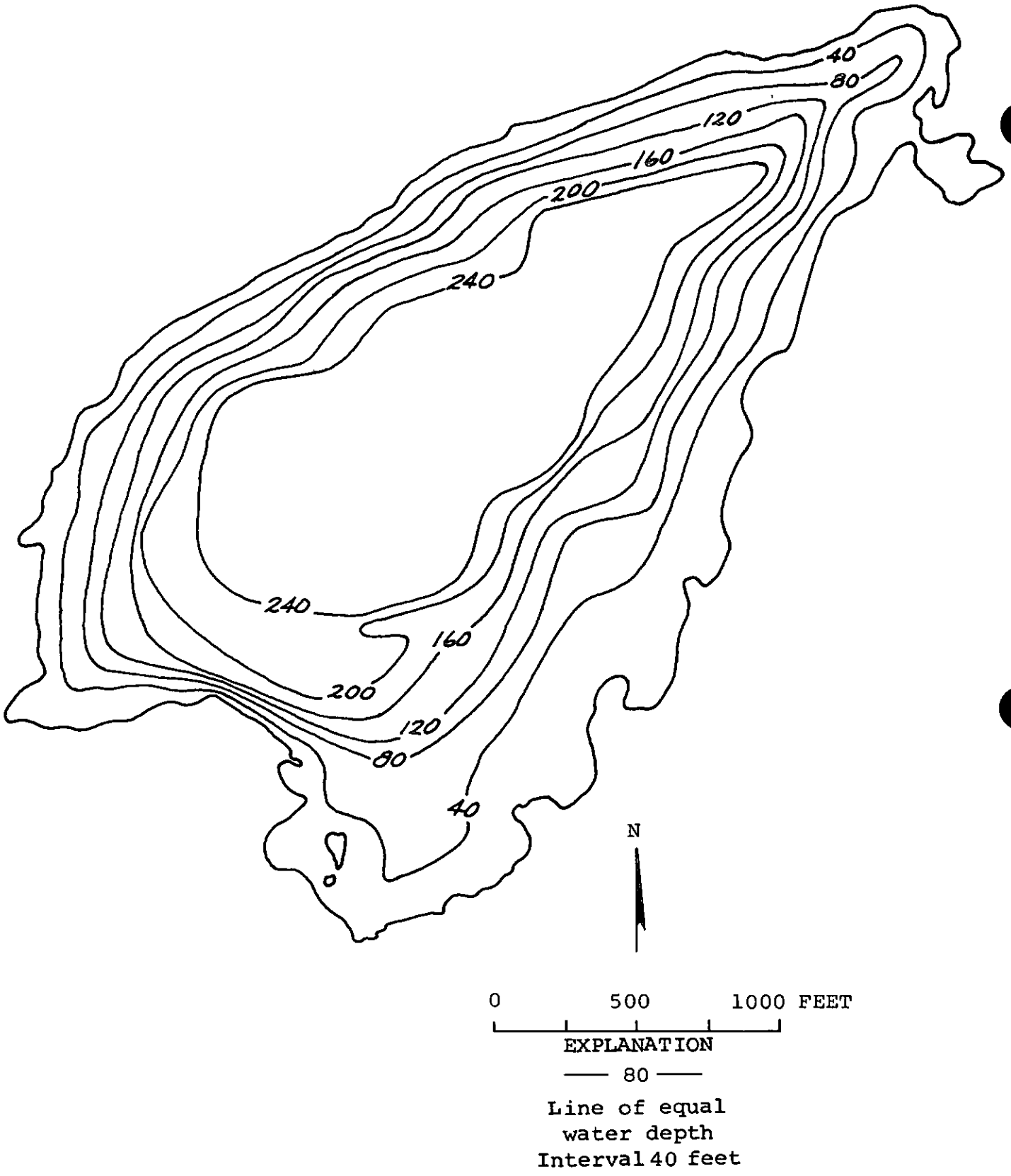
SAMPLE SITE	1	
DATE	7/31/74	
TIME	1200	1205
DEPTH (FT)	3.	164.
TOTAL NITRATE (N)	0.01	0.03
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.04
TOTAL ORGANIC NITROGEN (N)	0.14	0.02
TOTAL PHOSPHORUS (P)	0.003	0.004
TOTAL ORTHOPHOSPHATE (P)	0.004	0.001
SPECIFIC CONDUCTANCE (MICROMHOS)	6	6
WATER TEMPERATURE (DEG C)	14.3	3.7
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	41	
DISSOLVED OXYGEN	8.9	8.8

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	7/31/74
TIME	1130
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM. MINIMUM (COL./100ML)	<1
FECAL COLIFORM. MAXIMUM (COL./100ML)	<1
FECAL COLIFORM. MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS FED BY THE ENCHANTMENT LAKES VIA SNOW CREEK AND IS CONNECTED TO NADA LAKE BY A MAN-MADE TUNNEL. THE WATER IS USED FOR IRRIGATION PURPOSES. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. NO AQUATIC MACROPHYTES WERE OBSERVED.



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

Snow, Upper Lake, Chelan County. August 21, 1970. Approx. scale 1:15,000.

SPRING HILL (BLACK) LAKE CHELAN COUNTY

LATITUDE 47°18' 9" LONGITUDE 120°20' 6" T21N-R20E-21
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.38 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3425. FT		
LAKE AREA	33. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	430. ACRE-FT		
MEAN DEPTH	13. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	26. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.51	AGRICULTURAL	19 %
BOTTOM SLOPE	1.9 %	FOREST OR UNPRODUCTIVE	67 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	14 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

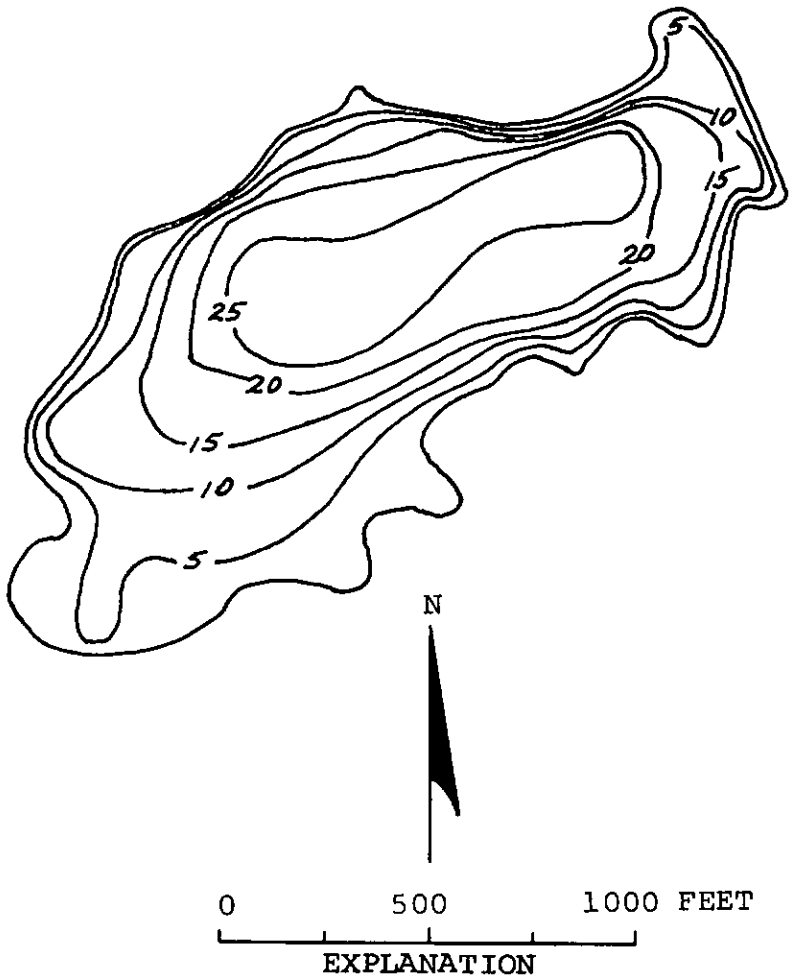
SAMPLE SITE	1	
DATE	7/26/74	
TIME	1040	1045
DEPTH (FT)	3.	18.
TOTAL NITRATE (N)	0.02	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.09
TOTAL ORGANIC NITROGEN (N)	0.17	0.15
TOTAL PHOSPHORUS (P)	0.025	0.11
TOTAL ORTHOPHOSPHATE (P)	0.010	0.091
SPECIFIC CONDUCTANCE (MICROMHOS)	82	110
WATER TEMPERATURE (DEG C)	19.8	11.0
COLOR (PLATINUM-COBALT UNITS)	15	20
SECCHI-DISC VISIBILITY (FT)	8	
DISSOLVED OXYGEN	8.5	1.7

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/26/74
TIME	1100
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	26
FECAL COLIFORM, MEAN (COL./100ML)	10

REMARKS

A NATURAL MARSH ENLARGED BY DAMS. THE WATER IS USED FOR IRRIGATION PURPOSES. THE LITTORAL BOTTOM IS MOSTLY SILT. AN ALGAL BLOOM AND FLOATING LOGS WERE OBSERVED.



Spring Hill (Black) Lake, Chelan County.
From U.S. Geological Survey, July 16, 1974.

Spring Hill (Black) Lake, Chelan County.
August 31, 1972. Approx. scale 1:12,000.

WAPATO LAKE CHELAN COUNTY

LATITUDE 47*54'44" LONGITUDE 120* 9'15" T28N-R21E-23
CHELAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	7 %
ALTITUDE	1228. FT		
LAKE AREA	220. ACRES	NUMBER OF NEARSHORE HOMES	9
LAKE VOLUME	9500. ACRE-FT		
MEAN DEPTH	44. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	68. FT		
SHORELINE LENGTH	3.2 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	1.6		
DEVELOPMENT OF VOLUME	0.64		
BOTTOM SLOPE	2.0 %		
BASIN GEOLOGY	IGNEOUS		
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

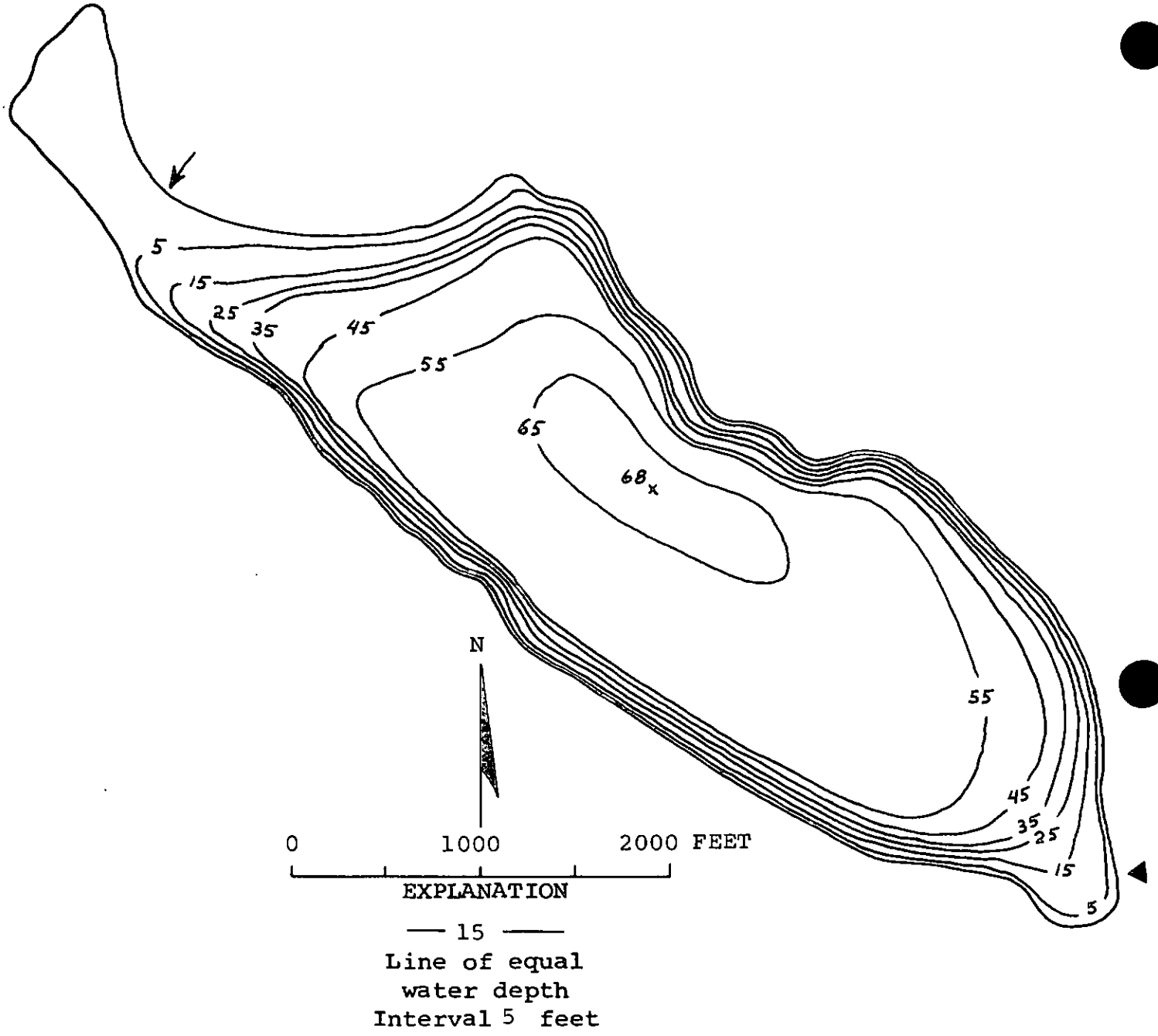
SAMPLE SITE	1	
DATE	7/17/74	
TIME	1125	1135
DEPTH (FT)	3.	59.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.02	1.6
TOTAL ORGANIC NITROGEN (N)	0.45	0.40
TOTAL PHOSPHORUS (P)	0.029	0.37
DISSOLVED ORTHOPHOSPHATE (P)	0.004	0.37
SPECIFIC CONDUCTANCE (MICROMHOS)	250	274
WATER TEMPERATURE (DEG C)	19.0	9.0
COLOR (PLATINUM-COBALT UNITS)	10	20
SECCHI-DISC VISIBILITY (FT)	7	
DISSOLVED OXYGEN	10.2	0.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/17/74
TIME	1155
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	3
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

A NATURAL LAKE CONTROLLED BY A GATE AND FED IN PART BY PUMPING FROM LAKE CHELAN. THE WATER IS USED FOR IRRIGATION PURPOSES. IN 1974 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE ON AUGUST 21, 1974. THE LAKE IS PARTIALLY SURROUNDED BY APPLE ORCHARDS. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE DRAINAGE AREA WAS NOT MEASURED BECAUSE WATER IS IMPORTED FROM LAKE CHELAN.



Wapato Lake, Chelan County. From Washington Department of Game, February 15, 1950.

Wapato Lake, Chelan County. May 25, 1972. Approx. scale 1:13,000.

WENATCHEE LAKE CHELAN COUNTY

LATITUDE 47°48'31" LONGITUDE 120°43'35" T27N-R17E-28
WENATCHEE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	273. SQ MI	RESIDENTIAL DEVELOPMENT	59 %
ALTITUDE	1868. FT		
LAKE AREA	2500. ACRES	NUMBER OF NEARSHORE HOMES	276
LAKE VOLUME	360000. ACRE-FT		
MEAN DEPTH	150. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	240. FT		
SHORELINE LENGTH	13. MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.9	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.60	AGRICULTURAL	0 %
BOTTOM SLOPE	2.1 %	FOREST OR UNPRODUCTIVE	98 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	2 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

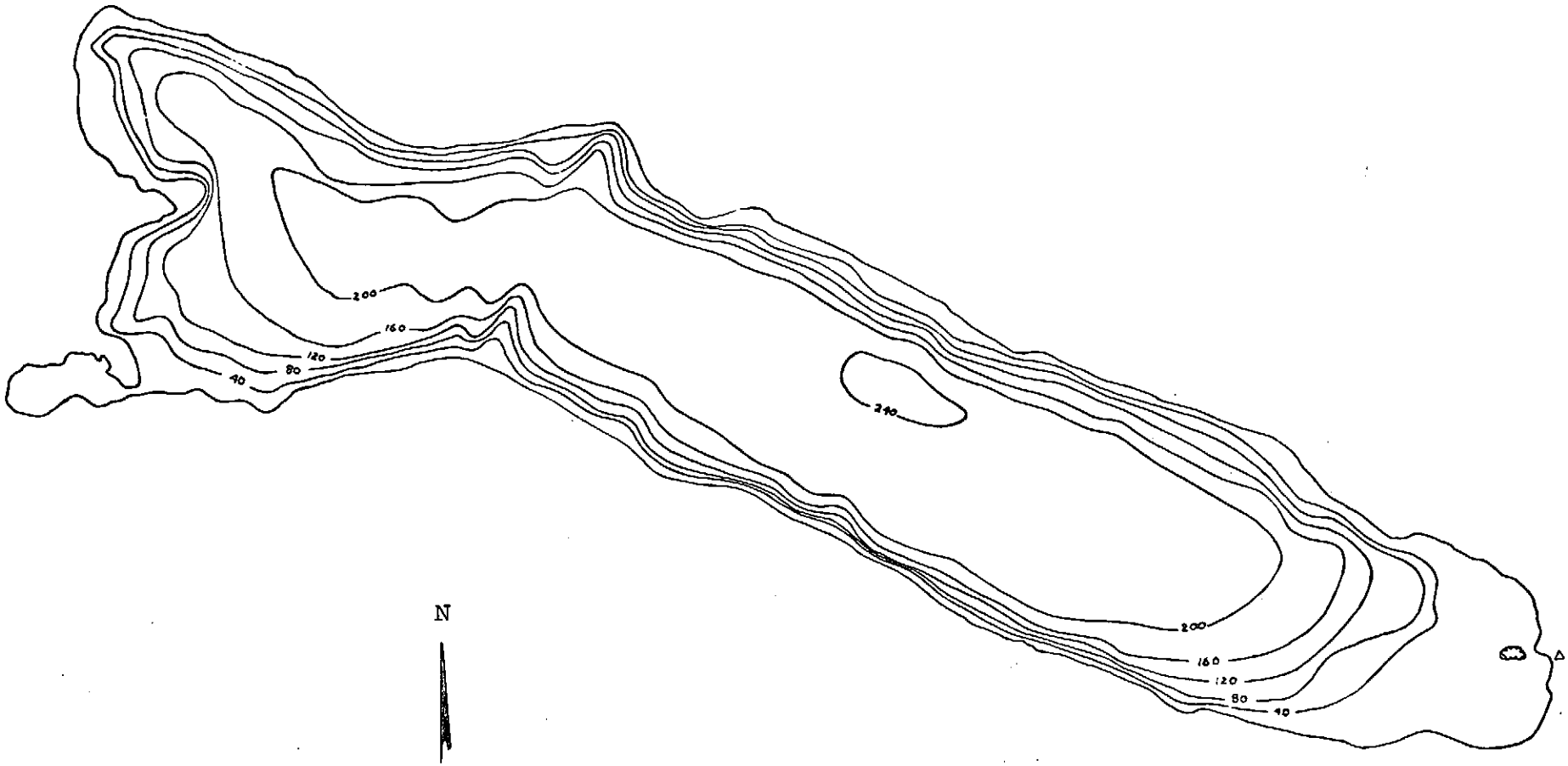
SAMPLE SITE	1		2	
DATE	7/18/74		7/18/74	
TIME	1055	1105	1450	1500
DEPTH (FT)	3.	230.	3.	216.
TOTAL NITRATE (N)	0.05	0.07	0.05	0.08
TOTAL NITRITE (N)	0.00	0.00	0.00	0.00
TOTAL AMMONIA (N)	0.02	0.03	0.02	0.02
TOTAL ORGANIC NITROGEN (N)	0.01	0.03	0.03	0.00
TOTAL PHOSPHORUS (P)	0.004	0.005	0.004	0.005
DISSOLVED ORTHOPHOSPHATE (P)	0.004	0.002	0.001	0.001
SPECIFIC CONDUCTANCE (MICROMHOS)	19	17	19	17
WATER TEMPERATURE (DEG C)	10.0	6.0	10.0	6.0
COLOR (PLATINUM-COBALT UNITS)	0	0	0	0
SECCHI-DISC VISIBILITY (FT)	20		20	
DISSOLVED OXYGEN	11.1	10.4	10.8	10.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/18/74
TIME	1230
NUMBER OF FECAL COLIFORM SAMPLES	6
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

A LARGE MARSH OCCURS AT THE NORTHWEST END OF THE LAKE. IN 1974 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE ON AUGUST 22, 1974. A LAKE-STAGE RECORDER WAS MAINTAINED ON THE LAKE BY THE U.S. GEOLOGICAL SURVEY FROM 1935 TO 1971. THE PRINCIPAL TRIBUTARIES ARE THE WENATCHEE AND WHITE RIVERS.



Wenatchee Lake, Chelan County. From
U.S. Geological Survey, July 17, 1974.

WHEELER, UPPER LAKE CHELAN COUNTY

LATITUDE 47°17'18" LONGITUDE 120°21'56" T21N-R20E-29
COLUMBIA RIVER BASIN

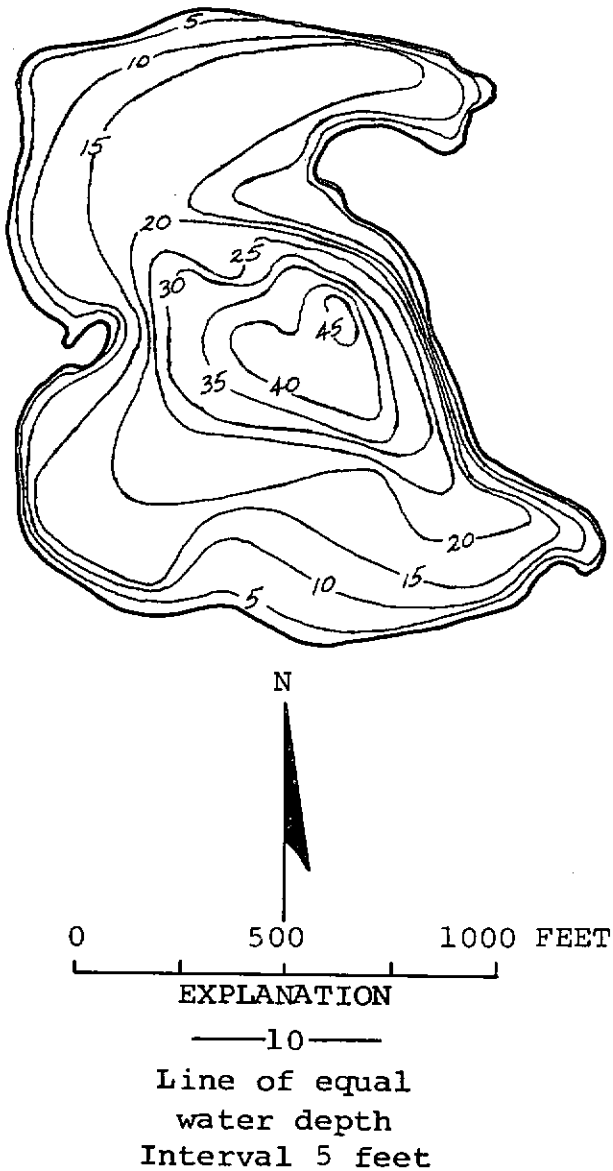
PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.17 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	4288. FT		
LAKE AREA	33. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	550. ACRE-FT		
MEAN DEPTH	17. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	45. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.37	AGRICULTURAL	0 %
BOTTOM SLOPE	3.3 %	FOREST OR UNPRODUCTIVE	98 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	2 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

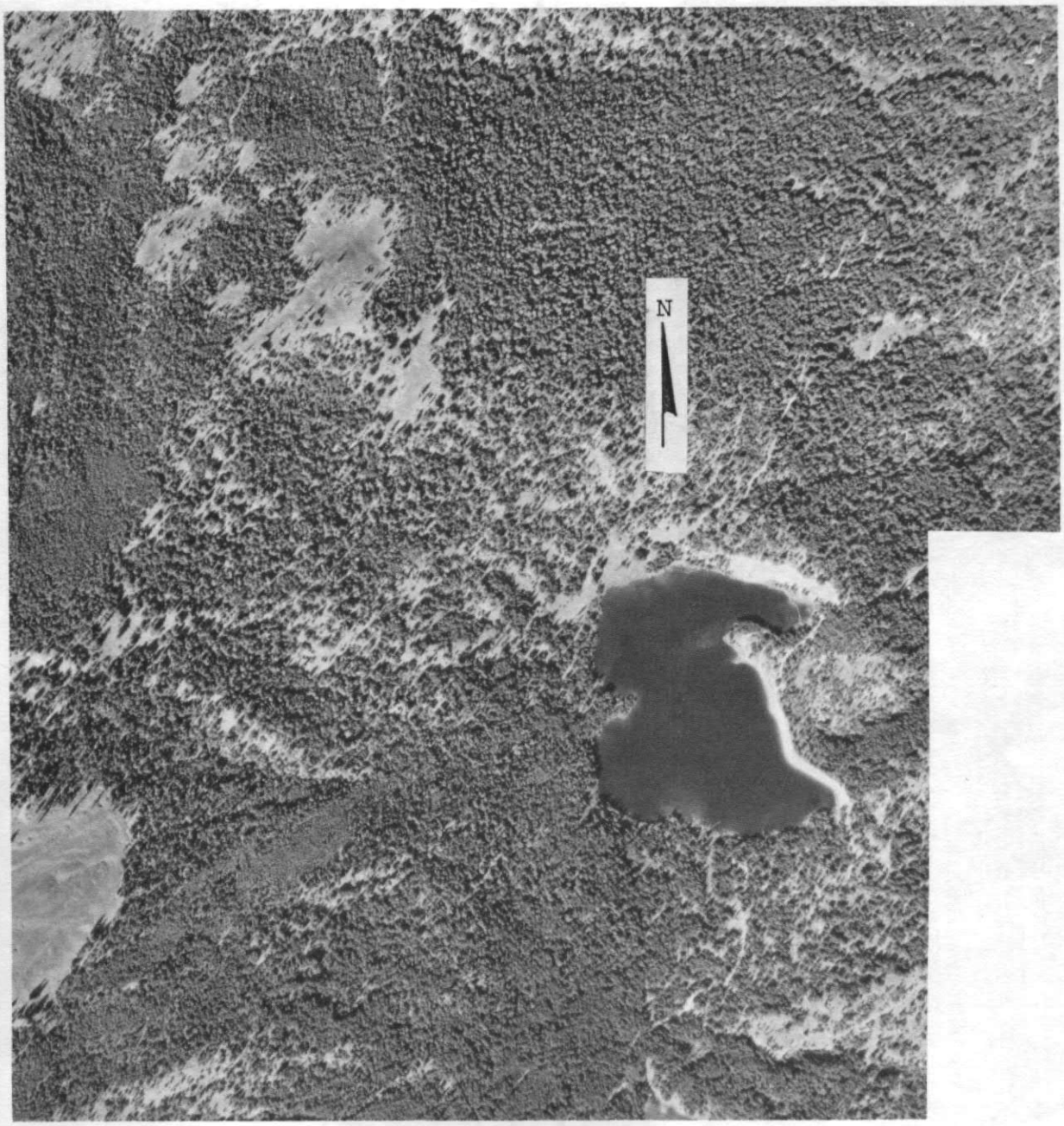
SAMPLE SITE	1	
DATE	7/26/74	
TIME	935	940
DEPTH (FT)	3.	30.
TOTAL NITRATE (N)	0.02	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.02	0.02
TOTAL ORGANIC NITROGEN (N)	0.24	0.28
TOTAL PHOSPHORUS (P)	0.021	0.025
TOTAL ORTHOPHOSPHATE (P)	0.020	0.021
SPECIFIC CONDUCTANCE (MICROMHOS)	60	48
WATER TEMPERATURE (DEG C)	16.3	10.7
COLOR (PLATINUM-COBALT UNITS)	0	5
SECCHI-DISC VISIBILITY (FT)	16	
DISSOLVED OXYGEN	8.9	10.1
LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %	
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %	
DATE	7/26/74	
TIME	945	
NUMBER OF FECAL COLIFORM SAMPLES	3	
FECAL COLIFORM, MINIMUM (COL./100ML)	<1	
FECAL COLIFORM, MAXIMUM (COL./100ML)	8	
FECAL COLIFORM, MEAN (COL./100ML)	3	

REMARKS

AN ARTIFICIAL RESERVOIR BUILT IN 1922. THE LITTORAL BOTTOM IS MOSTLY MUCK AND SILT. THE SHORELINE WAS LITTERED WITH FLOATING LOGS, STUMPS, AND DEBRIS. NO SUBMERSED AQUATIC PLANTS WERE OBSERVED. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN.



Wheeler, Upper Lake, Chelan County. From U.S. Geological Survey, July 16, 1974.



Wheeler, Upper Lake, Chelan County.
August 31, 1972. Approx. scale 1:12,000.

CURLEW LAKE FERRY COUNTY

LATITUDE 48°46' 3" LONGITUDE 118°39'23" T38N-R33E-28
KETTLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	64.5 SQ MI	RESIDENTIAL DEVELOPMENT	11 %
ALTITUDE	2333. FT		
LAKE AREA	920. ACRES	NUMBER OF NEARSHORE HOMES	95
LAKE VOLUME	40000. ACRE-FT		
MEAN DEPTH	43. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	130. FT		
SHORELINE LENGTH	16. MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	3.7	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.33	AGRICULTURAL	13 %
BOTTOM SLOPE	1.8 %	FOREST OR UNPRODUCTIVE	85 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	2 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

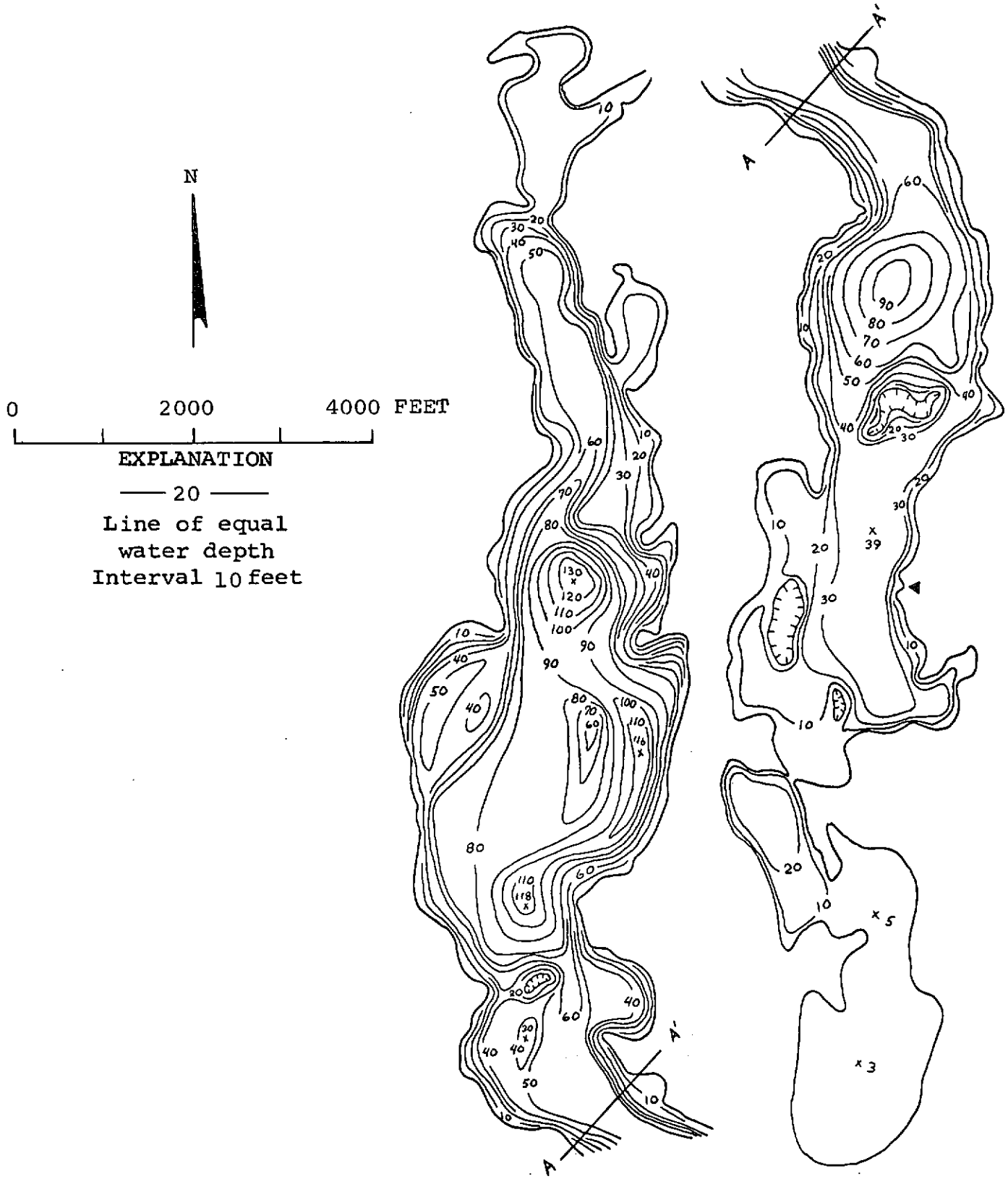
SAMPLE SITE	1		2	
DATE	7/13/74		7/13/74	
TIME	1020	1025	1125	1130
DEPTH (FT)	3.	82.	3.	115.
TOTAL NITRATE (N)	0.00	0.14	0.00	0.26
TOTAL NITRITE (N)	0.00	0.03	0.00	0.01
TOTAL AMMONIA (N)	0.06	0.38	0.06	0.18
TOTAL ORGANIC NITROGEN (N)	0.35	0.35	0.32	0.28
TOTAL PHOSPHORUS (P)	0.024	0.22	0.022	0.12
TOTAL ORTHOPHOSPHATE (P)	0.006	0.20	0.007	0.10
SPECIFIC CONDUCTANCE (MICROMHOS)	220	260	225	250
WATER TEMPERATURE (DEG C)	18.2	5.5	18.8	5.3
COLOR (PLATINUM-COBALT UNITS)	20	20	20	15
SECCHI-DISC VISIBILITY (FT)	11		13	
DISSOLVED OXYGEN	8.8	0.0	8.9	0.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	26- 50 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

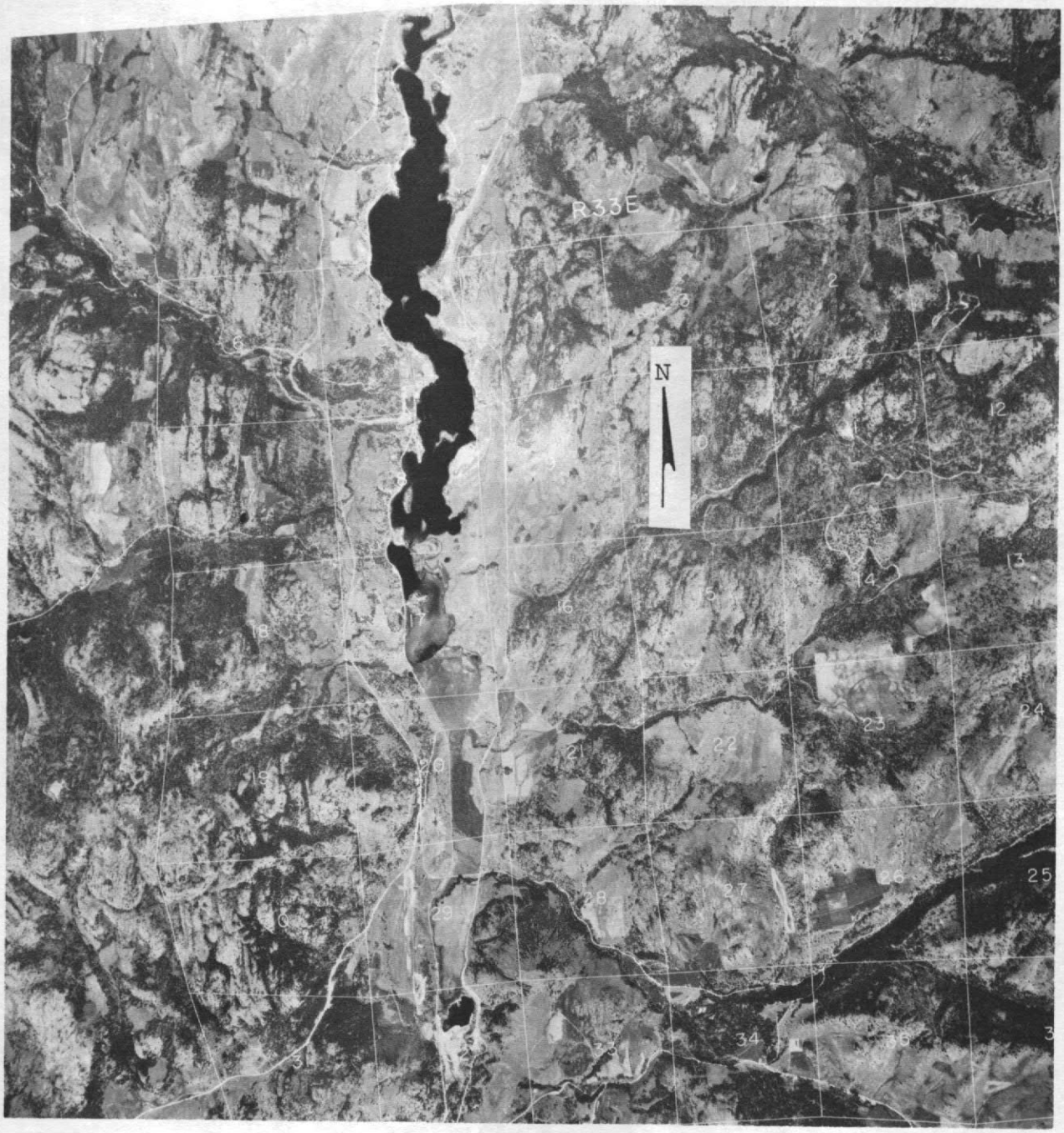
DATE	7/13/74
TIME	920
NUMBER OF FECAL COLIFORM SAMPLES	6
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	23
FECAL COLIFORM, MEAN (COL./100ML)	6

REMARKS

A NATURAL LAKE STABILIZED BY A DAM IN 1926. THE WATER IS USED FOR IRRIGATION PURPOSES. A MILD ALGAL BLOOM AND LARGE AMOUNTS OF EPIPHYTIC ALGAE WERE OBSERVED. RECREATIONAL USE OF THE LAKE IS HEAVY.



Curlew Lake, Ferry County. From Washington Department of Game, March 1949.



Curlew Lake, Ferry County. July 2, 1968. Approx. scale 1:60,000.

MUD LAKE FERRY COUNTY

LATITUDE 48*40'18" LONGITUDE 118*45'58" T37N-R32E-27
SANPOIL RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.62 SQ MI	RESIDENTIAL DEVELOPMENT	5 %
ALTITUDE	2975. FT		
LAKE AREA	28. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	340. ACRE-FT		
MEAN DEPTH	12. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	31. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	1 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.39	AGRICULTURAL	90 %
BOTTOM SLOPE	2.5 %	FOREST OR UNPRODUCTIVE	3 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	6 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

SAMPLE SITE	1	
DATE	7/13/74	
TIME	1330	1335
DEPTH (FT)	3.	26.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.03
TOTAL AMMONIA (N)	0.14	3.1
TOTAL ORGANIC NITROGEN (N)	0.96	0.10
TOTAL PHOSPHORUS (P)	0.037	0.18
TOTAL ORTHOPHOSPHATE (P)	0.015	0.18
SPECIFIC CONDUCTANCE (MICROMHOS)	1700	1900
WATER TEMPERATURE (DEG C)	17.4	5.0
COLOR (PLATINUM-COBALT UNITS)	40	50
SECCHI-DISC VISIBILITY (FT)	4	
DISSOLVED OXYGEN	9.4	0.1

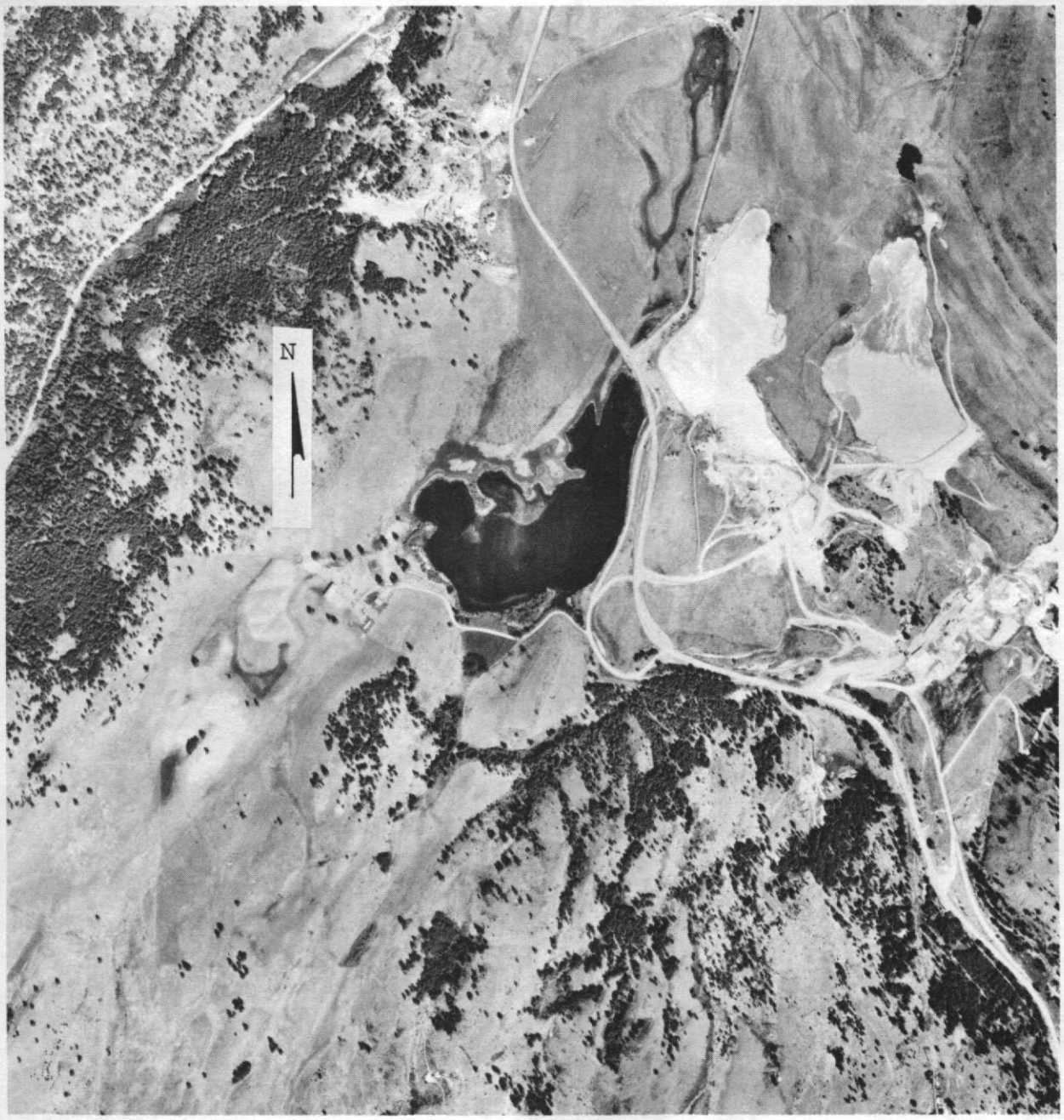
LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/13/74
TIME	1340
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

THE LAKE IS ADJACENT TO THE KNOB HILL MINE SETTLING POND. MOST OF THE SHORELINE WAS OCCUPIED BY EMERSED AQUATIC PLANTS (CATTAIL AND RUSHES). THE LITTORAL BOTTOM IS MUCK. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE VOLUME AND MEAN DEPTH ARE ESTIMATED.

Mud Lake, Ferry County. From
U.S. Geological Survey, September 1974.



Mud Lake, Ferry County. July 13, 1973. Approx. scale 1:12,000.

SANPOIL LAKE FERRY COUNTY

LATITUDE 48*39'44" LONGITUDE 118*40'12" T37N-R33E-32
SANPOIL RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	41.4 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2375. FT		
LAKE AREA	23. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	220. ACRE-FT		
MEAN DEPTH	10. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	16. FT		
SHORELINE LENGTH	0.91 MI	RESIDENTIAL URBAN	<1 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.60	AGRICULTURAL	20 %
BOTTOM SLOPE	1.4 %	FOREST OR UNPRODUCTIVE	80 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	<1 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

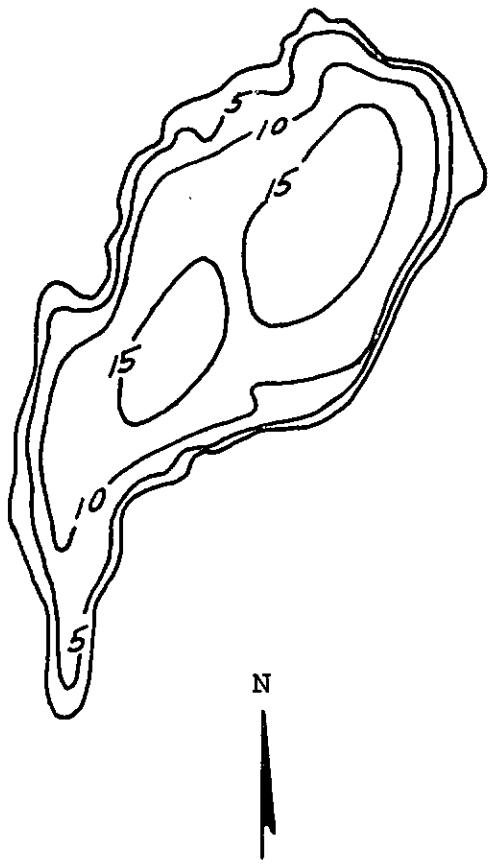
SAMPLE SITE	1	
DATE	7/13/74	
TIME	1220	1225
DEPTH (FT)	3.	11.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.09	0.87
TOTAL ORGANIC NITROGEN (N)	0.36	0.23
TOTAL PHOSPHORUS (P)	0.097	0.28
TOTAL ORTHOPHOSPHATE (P)	0.070	0.26
SPECIFIC CONDUCTANCE (MICROMHOS)	235	220
WATER TEMPERATURE (DEG C)	17.2	10.3
COLOR (PLATINUM-COBALT UNITS)	30	45
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	6.7	0.3

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/13/74
TIME	1235
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	8
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

AN ENLARGEMENT OF THE SANPOIL RIVER AND FORMERLY USED AS A LOG POND. THE SHORELINE WAS LITTERED WITH FLOATING LOGS. AN ALGAL BLOOM WAS OBSERVED. NO SUBMERSED AQUATIC PLANTS WERE OBSERVED.



Sanpoil Lake, Ferry County. From
U.S. Geological Survey, September 23, 1974.

Sanpoil Lake, Ferry County. July 13, 1973. Approx. scale 1:12,000.

CLE ELUM LAKE KITTITAS COUNTY

LATITUDE 47°14'43" LONGITUDE 121° 4'23" T20N-R14E-10
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	203. SQ MI	RESIDENTIAL DEVELOPMENT	7 %
ALTITUDE	2223. FT		
LAKE AREA	4800. ACRES	NUMBER OF NEARSHORE HOMES	35
LAKE VOLUME	520000. ACRE-FT		
MEAN DEPTH	110. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	260. FT		
SHORELINE LENGTH	20. MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.42	AGRICULTURAL	0 %
BOTTOM SLOPE	1.6 %	FOREST OR UNPRODUCTIVE	96 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	4 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

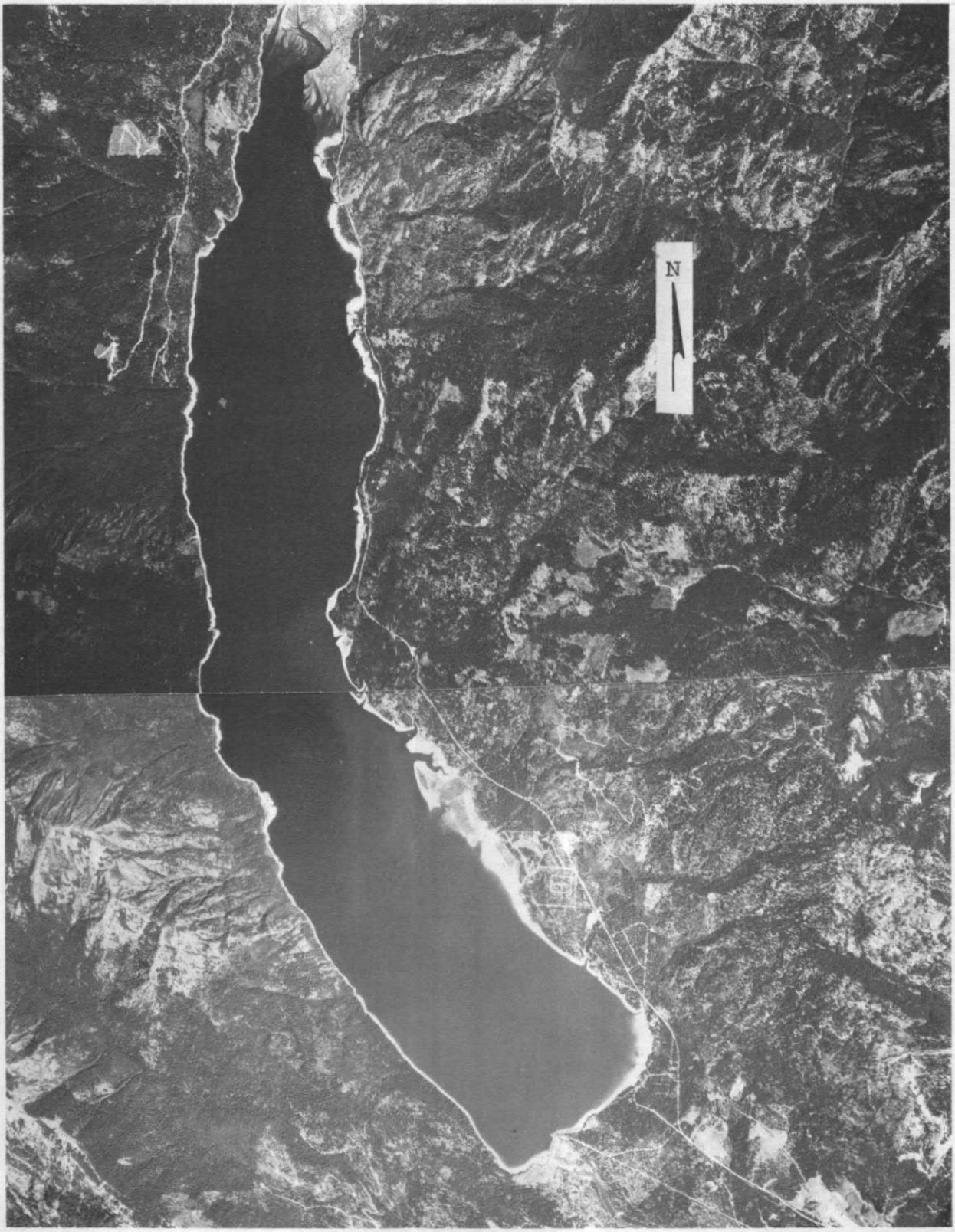
SAMPLE SITE	1		2	
DATE	7/30/74		7/30/74	
TIME	1100	1105	1200	1205
DEPTH (FT)	3.	36.	3.	164.
TOTAL NITRATE (N)	0.00	0.00	0.00	0.03
TOTAL NITRITE (N)	0.00	0.00	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.04	0.04	0.06
TOTAL ORGANIC NITROGEN (N)	0.29	0.14	0.11	0.08
TOTAL PHOSPHORUS (P)	0.004	0.004	0.003	0.003
TOTAL ORTHOPHOSPHATE (P)	0.000	0.001	0.001	0.001
SPECIFIC CONDUCTANCE (MICROMHOS)	35	35	40	40
WATER TEMPERATURE (DEG C)	14.0	8.5	17.8	5.2
COLOR (PLATINUM-COBALT UNITS)	0	0	0	0
SECCHI-DISC VISIBILITY (FT)	28		31	
DISSOLVED OXYGEN	9.8	10.8	9.2	11.1

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	7/30/74
TIME	1100
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	4
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

AN ARTIFICIAL RESERVOIR BUILT ON THE CLE ELUM RIVER BY THE U.S. BUREAU OF RECLAMATION. THE WATER IS USED FOR IRRIGATION PURPOSES. RECREATIONAL USE OF THE LAKE IS HEAVY. A STAFF GAGE HAS BEEN MAINTAINED ON THE LAKE BY THE U.S. GEOLOGICAL SURVEY SINCE 1906. FLOATING LOGS OCCURRED AT THE SOUTHEAST END OF THE LAKE. NO AQUATIC MACROPHYTES WERE OBSERVED. THE LIMNOLOGY OF CLE ELUM LAKE WAS DESCRIBED BY GOODWIN AND WESTLEY (1967).



Cle Elum Lake, Kittitas County. August 2, 1967. Approx. scale 1:63,000.

COOPER LAKE KITTITAS COUNTY

LATITUDE 47*25'16" LONGITUDE 121* 9'35" T22N-R13E-1
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	27.9 SQ MI	RESIDENTIAL DEVELOPMENT	3 %
ALTITUDE	2788. FT		
LAKE AREA	130. ACRES	NUMBER OF NEARSHORE HOMES	2
LAKE VOLUME	2600. ACRE-FT		
MEAN DEPTH	21. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	49. FT		
SHORELINE LENGTH	3.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.43	AGRICULTURAL	0 %
BOTTOM SLOPE	1.8 %	FOREST OR UNPRODUCTIVE	99 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	1 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

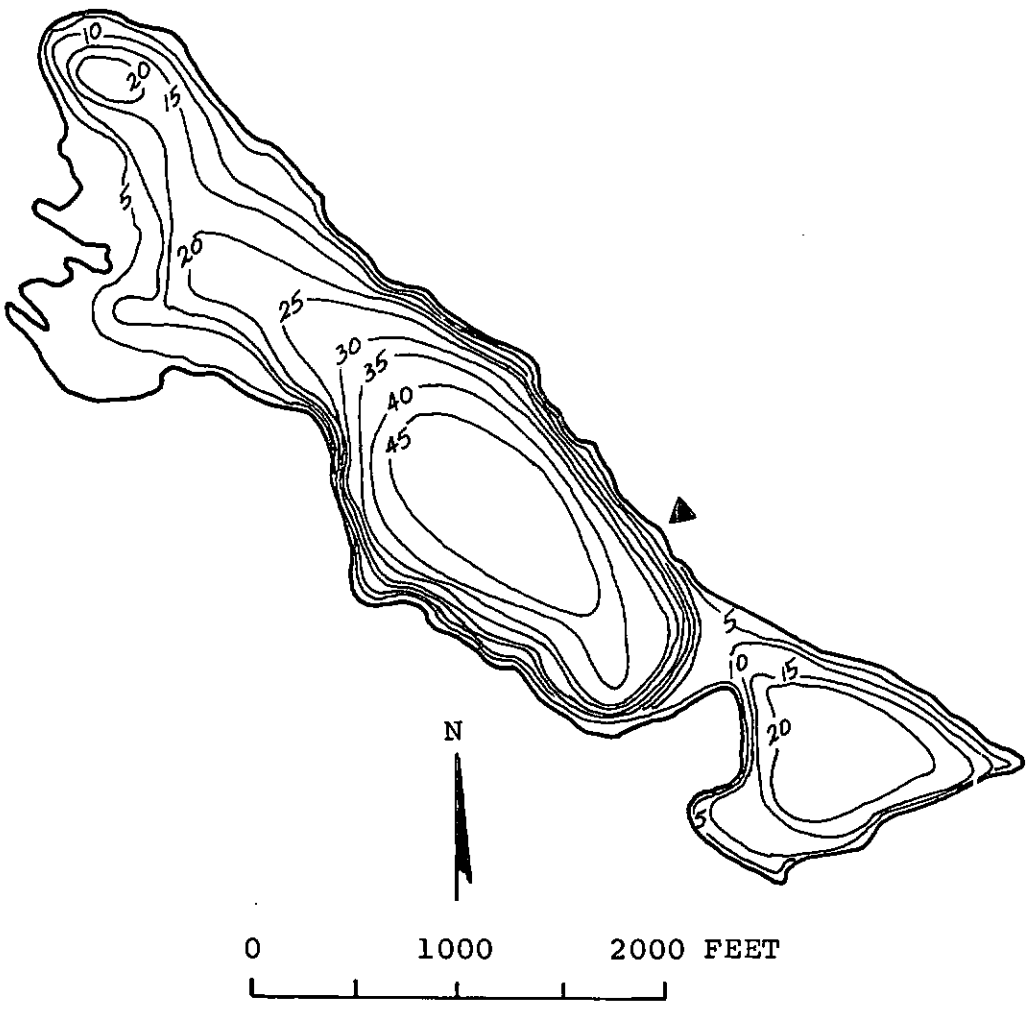
SAMPLE SITE	1	
DATE	8/ 1/74	
TIME	1100	1105
DEPTH (FT)	3.	46.
TOTAL NITRATE (N)	0.02	0.04
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.02	0.02
TOTAL ORGANIC NITROGEN (N)	0.13	0.09
TOTAL PHOSPHORUS (P)	0.005	0.004
TOTAL ORTHOPHOSPHATE (P)	0.001	0.001
SPECIFIC CONDUCTANCE (MICROMHOS)	15	15
WATER TEMPERATURE (DEG C)	9.8	6.3
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	30	
DISSOLVED OXYGEN	9.9	10.2

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	8/ 1/74
TIME	1130
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

FLOATING LOGS OCCURRED ALONG THE SHORELINE. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. NUMEROUS CLEAR CUTS OCCUR NEAR THE LAKE.



Cooper Lake, Kittitas County. From
U.S. Geological Survey, September 23, 1974.

Cooper Lake, Kittitas County. From
U.S. Geological Survey, September 23, 1974.

EASTON LAKE KITTITAS COUNTY

LATITUDE 47°14'29" LONGITUDE 121°11'11" T20N-R13E-11
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	188. SQ MI	RESIDENTIAL DEVELOPMENT	2 %
ALTITUDE	2180. FT		
LAKE AREA	240. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	4000. ACRE-FT		
MEAN DEPTH	17. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	16. FT		
SHORELINE LENGTH	2.5 MI	RESIDENTIAL URBAN	1 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	1.00	AGRICULTURAL	0 %
BOTTOM SLOPE	0.44 %	FOREST OR UNPRODUCTIVE	93 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	6 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

SAMPLE SITE	1	
DATE	7/31/74	
TIME	1050	1055
DEPTH (FT)	3.	13.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.03
TOTAL ORGANIC NITROGEN (N)	0.01	0.04
TOTAL PHOSPHORUS (P)	0.004	0.005
TOTAL ORTHOPHOSPHATE (P)	0.001	0.001
SPECIFIC CONDUCTANCE (MICROMHOS)	40	40
WATER TEMPERATURE (DEG C)	17.8	16.9
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	16	
DISSOLVED OXYGEN	8.4	8.4
LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %	
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %	
DATE	7/31/74	
TIME	1100	
NUMBER OF FECAL COLIFORM SAMPLES	3	
FECAL COLIFORM, MINIMUM (COL./100ML)	<1	
FECAL COLIFORM, MAXIMUM (COL./100ML)	3	
FECAL COLIFORM, MEAN (COL./100ML)	1	

REMARKS

AN ARTIFICIAL STORAGE POOL BUILT ON THE YAKIMA RIVER IN 1929 BY THE U.S. BUREAU OF RECLAMATION. THE WATER IS USED FOR IRRIGATION PURPOSES. NUMEROUS SUBMERGED STUMPS OCCURRED AT THE NORTH END OF THE LAKE. FLOATING LOGS OCCURRED LOCALLY NEAR THE SHORELINE. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN.

Easton Lake, Kittias County. August 15, 1970. Approx. scale 1:22,000.

KACHESS LAKE KITTITAS COUNTY

LATITUDE 47°15'53" LONGITUDE 121°12'17" T21N-R13E-34
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	63.6 SQ MI	RESIDENTIAL DEVELOPMENT	5 %
ALTITUDE	2254. FT		
LAKE AREA	4500. ACRES	NUMBER OF NEARSHORE HOMES	27
LAKE VOLUME	550000. ACRE-FT		
MEAN DEPTH	120. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	410. FT		
SHORELINE LENGTH	24. MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.30	AGRICULTURAL	0 %
BOTTOM SLOPE	2.6 %	FOREST OR UNPRODUCTIVE	89 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	11 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

SAMPLE SITE	1		2	
DATE	7/30/74		7/31/74	
TIME	1400	1405	945	950
DEPTH (FT)	3.	164.	3.	164.
TOTAL NITRATE (N)	0.00	0.03	0.01	0.03
TOTAL NITRITE (N)	0.00	0.00	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.03	0.01	0.03
TOTAL ORGANIC NITROGEN (N)	0.21	0.07	0.00	0.00
TOTAL PHOSPHORUS (P)	0.003	0.001	0.001	0.001
TOTAL ORTHOPHOSPHATE (P)	0.000	0.000	0.000	0.000
SPECIFIC CONDUCTANCE (MICROMHOS)	40	40	40	40
WATER TEMPERATURE (DEG C)	17.0	4.2	18.2	4.6
COLOR (PLATINUM-COBALT UNITS)	0	0	0	0
SECCHI-DISC VISIBILITY (FT)	36		36	
DISSOLVED OXYGEN	9.4	11.3	8.4	11.1

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	7/30/74
TIME	1430
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

AN ARTIFICIAL RESERVOIR BUILT ON THE KACHESS RIVER BY THE U.S. BUREAU OF RECLAMATION. A STAFF GAGE HAS BEEN MAINTAINED ON THE LAKE BY THE U.S. GEOLOGICAL SURVEY SINCE 1905. THE WATER IS USED FOR IRRIGATION PURPOSES. RECREATIONAL USE OF THE LAKE IS HEAVY. NO AQUATIC MACROPHYTES WERE OBSERVED. SUBMERGED STUMPS OCCURRED AT THE NORTH END OF THE LAKE. THE LIMNOLOGY OF KACHESS LAKE WAS DESCRIBED BY GOODWIN AND WESTLEY (1967).

Kachess Lake, Kittitas County. August 7, 1968. Approx. scale 1:73,000.

KEECHELUS LAKE KITTITAS COUNTY

LATITUDE 47°19'20" LONGITUDE 121°20'18" T21N-R11E-12
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	54.7 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2517. FT		
LAKE AREA	2600. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	250000. ACRE-FT		
MEAN DEPTH	96. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	310. FT		
SHORELINE LENGTH	14. MI	RESIDENTIAL URBAN	2 %
SHORELINE CONFIGURATION	2.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.31	AGRICULTURAL	0 %
BOTTOM SLOPE	2.6 %	FOREST OR UNPRODUCTIVE	91 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	7 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

SAMPLE SITE	1		2	
DATE	7/30/74		7/30/74	
TIME	1245	1250	1400	1405
DEPTH (FT)	3.	49.	3.	164.
TOTAL NITRATE (N)	0.01	0.02	0.01	0.10
TOTAL NITRITE (N)	0.00	0.00	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.03	0.02	0.03
TOTAL ORGANIC NITROGEN (N)	0.06	0.04	0.04	0.01
TOTAL PHOSPHORUS (P)	0.002	0.005	0.003	0.003
TOTAL ORTHOPHOSPHATE (P)	0.002	0.001	0.001	0.000
SPECIFIC CONDUCTANCE (MICROMHOS)	30	30	30	40
WATER TEMPERATURE (DEG C)	17.3	8.3	18.4	4.6
COLOR (PLATINUM-COBALT UNITS)	0	0	0	0
SECCHI-DISC VISIBILITY (FT)	28		30	
DISSOLVED OXYGEN	8.3	9.8	8.0	9.7

LAKE SHORELINE COVERED BY EMERSED PLANTS	LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/30/74
TIME	1155
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

AN ARTIFICIAL RESERVOIR BUILT ON THE YAKIMA RIVER BY THE U.S. BUREAU OF RECLAMATION. A STAFF GAGE HAS BEEN MAINTAINED ON THE LAKE BY THE U.S. GEOLOGICAL SURVEY SINCE 1906. THE WATER IS USED FOR IRRIGATION AND FOR POWER GENERATION. ROAD FILL OCCUPIES THE ENTIRE EASTERN SHORELINE. FLOATING LOGS OCCURRED LOCALLY ALONG THE SHORELINE. NUMEROUS SUBMERGED STUMPS OCCURRED AT THE NORTH END OF THE LAKE. NO AQUATIC MACROPHYTES WERE OBSERVED. THE LIMNOLOGY OF KEECHELUS LAKE WAS DESCRIBED BY GOODWIN AND WESTLEY (1967).

Keechelus Lake, Kittitas County. September 14, 1971. Approx. scale 1:63,000.

LOST LAKE KITTITAS COUNTY

LATITUDE 47°19'53" LONGITUDE 121°24'36" T21N-R11E-4
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.99 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3089. FT		
LAKE AREA	170. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	12000. ACRE-FT		
MEAN DEPTH	71. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	170. FT		
SHORELINE LENGTH	3.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.43	AGRICULTURAL	0 %
BOTTOM SLOPE	5.4 %	FOREST OR UNPRODUCTIVE	89 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	11 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

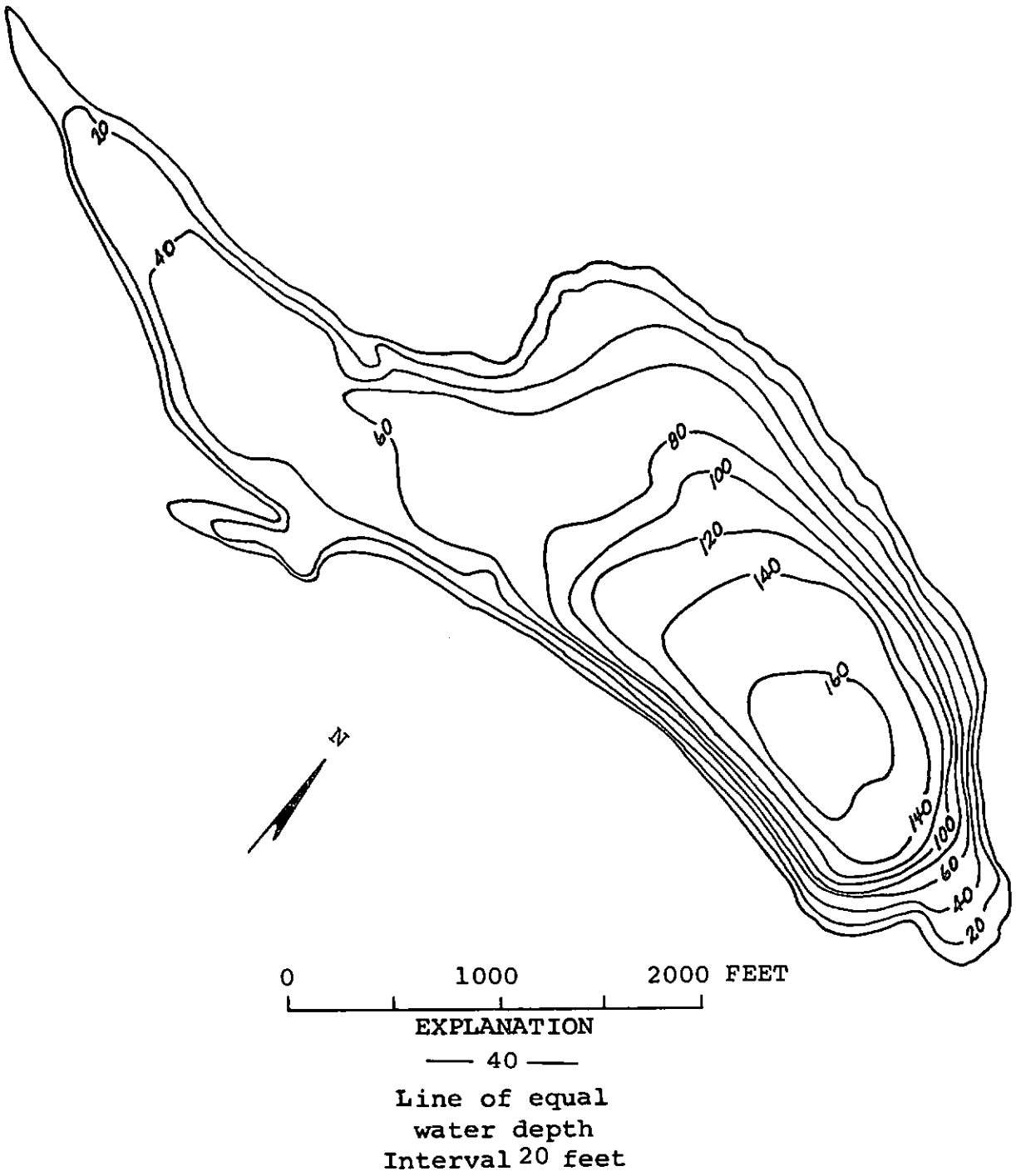
SAMPLE SITE	1	
DATE	7/30/74	
TIME	1110	1115
DEPTH (FT)	3.	144.
TOTAL NITRATE (N)	0.01	0.03
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.01	0.02
TOTAL ORGANIC NITROGEN (N)	0.02	0.01
TOTAL PHOSPHORUS (P)	0.003	0.003
TOTAL ORTHOPHOSPHATE (P)	0.000	0.000
SPECIFIC CONDUCTANCE (MICROMHOS)	20	20
WATER TEMPERATURE (DEG C)	17.5	4.3
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	34	
DISSOLVED OXYGEN	8.2	10.2

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

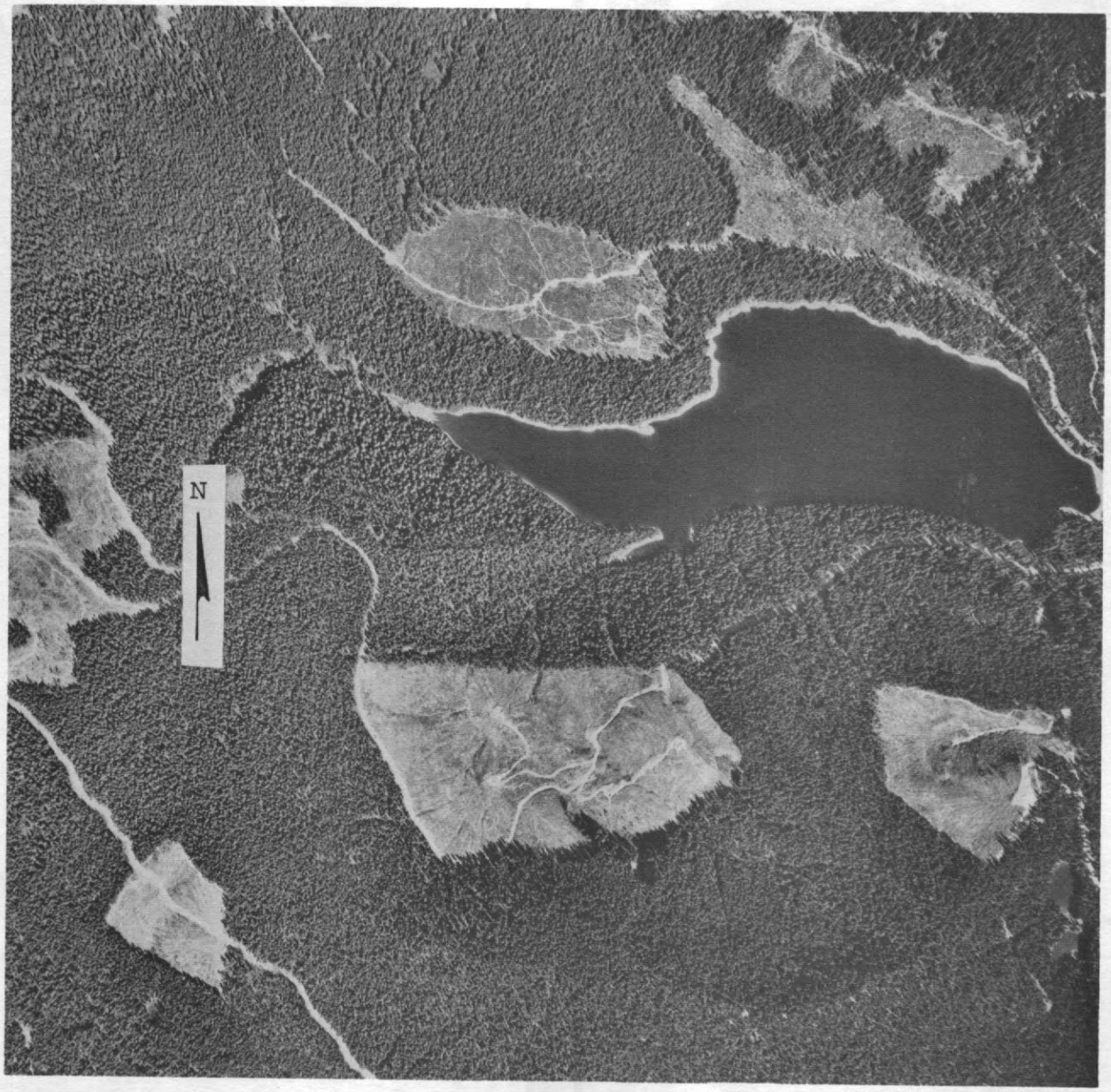
DATE	7/30/74
TIME	1140
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

FLOATING LOGS OCCURRED AT THE WEST END OF THE LAKE. NO AQUATIC PLANTS WERE OBSERVED. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. NUMEROUS CLEAR CUTS OCCUR NEAR THE LAKE.



Lost Lake, Kittitas County. From
U.S. Geological Survey, July 29, 1974.



Lost Lake, Kittitas County. August 14, 1970. Approx. scale 1:18,000.

MANASTASH LAKE KITTITAS COUNTY

LATITUDE 46*59'50" LONGITUDE 120*56'24" T17N-R15E-3
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.90 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	5000. FT		
LAKE AREA	23. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	210. ACRE-FT		
MEAN DEPTH	9. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	13. FT		
SHORELINE LENGTH	0.93 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.68	AGRICULTURAL	0 %
BOTTOM SLOPE	1.1 %	FOREST OR UNPRODUCTIVE	96 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	4 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

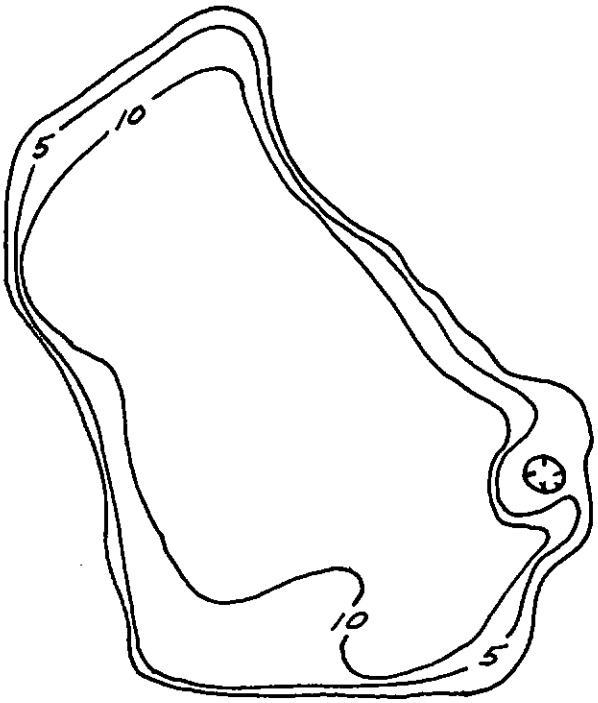
SAMPLE SITE	1	
DATE	7/31/74	
TIME	1310	1315
DEPTH (FT)	3.	10.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.04
TOTAL ORGANIC NITROGEN (N)	0.17	0.37
TOTAL PHOSPHORUS (P)	0.030	0.059
TOTAL ORTHOPHOSPHATE (P)	0.014	0.027
SPECIFIC CONDUCTANCE (MICROMHOS)	55	55
WATER TEMPERATURE (DEG C)	18.7	17.2
COLOR (PLATINUM-COBALT UNITS)	5	15
SECCHI-DISC VISIBILITY (FT)	>12	
DISSOLVED OXYGEN	9.6	12.2

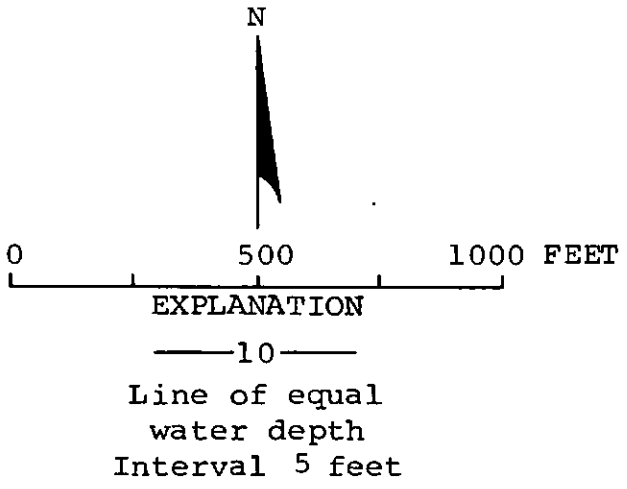
LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/31/74
TIME	1320
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

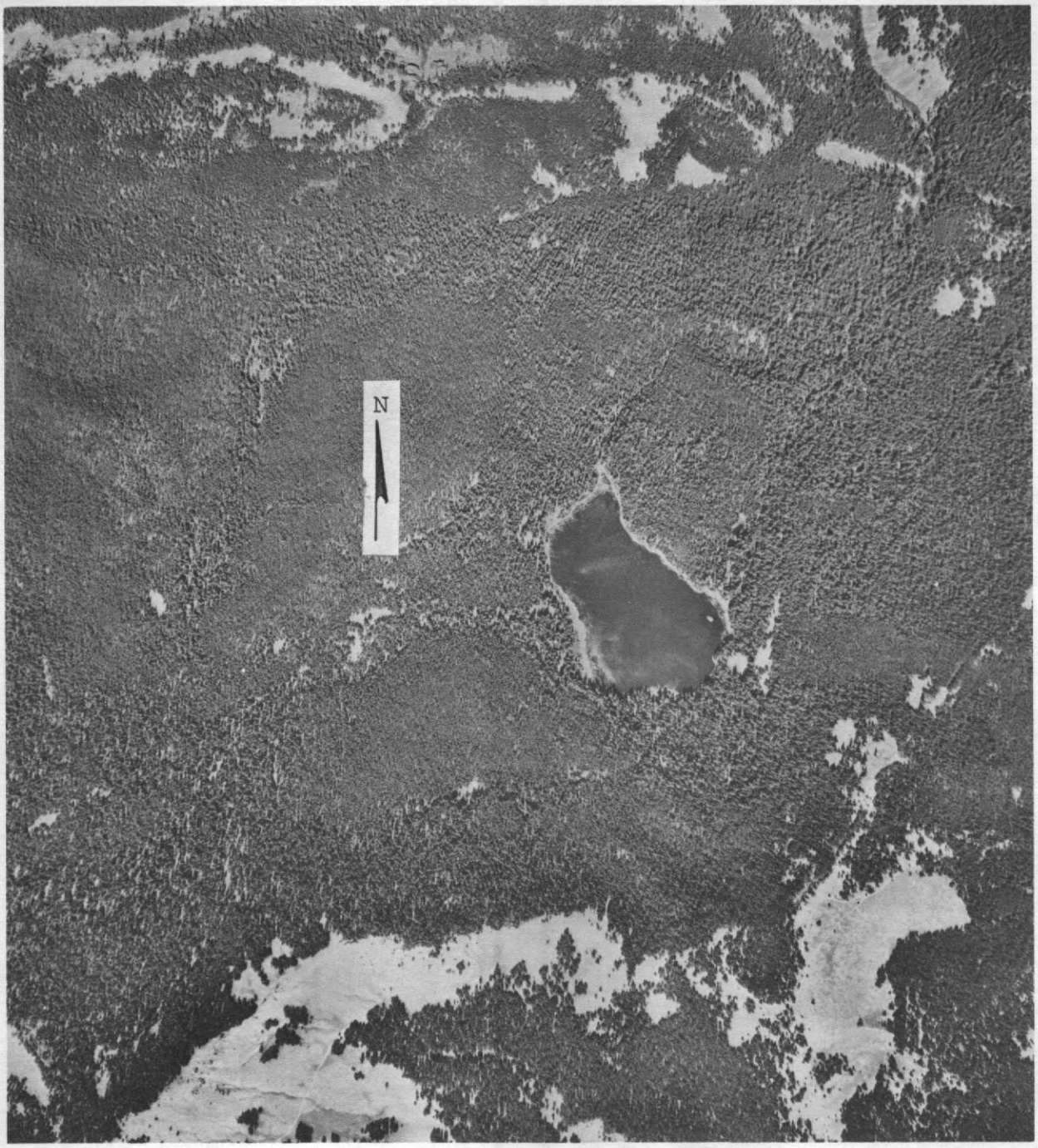
REMARKS

THE WATER WAS TURBID DUE TO DECOMPOSING ORGANIC MATTER. SUMMER ALGAL BLOOMS ARE COMMON IN MANASTASH LAKE. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. THE ENTIRE SHORELINE WAS LITTERED WITH FLOATING LOGS. A LARGE PART OF THE BOTTOM WAS COVERED WITH SUBMERSED AQUATIC PLANTS (COONTAIL). THE LAKE SUPPORTED A LARGE TADPOLE POPULATION. THE ALTITUDE SHOWN IS APPROXIMATE.





Manastash Lake, Kittitas County. From
U.S. Geological Survey, September 21, 1974.



Manastash Lake, Kittitas County. August 1, 1969. Approx. scale 1:13,000.

TUCQUALA LAKE KITTITAS COUNTY

LATITUDE 47*30'31" LONGITUDE 121* 3'43" T23N-R14E-3
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	15.8 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3325. FT		
LAKE AREA	36. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	65. ACRE-FT		
MEAN DEPTH	2. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	8. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.62	AGRICULTURAL	0 %
BOTTOM SLOPE	0.57 %	FOREST OR UNPRODUCTIVE	98 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	2 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

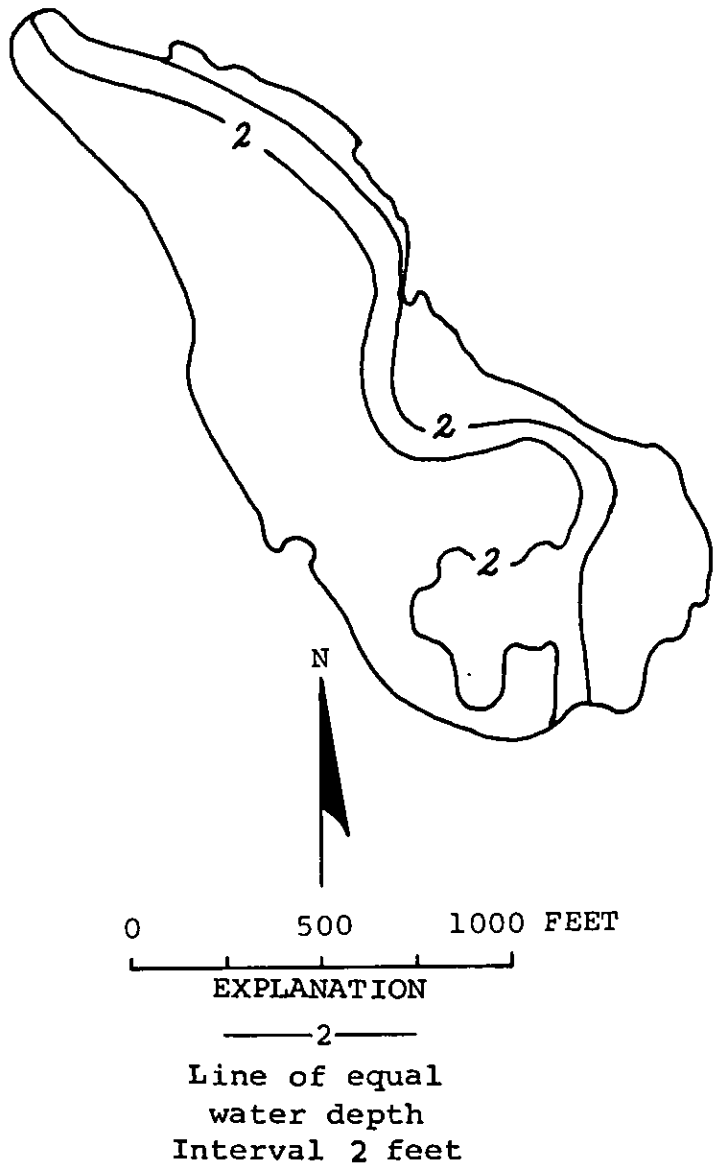
SAMPLE SITE	1	
DATE	8/ 1/74	
TIME	940	945
DEPTH (FT)	3.	7.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.02	0.02
TOTAL ORGANIC NITROGEN (N)	0.09	0.07
TOTAL PHOSPHORUS (P)	0.004	0.004
TOTAL ORTHOPHOSPHATE (P)	0.002	0.001
SPECIFIC CONDUCTANCE (MICROMHOS)	15	15
WATER TEMPERATURE (DEG C)	9.0	8.9
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	> 8	
DISSOLVED OXYGEN	9.7	9.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

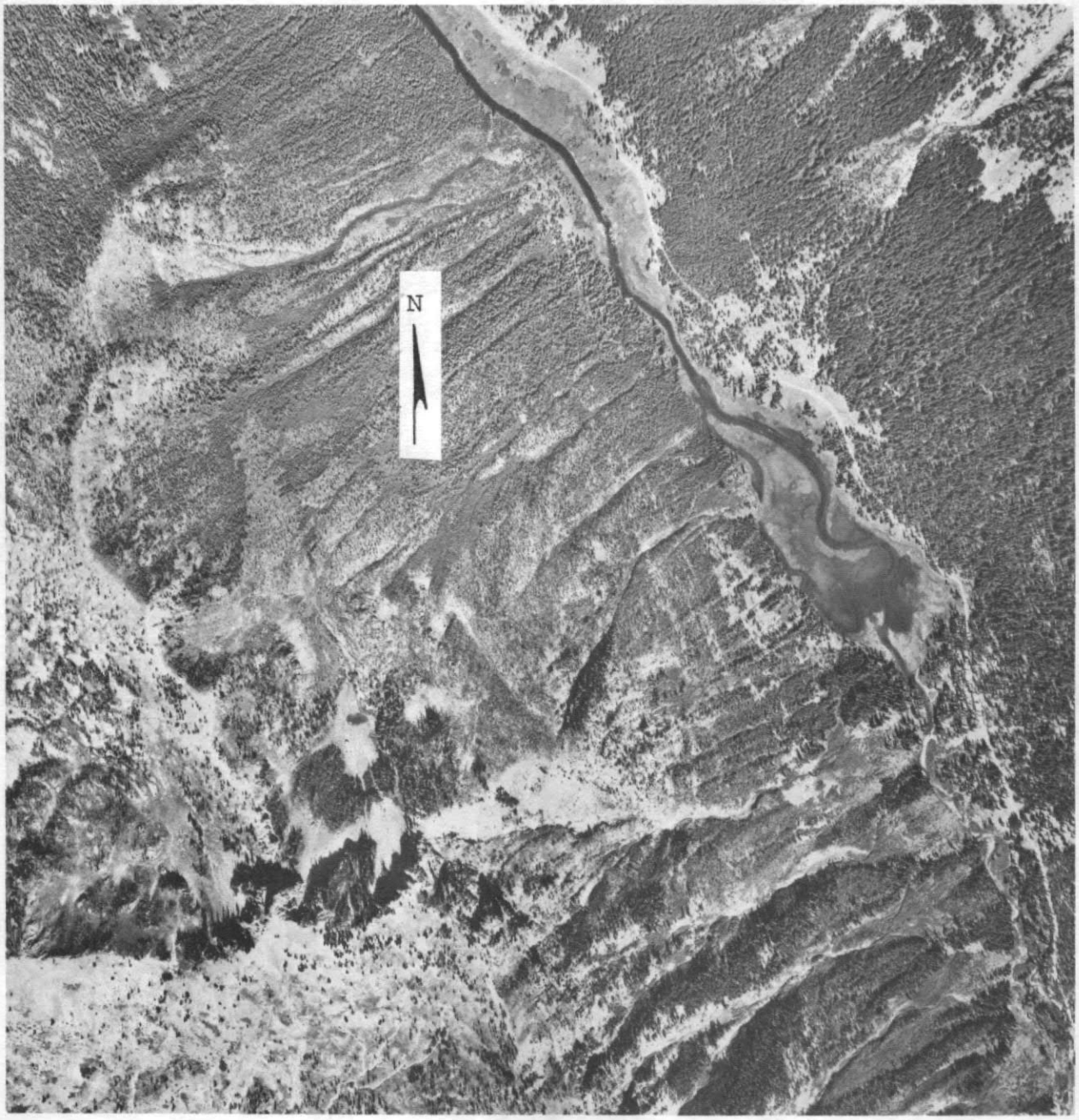
DATE	8/ 1/74
TIME	1000
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

AN ENLARGEMENT OF THE CLE ELUM RIVER, ORIGINALLY FORMED BY A ROCKSLIDE. MOST OF THE LAKE, EXCEPT FOR THE ORIGINAL RIVER CHANNEL, IS SHALLOW AND WEEDY. THE BOTTOM WAS COVERED WITH SUBMERSED AQUATIC PLANTS. NUMEROUS SUBMERGED LOGS OCCURRED ON THE LAKE BOTTOM.



Tucquala Lake, Kittitas County. From
U.S. Geological Survey, September 23, 1974.



Tucquala Lake, Kittitas County. August 27, 1970. Approx. scale 1:16,000.

CARP LAKE KLICKITAT COUNTY

LATITUDE 45°55' 2" LONGITUDE 120°52'50" T5N-R15E-13
KETTLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.12 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2450. FT		
LAKE AREA	26. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	190. ACRE-FT		
MEAN DEPTH	7. FT.	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	10. FT		
SHORELINE LENGTH	0.73 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.71	AGRICULTURAL	0 %
BOTTOM SLOPE	0.83 %	FOREST OR UNPRODUCTIVE	66 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	34 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

SAMPLE SITE	1	
DATE	9/10/74	
TIME	1310	1315
DEPTH (FT)	3.	5.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.05	0.05
TOTAL ORGANIC NITROGEN (N)	0.31	0.29
TOTAL PHOSPHORUS (P)	0.012	0.014
TOTAL ORTHOPHOSPHATE (P)	0.003	0.004
SPECIFIC CONDUCTANCE (MICROMHOS)	110	110
WATER TEMPERATURE (DEG C)	16.0	16.0
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	6	
DISSOLVED OXYGEN	2.1	1.8

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	76-100 %

DATE	9/10/74
TIME	1325
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS IN AN EXTINCT VOLCANIC CRATER AND IS SURROUNDED BY PINE FOREST. THE ENTIRE LAKE SURFACE WAS COVERED WITH EMERSED AQUATIC PLANTS (WATER SHIELD), BUT NO SUBMERSED AQUATIC PLANTS WERE OBSERVED. THE LITTORAL BOTTOM IS SILT.

Carp Lake, Klickitat County. Bathymetric map from
U.S. Geological Survey, June 3, 1974.
Aerial photo, June 4, 1969.

SPEARFISH LAKE KLICKITAT COUNTY

LATITUDE 45°37'36" LONGITUDE 121° 7'40" T2N-R13E-25
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	3.43 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	160. FT		
LAKE AREA	16. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	210. ACRE-FT		
MEAN DEPTH	13. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	33. FT		
SHORELINE LENGTH	0.82 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.39	AGRICULTURAL	2 %
BOTTOM SLOPE	3.5 %	FOREST OR UNPRODUCTIVE	97 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	1 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

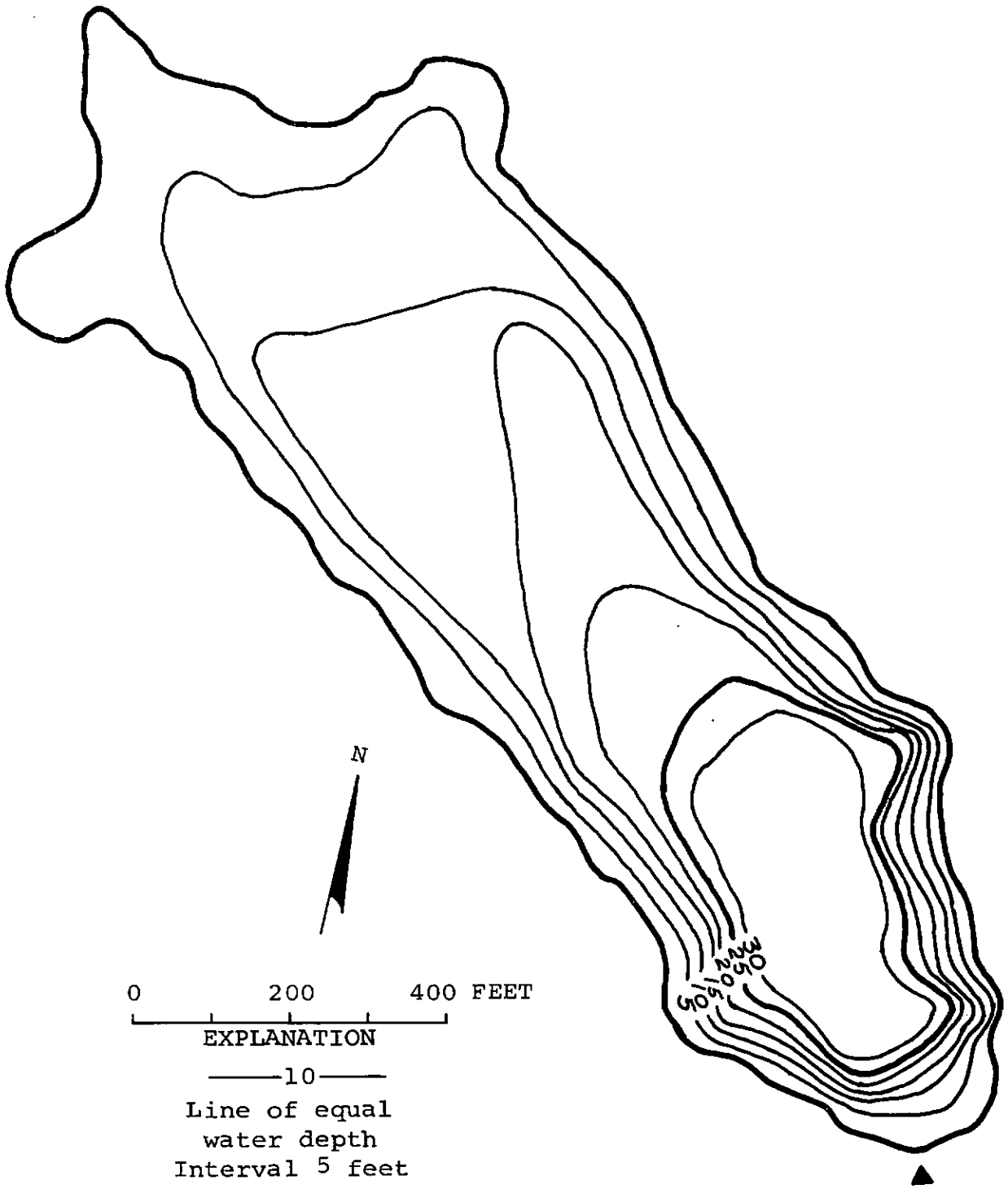
SAMPLE SITE	1	
DATE	9/10/74	
TIME	1200	1205
DEPTH (FT)	3.	11.
TOTAL NITRATE (N)	0.12	0.12
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.08	0.10
TOTAL ORGANIC NITROGEN (N)	0.25	0.27
TOTAL PHOSPHORUS (P)	0.040	0.035
TOTAL ORTHOPHOSPHATE (P)	0.008	0.010
SPECIFIC CONDUCTANCE (MICROMHOS)	170	170
WATER TEMPERATURE (DEG C)	19.2	19.0
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	6	
DISSOLVED OXYGEN	7.6	6.8

LAKE SHORELINE COVERED BY EMERSED PLANTS	26- 50 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	9/10/74
TIME	1215
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	12
FECAL COLIFORM, MEAN (COL./100ML)	6

REMARKS.

THE LAKE FORMED IN 1956 BY SEEPAGE FROM CELILO LAKE.



Spearfish Lake, Klickitat County. From
U.S. Geological Survey, February 26, 1974.

Spearfish Lake, Klickitat County. May 22, 1969. Approx. scale 1:12,000.

AENEAS LAKE OKANOGAN COUNTY

LATITUDE 48°40'33" LONGITUDE 119°30'38" T37N-R26E-25
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	32.4 SQ MI	RESIDENTIAL DEVELOPMENT	3 %
ALTITUDE	1380. FT		
LAKE AREA	62. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	1800. ACRE-FT		
MEAN DEPTH	29. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	62. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.47	AGRICULTURAL	78 %
BOTTOM SLOPE	3.3 %	FOREST OR UNPRODUCTIVE	22 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	<1 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

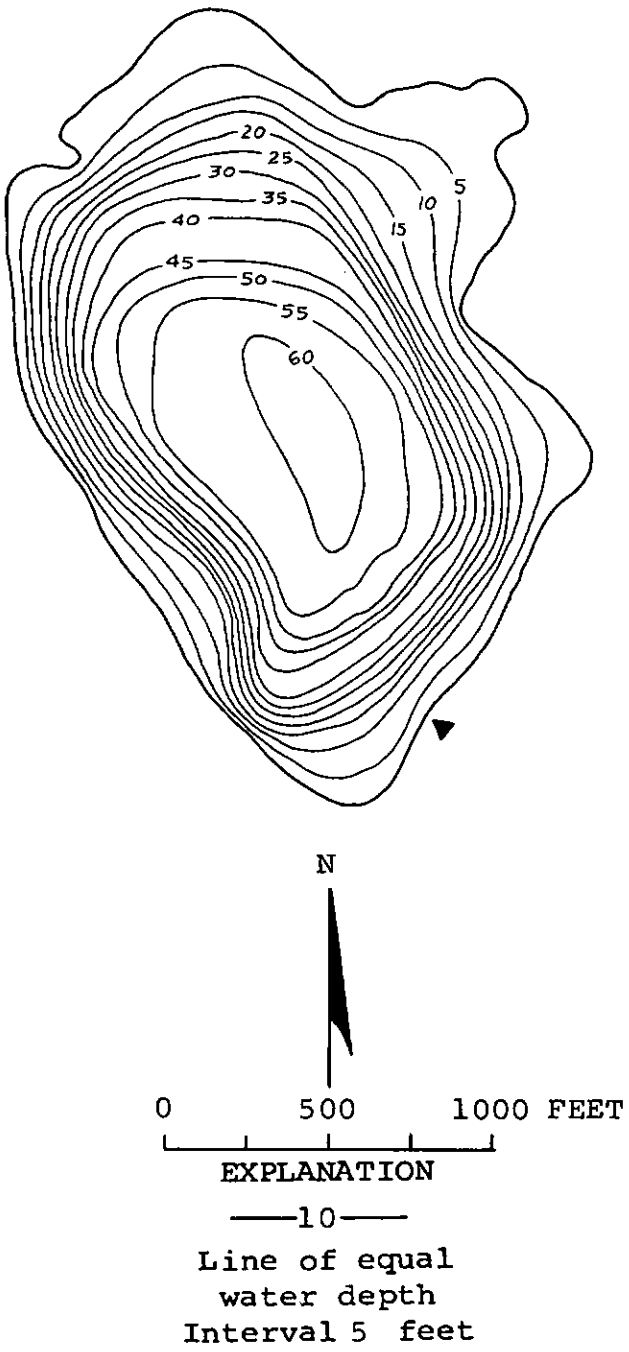
SAMPLE SITE	1	
DATE	7/23/74	
TIME	1050	1055
DEPTH (FT)	3.	49.
TOTAL NITRATE (N)	0.02	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.05	1.6
TOTAL ORGANIC NITROGEN (N)	0.56	0.80
TOTAL PHOSPHORUS (P)	0.019	0.42
TOTAL ORTHOPHOSPHATE (P)	0.004	0.42
SPECIFIC CONDUCTANCE (MICROMHOS)	370	460
WATER TEMPERATURE (DEG C)	22.0	7.9
COLOR (PLATINUM-COBALT UNITS)	30	20
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	8.8	0.3

LAKE SHORELINE COVERED BY EMERSED PLANTS	LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/23/74
TIME	1110
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	5
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE NORTH AND SOUTH SHORES OF THE LAKE ARE BRUSHY. NO AQUATIC MACROPHYTES WERE OBSERVED BUT THE ALGAL DENSITY WAS RELATIVELY HIGH. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE U.S. GEOLOGICAL SURVEY HAS MAINTAINED A STAFF GAGE ON THE LAKE SINCE 1964.



Aeneas Lake, Okanogan County. From Washington Department of Game, January 12, 1947.

Aeneas Lake, Okanogan County. April 7, 1973. Approx. scale 1:12,000.

ALKALI LAKE OKANOGAN COUNTY

LATITUDE 48*31' 5" LONGITUDE 119*32'37" T35N-R26E-22
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.62 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1598. FT		
LAKE AREA	69. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	2200. ACRE-FT		
MEAN DEPTH	32. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	88. FT		
SHORELINE LENGTH	1.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.37	AGRICULTURAL	72 %
BOTTOM SLOPE	4.5 %	FOREST OR UNPRODUCTIVE	21 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	7 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

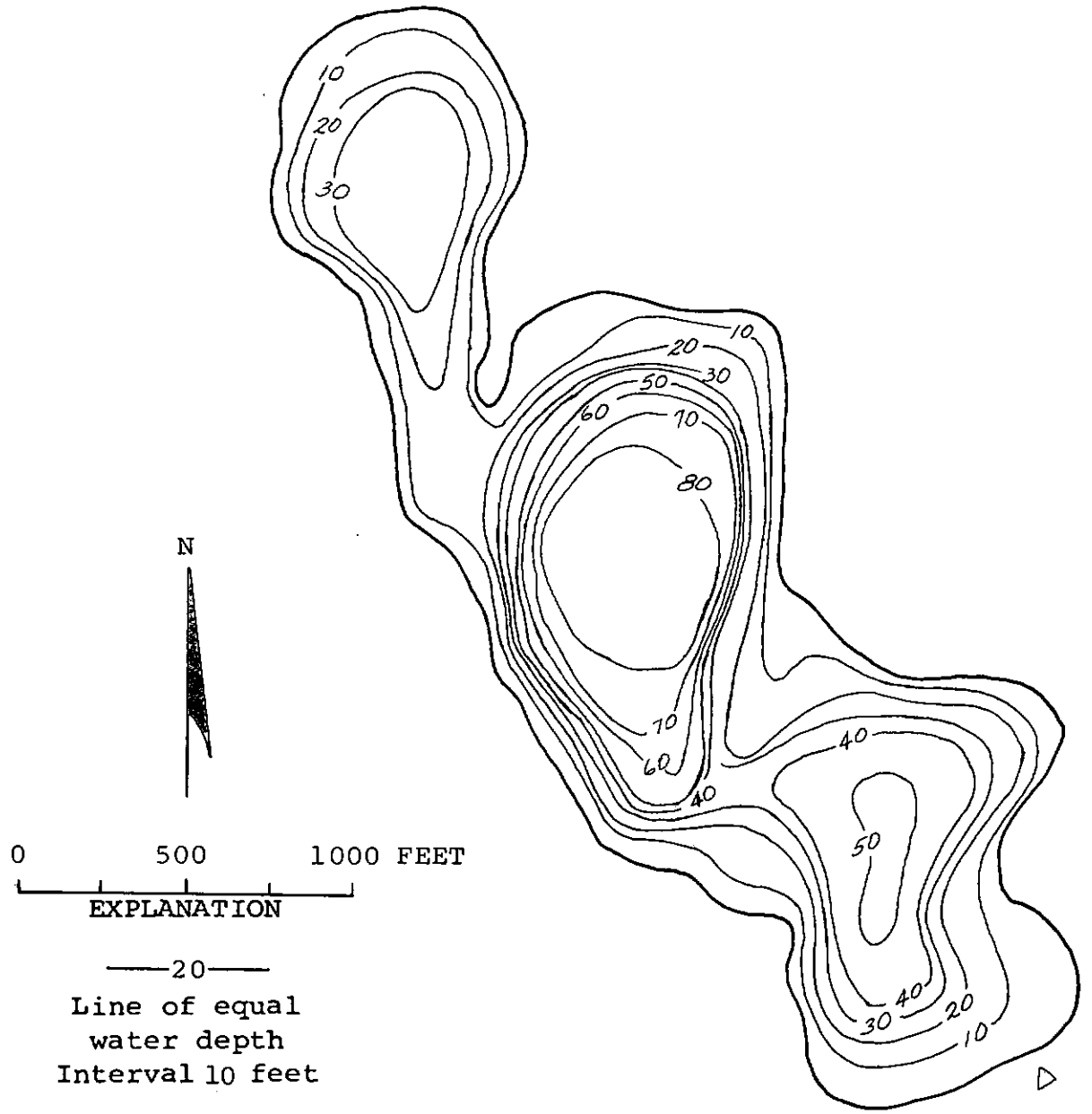
SAMPLE SITE	1	
DATE	7/19/74	
TIME	1400	1405
DEPTH (FT)	3.	20.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.45	3.2
TOTAL ORGANIC NITROGEN (N)	0.37	0.60
TOTAL PHOSPHORUS (P)	0.014	0.017
TOTAL ORTHOPHOSPHATE (P)	0.003	0.010
SPECIFIC CONDUCTANCE (MICROMHOS)	2500	6500
WATER TEMPERATURE (DEG C)	21.0	18.0
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	2	
DISSOLVED OXYGEN	8.1	18.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

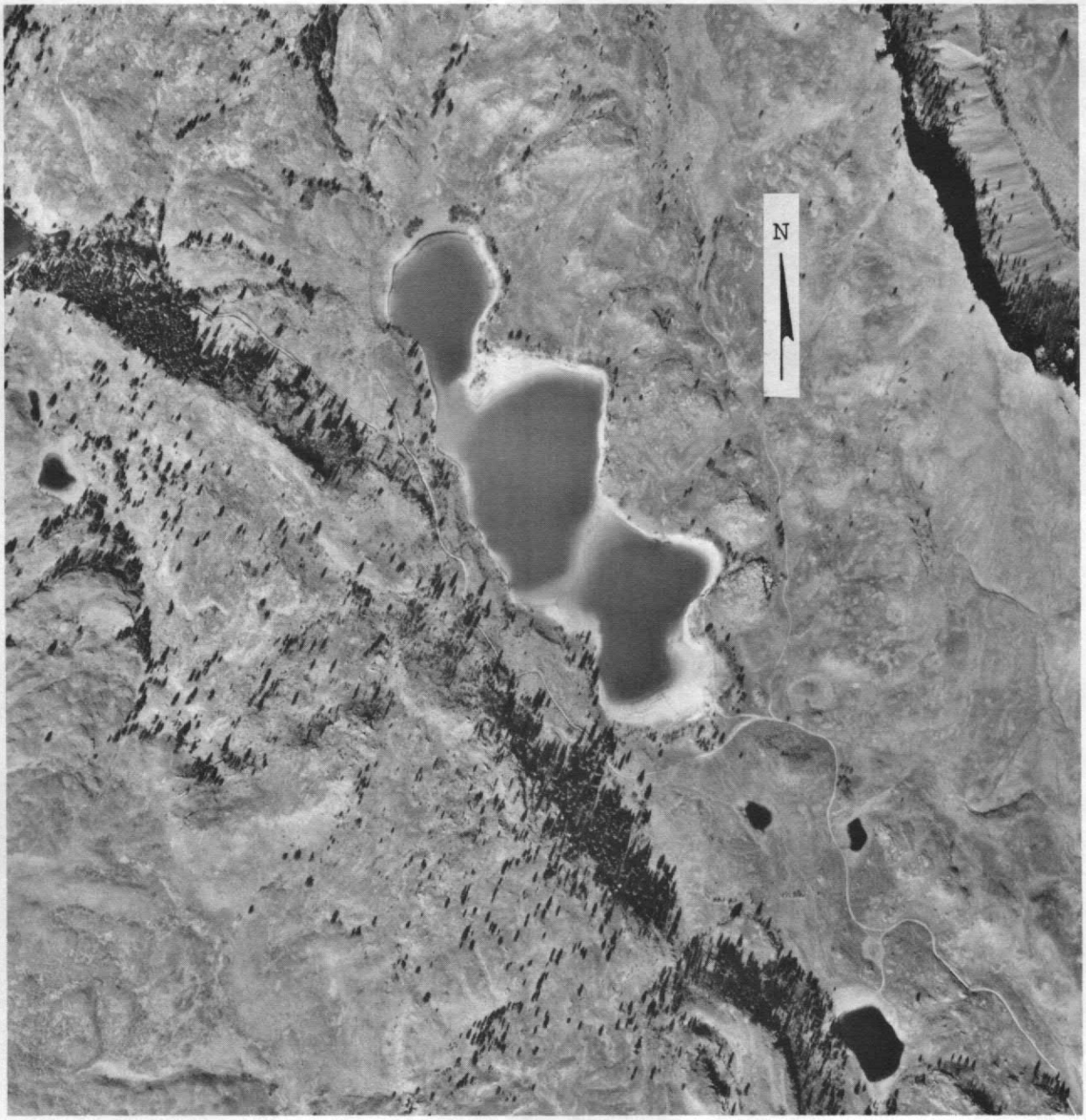
DATE	7/19/74
TIME	1415
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	14
FECAL COLIFORM, MEAN (COL./100ML)	6

REMARKS

THE LAKE IS ALKALINE AND CONTAINS NO FISH. THE WATER IS BRIGHT MILKY GREEN IN COLOR. THE DO CONCENTRATION INCREASED SIGNIFICANTLY AT DEPTH. SPHAGNUM MOSS OCCURRED LOCALLY ON THE BOTTOM.



Alkali Lake, Okanogan County. From
U.S. Geological Survey, July 25, 1974.



Alkali Lake, Okanogan County. April 7, 1973. Approx. scale 1:12,000.

ALTA LAKE OKANOGAN COUNTY

LATITUDE 48° 0'42" LONGITUDE 119°56'19" T29N-R23E-15
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	5.01 SQ MI	RESIDENTIAL DEVELOPMENT	19 %
ALTITUDE	1163. FT		
LAKE AREA	180. ACRES	NUMBER OF NEARSHORE HOMES	21
LAKE VOLUME	7200. ACRE-FT		
MEAN DEPTH	39. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	79. FT		
SHORELINE LENGTH	2.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.50	AGRICULTURAL	14 %
BOTTOM SLOPE	2.5 %	FOREST OR UNPRODUCTIVE	80 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	6 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

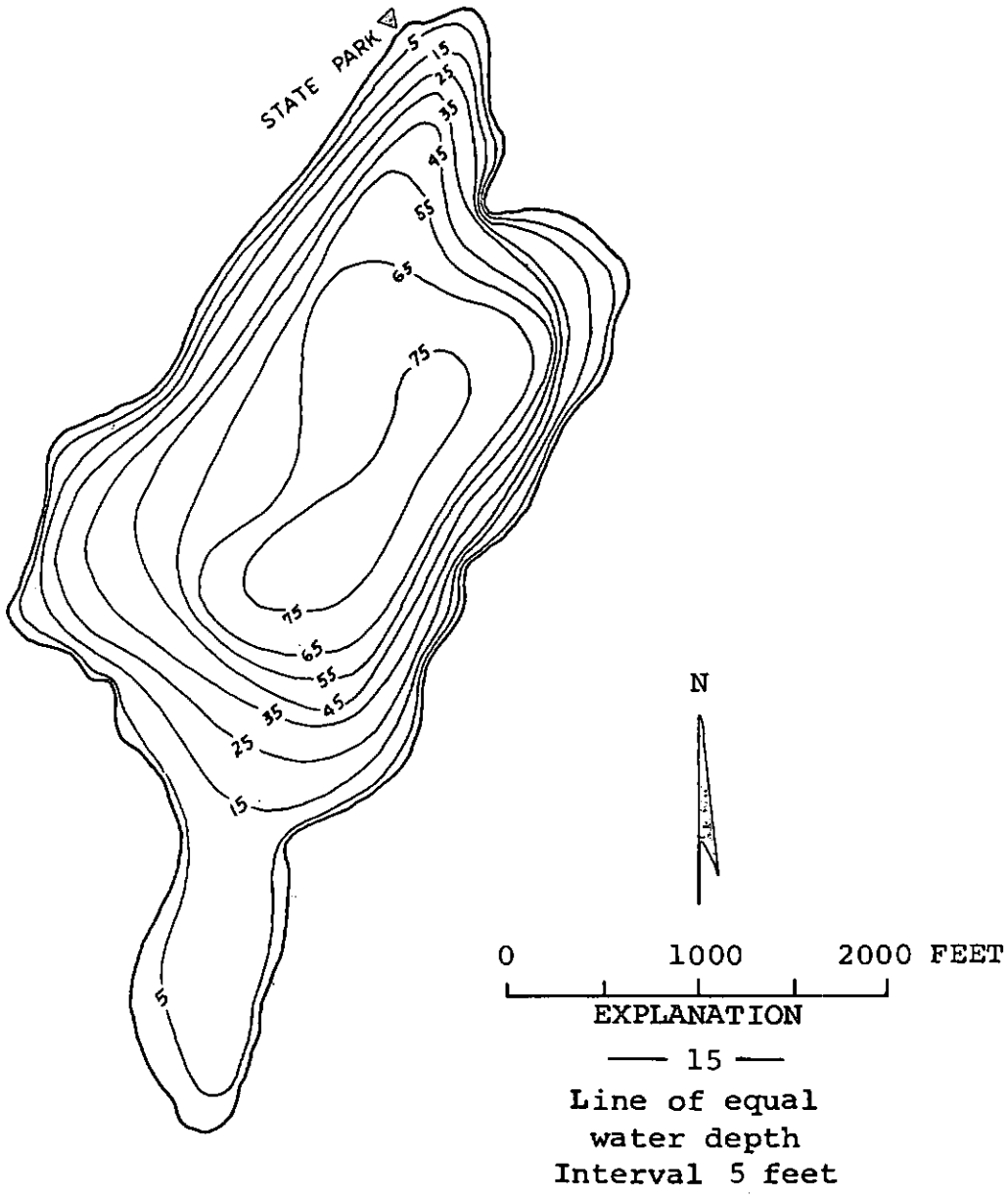
SAMPLE SITE	1	
DATE	7/25/74	
TIME	1315	1320
DEPTH (FT)	3.	79.
TOTAL NITRATE (N)	0.01	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.05	2.0
TOTAL ORGANIC NITROGEN (N)	0.57	1.1
TOTAL PHOSPHORUS (P)	0.010	0.27
TOTAL ORTHOPHOSPHATE (P)	0.002	0.25
SPECIFIC CONDUCTANCE (MICROMHOS)	530	580
WATER TEMPERATURE (DEG C)	23.0	5.1
COLOR (PLATINUM-COBALT UNITS)	5	15
SECCHI-DISC VISIBILITY (FT)	23	
DISSOLVED OXYGEN	8.5	0.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	26- 50 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

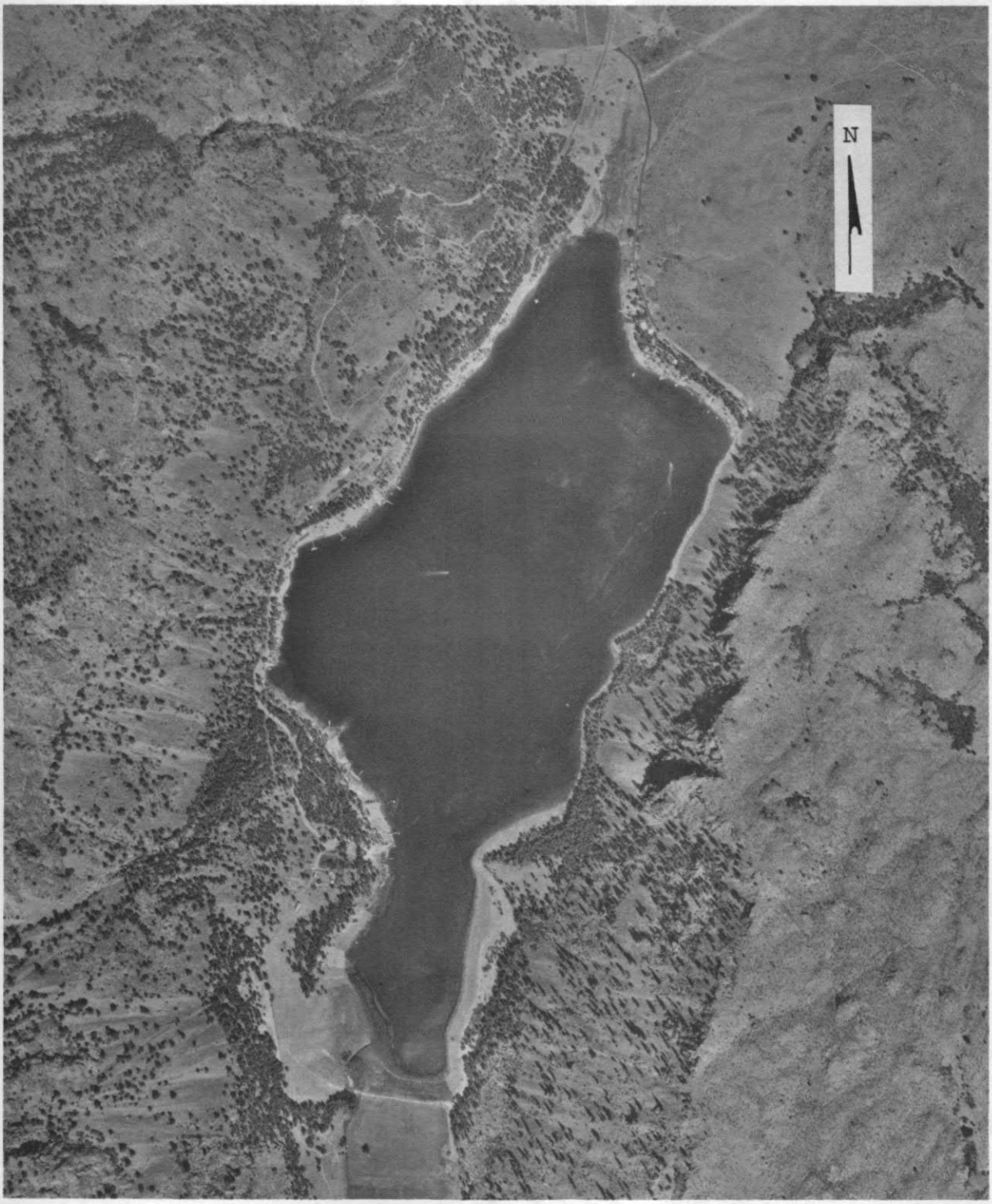
DATE	7/25/74
TIME	1330
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	18
FECAL COLIFORM, MEAN (COL./100ML)	11

REMARKS

THE LAKE IS IN A STEEP-WALLED VALLEY. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. RECREATIONAL USE OF THE LAKE IS HEAVY; THE LAKE HAS A STATE PARK AND SEVERAL RESORTS. THE U.S. GEOLOGICAL SURVEY HAS MONITORED THE LAKE STAGE SINCE 1954. IN 1975 THE U.S.G.S. WILL SAMPLE THE LAKE FOUR TIMES.



Alta Lake, Okanogan County. From Washington Department of Game, January 3, 1950.



Alta Lake, Okanogan County. June 29, 1973. Approx. scale 1:12,000.

BLUE (37N-25E-22) LAKE OKANOGAN COUNTY

LATITUDE 48*41'32" LONGITUDE 119*41'21" T37N-R25E-22
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	10.2 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1686. FT		
LAKE AREA	160. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	4400. ACRE-FT		
MEAN DEPTH	28. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	69. FT		
SHORELINE LENGTH	4.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.40	AGRICULTURAL	6 %
BOTTOM SLOPE	2.3 %	FOREST OR UNPRODUCTIVE	92 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	2 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

SAMPLE SITE	1		2	
DATE	7/16/74		7/16/74	
TIME	1415	1420	1500	1505
DEPTH (FT)	3.	69.	3.	26.
TOTAL NITRATE (N)	0.01	0.31	0.01	0.00
TOTAL NITRITE (N)	0.00	0.01	0.00	0.01
TOTAL AMMONIA (N)	0.05	0.08	0.05	0.45
TOTAL ORGANIC NITROGEN (N)	0.25	0.17	0.27	0.31
TOTAL PHOSPHORUS (P)	0.036	0.17	0.016	0.24
TOTAL ORTHOPHOSPHATE (P)	0.002	0.15	0.002	0.16
SPECIFIC CONDUCTANCE (MICROMHOS)	160	270	190	270
WATER TEMPERATURE (DEG C)	17.7	5.8	17.7	9.9
COLOR (PLATINUM-COBALT UNITS)	15	10	15	40
SECCHI-DISC VISIBILITY (FT)	6		8	
DISSOLVED OXYGEN	10.2	1.7	10.2	0.1

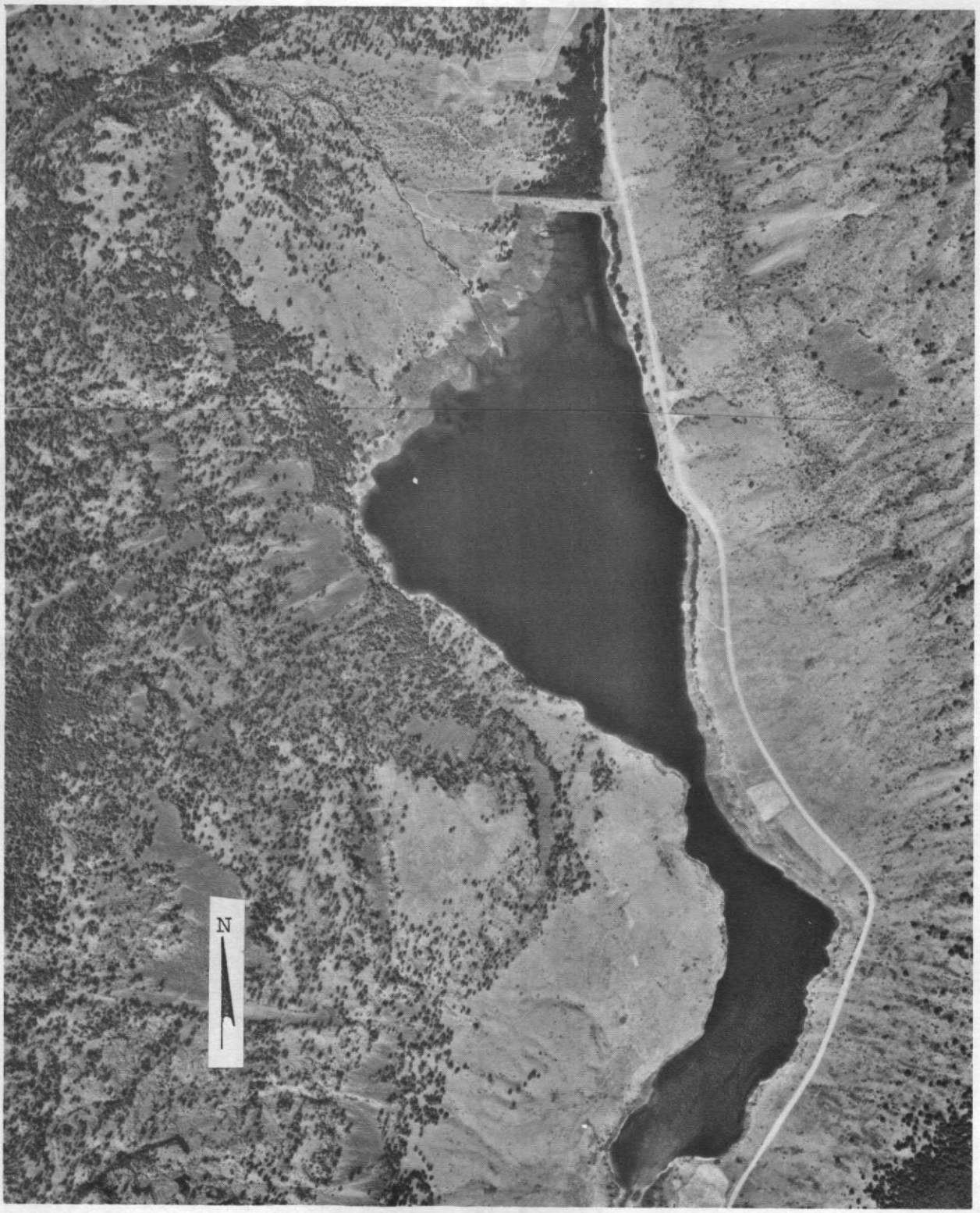
LAKE SHORELINE COVERED BY EMERSED PLANTS	26- 50 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/16/74
TIME	1433
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	3
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

AN ARTIFICIAL RESERVOIR CREATED BY A DAM IN 1923, INUNDATING THREE NATURAL LAKES. AN ALGAL BLOOM WAS OBSERVED ON THE SOUTHERN PART OF THE LAKE AND HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.

Blue (37N-25E-22) Lake, Okanogan County. From Washington Department of Game, January 12, 1947.



Blue (37N-25E-22) Lake, Okanogan County.
June 4, 1973. Approx. scale 1:14,000.

BLUE (39N-26E-1) LAKE OKANOGAN COUNTY

LATITUDE 48°54' 8" LONGITUDE 119°29'43" T39N-R26E-1
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	4.67 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1783. FT		
LAKE AREA	110. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	7100. ACRE-FT		
MEAN DEPTH	64. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	110. FT		
SHORELINE LENGTH	2.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.56	AGRICULTURAL	57 %
BOTTOM SLOPE	4.6 %	FOREST OR UNPRODUCTIVE	39 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	4 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

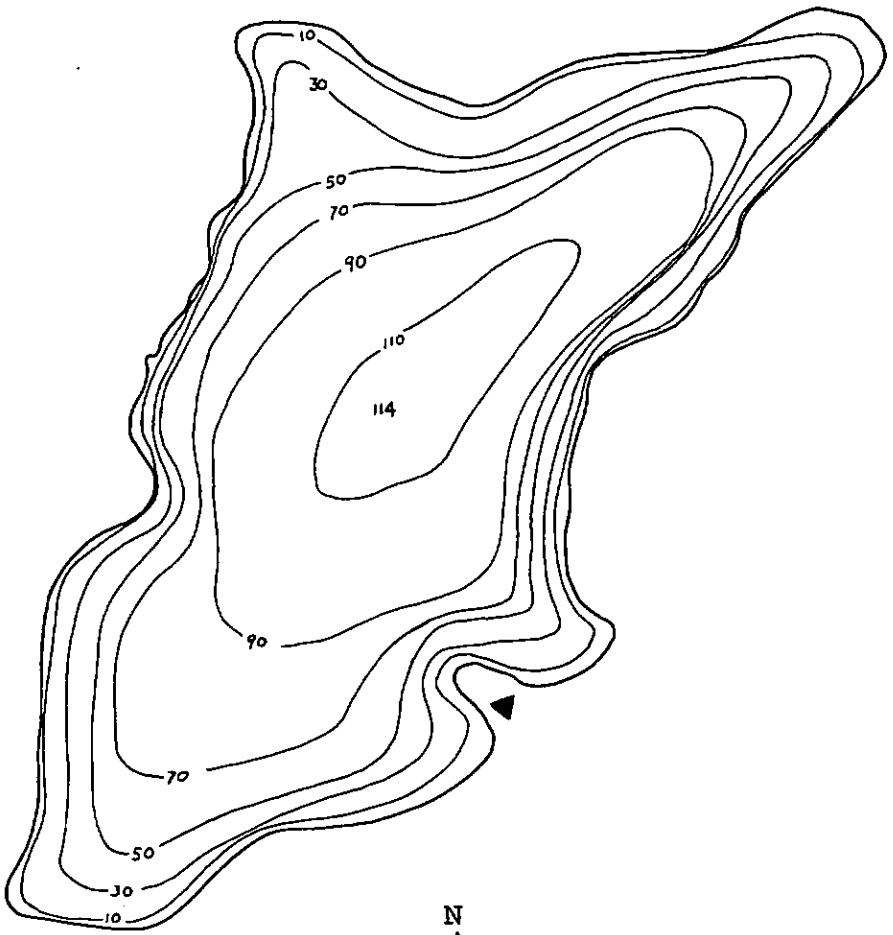
SAMPLE SITE	1	
DATE	7/22/74	
TIME	1300	1305
DEPTH (FT)	3.	92.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.06
TOTAL AMMONIA (N)	0.05	12.
TOTAL ORGANIC NITROGEN (N)	0.64	5.0
TOTAL PHOSPHORUS (P)	0.011	0.51
TOTAL ORTHOPHOSPHATE (P)	0.002	0.51
SPECIFIC CONDUCTANCE (MICROMHOS)	2500	10000
WATER TEMPERATURE (DEG C)	22.7	6.8
COLOR (PLATINUM-COBALT UNITS)	20	45
SECCHI-DISC VISIBILITY (FT)	6	
DISSOLVED OXYGEN	8.4	0.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

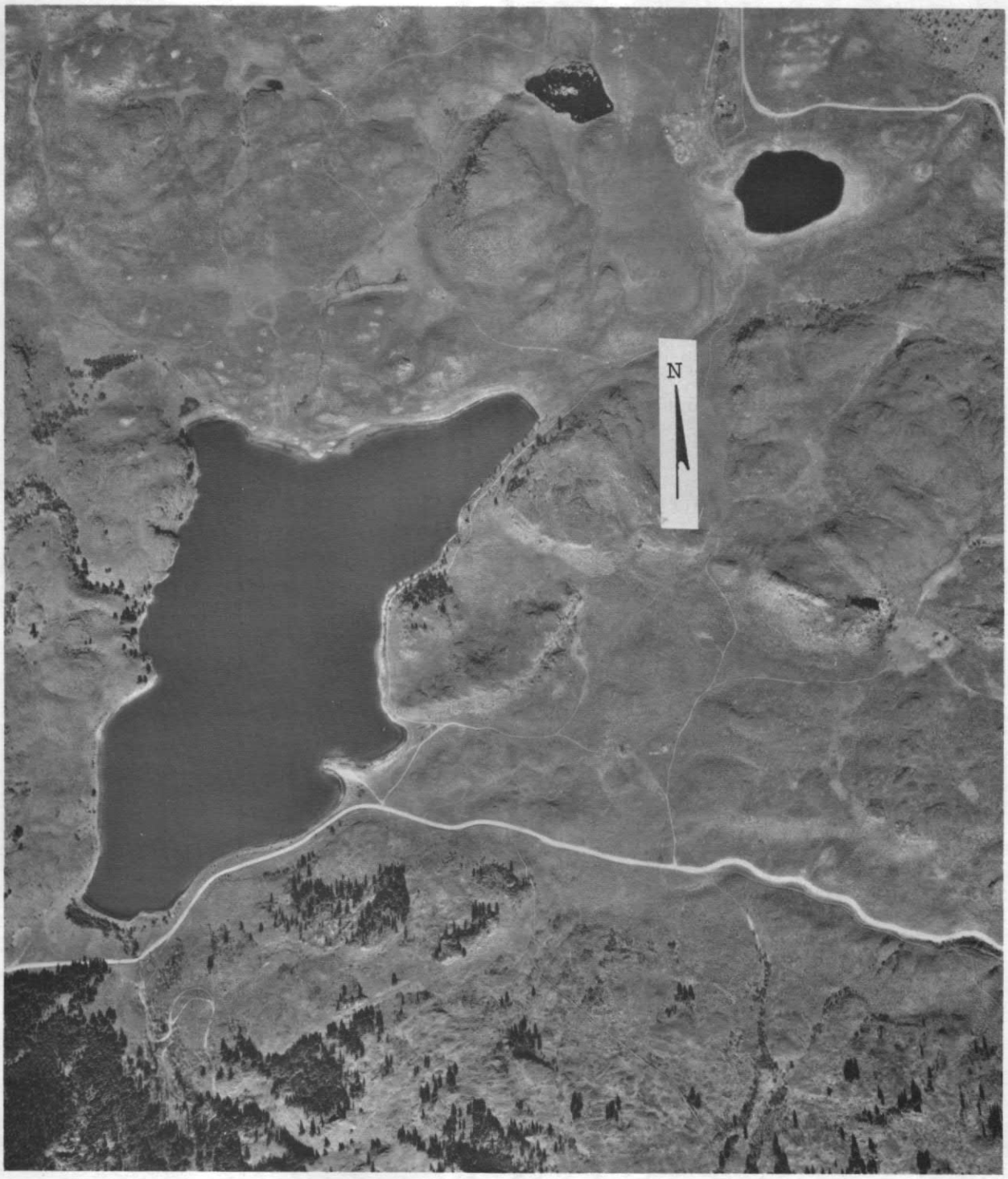
DATE	7/22/74
TIME	1315
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	4
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE LAKE IS ALKALINE AND CONTAINS NO FISH. THE WATER IS LIGHT GREEN IN COLOR. VERY FEW AQUATIC MACROPHYTES WERE OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE SALT DEPOSITS OF BLUE LAKE WERE DESCRIBED BY BENNETT (1962).



Blue (39N-26E-1) Lake, Okanogan County. From Washington Department of Game, January 22, 1954.



Blue (39N-26E-1) Lake, Okanogan County.
April 7, 1973. Approx. scale 1:12,000.

BONAPARTE LAKE OKANOGAN COUNTY

LATITUDE 48°47'35" LONGITUDE 119° 3'38" T38N-R30E-17
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	6.98 SQ MI	RESIDENTIAL DEVELOPMENT	5 %
ALTITUDE	3554. FT		
LAKE AREA	170. ACRES	NUMBER OF NEARSHORE HOMES	5
LAKE VOLUME	5500. ACRE-FT		
MEAN DEPTH	33. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	110. FT		
SHORELINE LENGTH	3.5 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.9	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.30	AGRICULTURAL	2 %
BOTTOM SLOPE	3.6 %	FOREST OR UNPRODUCTIVE	94 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	4 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

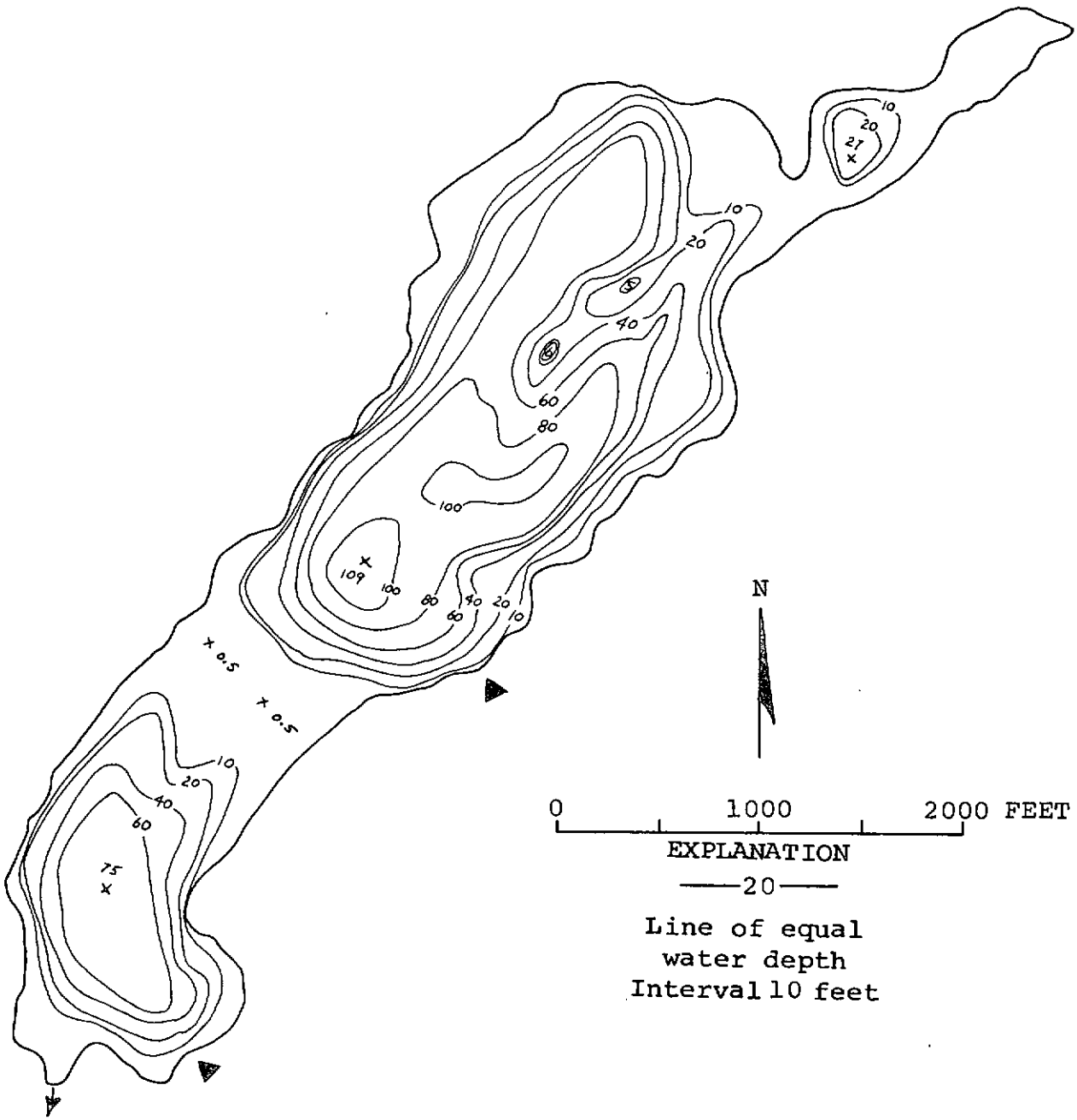
SAMPLE SITE	1	
DATE	7/16/74	
TIME	1100	1105
DEPTH (FT)	3.	105.
TOTAL NITRATE (N)	0.00	0.01
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.06	0.31
TOTAL ORGANIC NITROGEN (N)	0.34	0.37
TOTAL PHOSPHORUS (P)	0.014	0.052
TOTAL ORTHOPHOSPHATE (P)	0.003	0.021
SPECIFIC CONDUCTANCE (MICROMHOS)	220	230
WATER TEMPERATURE (DEG C)	17.8	4.3
COLOR (PLATINUM-COBALT UNITS)	10	5
SECCHI-DISC VISIBILITY (FT)	12	
DISSOLVED OXYGEN	8.7	0.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	26- 50 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 9 %

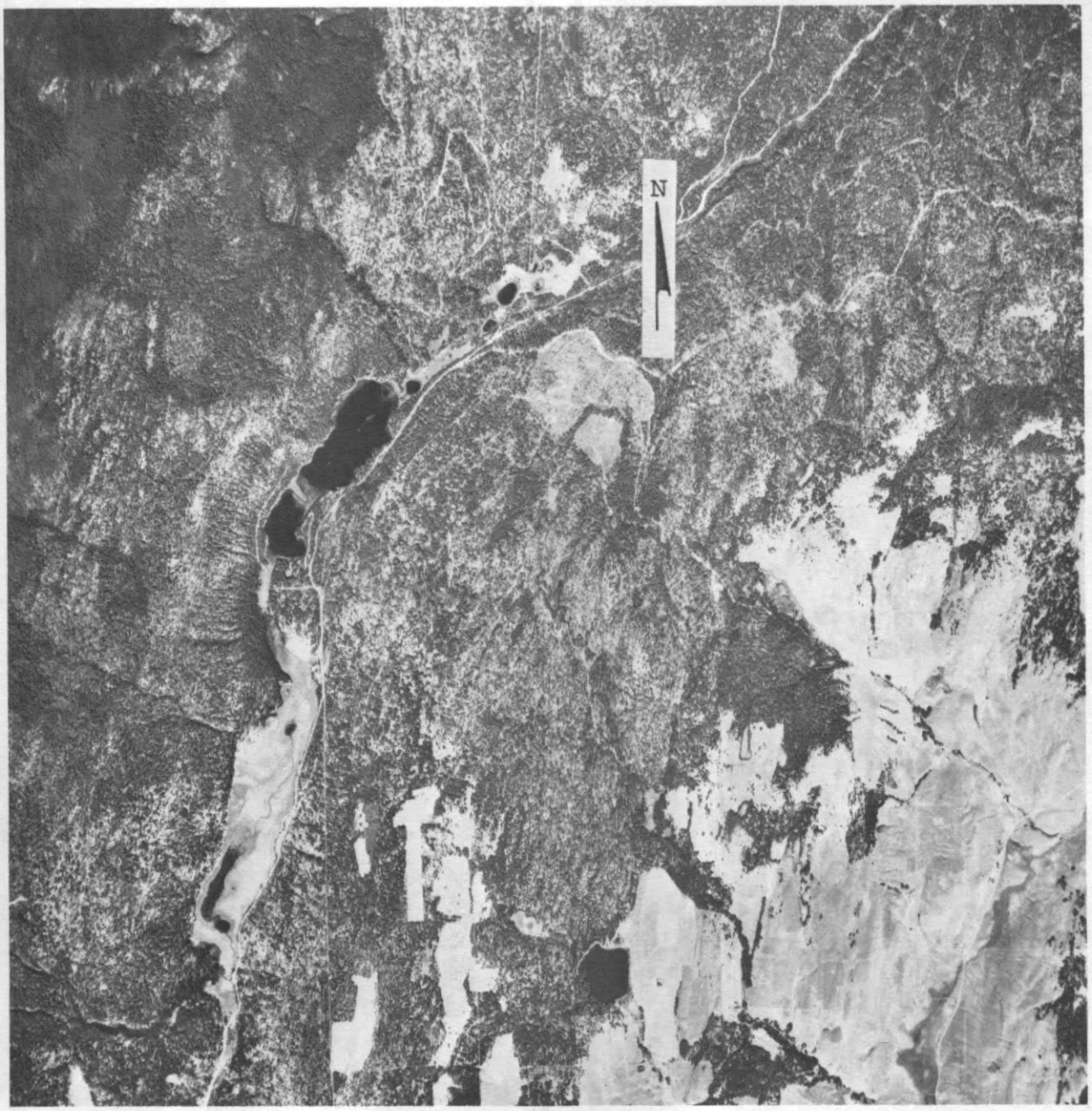
DATE	7/16/74
TIME	1120
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS STABILIZED BY A SMALL DAM BUILT IN 1921. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE LAKE HAS A CAMPGROUND AND RESORT FACILITIES.



Bonaparte Lake, Okanogan County. From
Washington Department of Game, January 5, 1955.



Bonaparte Lake, Okanogan County. September 14, 1967. Approx. scale 1:60,000.

BOOHER LAKE OKANOGAN COUNTY

LATITUDE 48°33'12" LONGITUDE 119°32'50" T35N-R26E-10
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	45.1 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	967. FT		
LAKE AREA	18. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	400. ACRE-FT		
MEAN DEPTH	22. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	44. FT		
SHORELINE LENGTH	0.76 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.51	AGRICULTURAL	54 %
BOTTOM SLOPE	4.4 %	FOREST OR UNPRODUCTIVE	46 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	<1 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

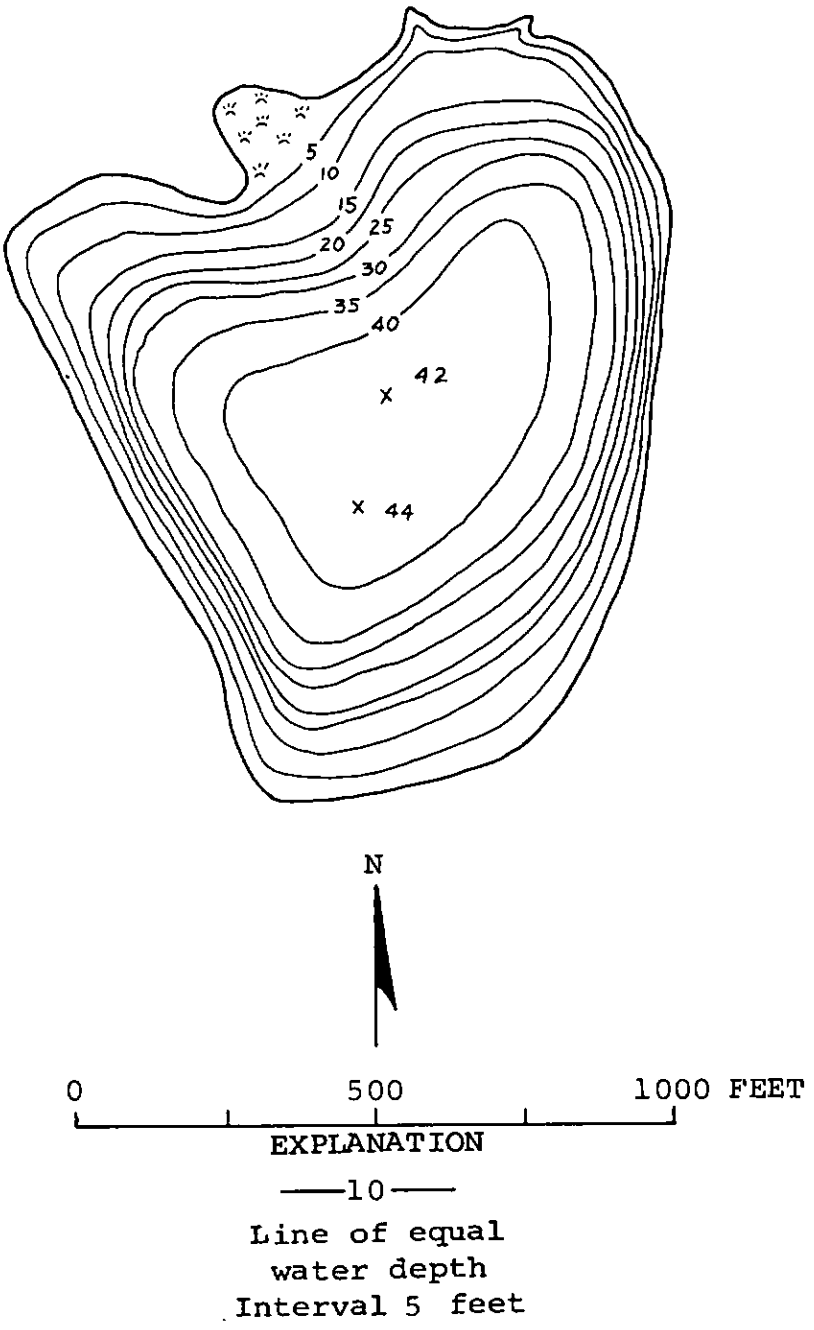
SAMPLE SITE	1	
DATE	7/23/74	
TIME	1345	1350
DEPTH (FT)	3.	69.
TOTAL NITRATE (N)	0.94	0.75
TOTAL NITRITE (N)	0.02	0.04
TOTAL AMMONIA (N)	0.03	0.31
TOTAL ORGANIC NITROGEN (N)	0.52	0.63
TOTAL PHOSPHORUS (P)	0.008	0.12
TOTAL ORTHOPHOSPHATE (P)	0.001	0.10
SPECIFIC CONDUCTANCE (MICROMHOS)	630	720
WATER TEMPERATURE (DEG C)	22.9	6.7
COLOR (PLATINUM-COBALT UNITS)	10	20
SECCHI-DISC VISIBILITY (FT)	9	
DISSOLVED OXYGEN	8.5	0.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/23/74
TIME	1410
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE WATER IS EMERALD GREEN IN COLOR. EVIDENCE OF LARGE WATER-LEVEL FLUCTUATIONS WAS OBSERVED.



Booher Lake, Okanogan County. From Washington Department of Game, December 26, 1952.

Booher Lake, Okanogan County. April 7, 1973. Approx. scale 1:12,000.

BROWN LAKE OKANOGAN COUNTY

LATITUDE 48*27'56" LONGITUDE 119*37' 3" T34N-R26E-7
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	4.01 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1572. FT		
LAKE AREA	62. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	390. ACRE-FT		
MEAN DEPTH	6. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	14. FT		
SHORELINE LENGTH	2.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.9	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.45	AGRICULTURAL	0 %
BOTTOM SLOPE	0.75 %	FOREST OR UNPRODUCTIVE	98 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	2 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

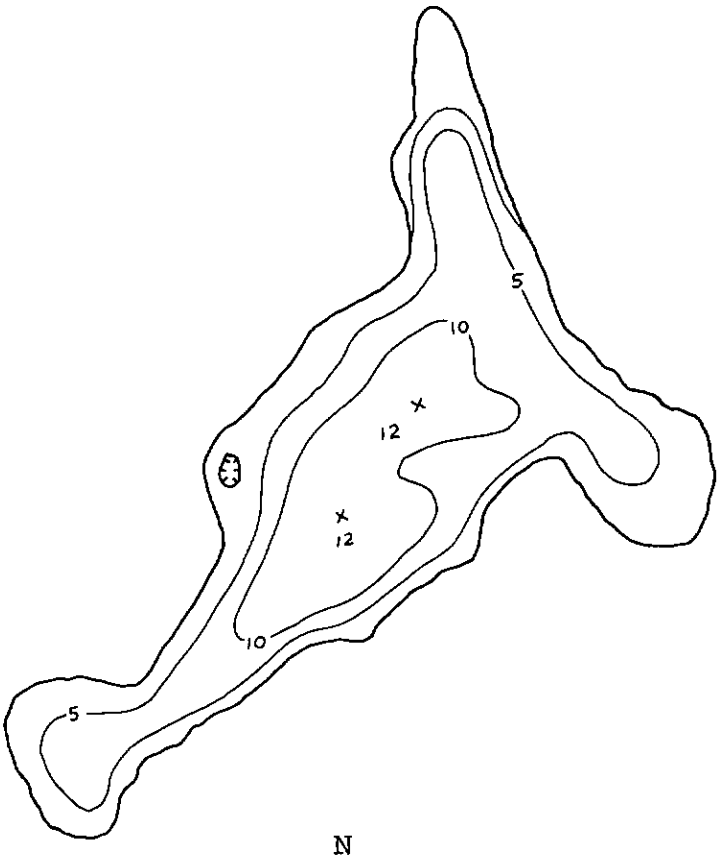
SAMPLE SITE	1	
DATE	7/15/74	
TIME	1245	1250
DEPTH (FT)	3.	15.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.25	0.37
TOTAL ORGANIC NITROGEN (N)	0.95	1.1
TOTAL PHOSPHORUS (P)	0.041	0.051
TOTAL ORTHOPHOSPHATE (P)	0.010	0.028
SPECIFIC CONDUCTANCE (MICROMHOS)	1300	1300
WATER TEMPERATURE (DEG C)	22.2	19.2
COLOR (PLATINUM-COBALT UNITS)	25	70
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	5.1	0.1

LAKE SHORELINE COVERED BY EMERSED PLANTS	26- 50 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/15/74
TIME	1302
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	19
FECAL COLIFORM, MEAN (COL./100ML)	8

REMARKS

VERY FEW AQUATIC MACROPHYTES WERE OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.



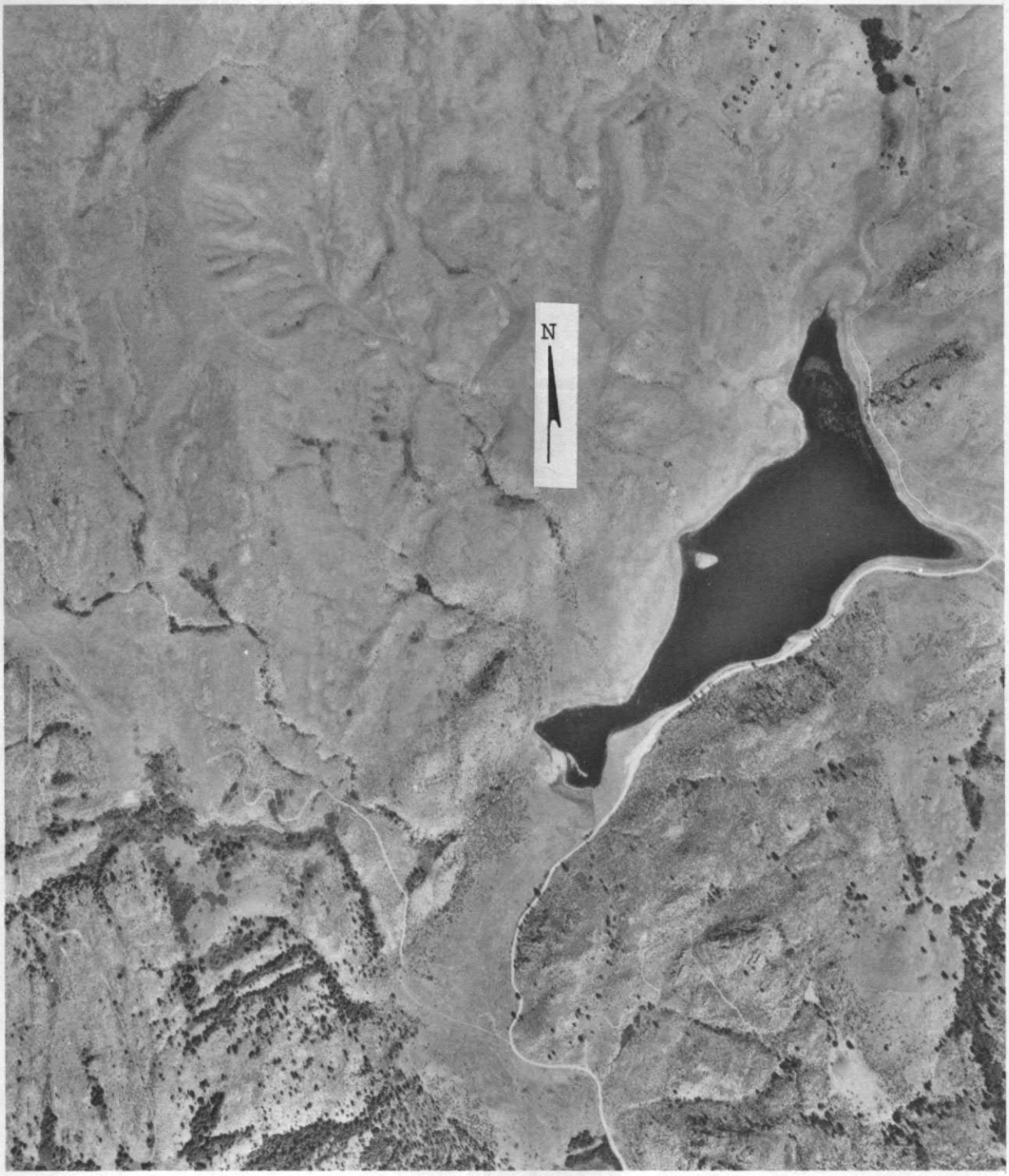
0 1000 2000 FEET

EXPLANATION

—10—

Line of equal
water depth
Interval 5 feet

Brown Lake, Okanogan County. From Washington Department of Game, September 29, 1954.



Brown Lake, Okanogan County. June 4, 1973. Approx. scale 1:12,000.

CHOPAKA LAKE OKANOGAN COUNTY

LATITUDE 48°54'13" LONGITUDE 119°41'33" T39N-R25E-4
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.98 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2921. FT		
LAKE AREA	160. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	3700. ACRE-FT		
MEAN DEPTH	23. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	73. FT		
SHORELINE LENGTH	3.8 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.31	AGRICULTURAL	19 %
BOTTOM SLOPE	2.4 %	FOREST OR UNPRODUCTIVE	68 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	13 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

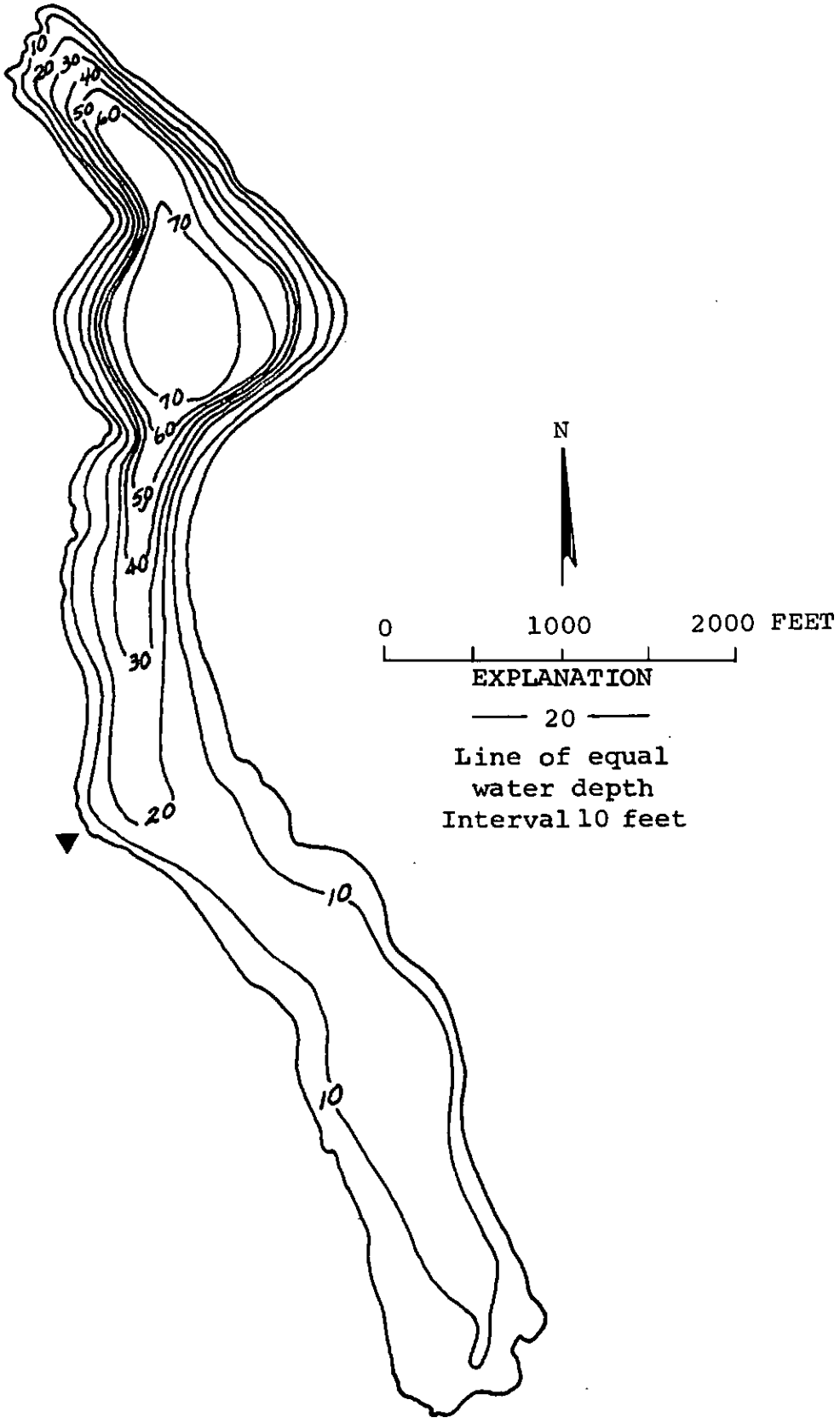
SAMPLE SITE	1	
DATE	7/18/74	
TIME	935	940
DEPTH (FT)	3.	62.
TOTAL NITRATE (N)	0.02	0.00
TOTAL NITRITE (N)	0.00	0.02
TOTAL AMMONIA (N)	0.10	3.0
TOTAL ORGANIC NITROGEN (N)	1.0	1.3
TOTAL PHOSPHORUS (P)	0.015	0.32
TOTAL ORTHOPHOSPHATE (P)	0.002	0.24
SPECIFIC CONDUCTANCE (MICROMHOS)	1200	2000
WATER TEMPERATURE (DEG C)	17.2	3.7
COLOR (PLATINUM-COBALT UNITS)	15	45
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	8.3	0.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/18/74
TIME	952
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	5
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. IN 1975 THE U.S. GEOLOGICAL SURVEY WILL SAMPLE THE LAKE FOUR TIMES.



Chopaka Lake, Okanogan County. From
U.S. Geological Survey, August 13, 1974.

Chopaka Lake, Okanogan County.
June 4, 1973. Approx. scale 1:12,000.

CONCONULLY (35N-25E-18) LAKE OKANOGAN COUNTY

LATITUDE 48°32'16" LONGITUDE 119°44'50" T35N-R25E-18
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	120. SQ MI	RESIDENTIAL DEVELOPMENT	16 %
ALTITUDE	2281. FT		
LAKE AREA	430. ACRES	NUMBER OF NEARSHORE HOMES	36
LAKE VOLUME	12000. ACRE-FT		
MEAN DEPTH	29. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	51. FT		
SHORELINE LENGTH	3.9 MI	RESIDENTIAL URBAN	<1 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.56	AGRICULTURAL	2 %
BOTTOM SLOPE	1.0 %	FOREST OR UNPRODUCTIVE	97 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	1 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

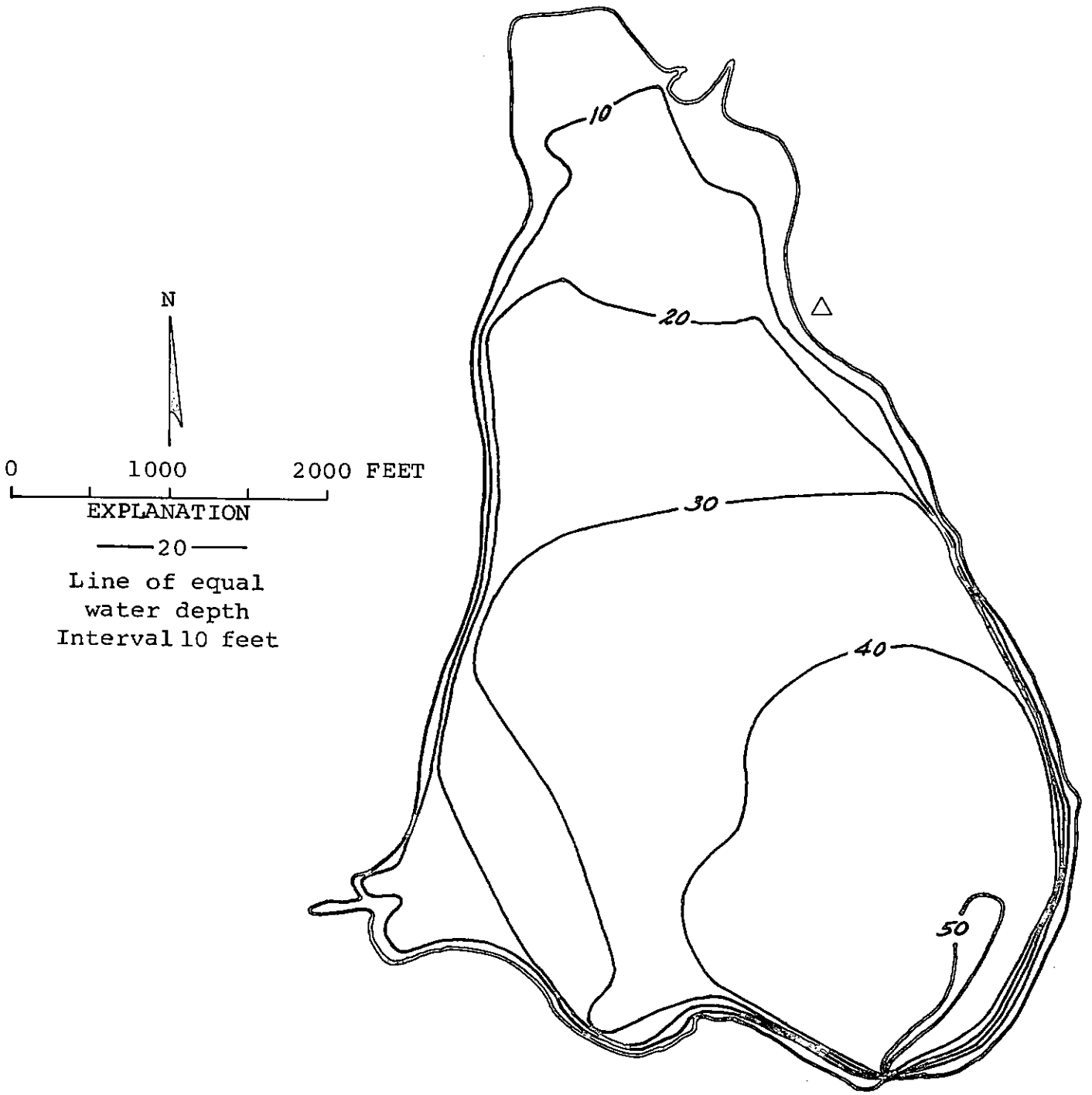
SAMPLE SITE	1	
DATE	7/16/74	
TIME	1000	1005
DEPTH (FT)	3.	36.
TOTAL NITRATE (N)	0.00	0.02
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.05	0.08
TOTAL ORGANIC NITROGEN (N)	0.23	0.11
TOTAL PHOSPHORUS (P)	0.017	0.019
TOTAL ORTHOPHOSPHATE (P)	0.003	0.011
SPECIFIC CONDUCTANCE (MICROMHOS)	96	87
WATER TEMPERATURE (DEG C)	16.3	11.0
COLOR (PLATINUM-COBALT UNITS)	20	20
SECCHI-DISC VISIBILITY (FT)	13	
DISSOLVED OXYGEN	8.7	7.5

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

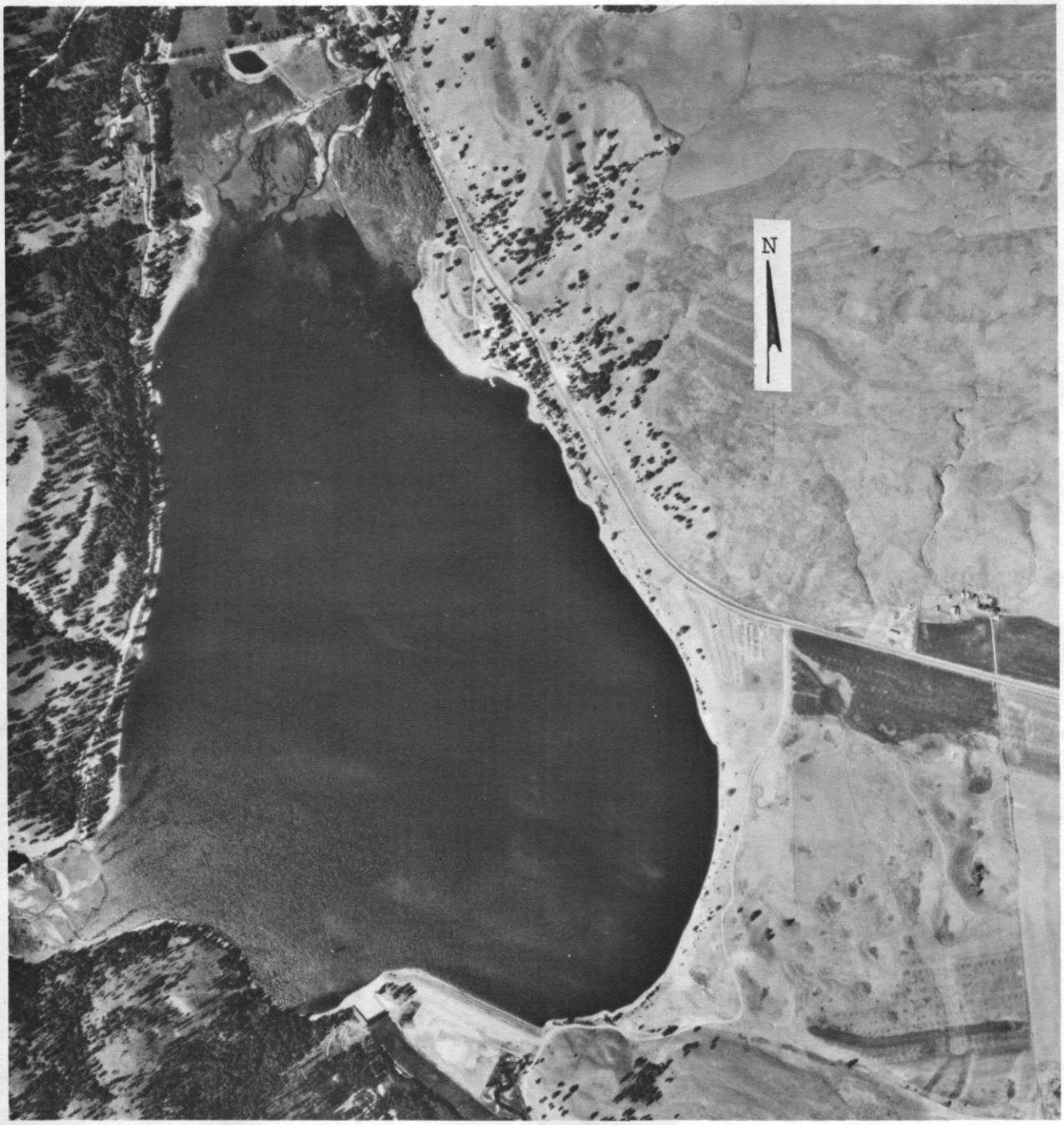
DATE	7/16/74
TIME	1017
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	26
FECAL COLIFORM, MEAN (COL./100ML)	9

REMARKS

AN ARTIFICIAL RESERVOIR CREATED BY A DAM ON SALMON CREEK BY THE U.S. BUREAU OF RECLAMATION IN 1910. THE WATER IS USED FOR IRRIGATION PURPOSES AND RECREATIONAL USE OF THE LAKE IS HEAVY. THE LAKE HAS A STATE PARK AND RESORT FACILITIES. LARGE WATER-LEVEL FLUCTUATIONS ARE COMMON. NO SUBMERSED AQUATIC PLANTS WERE OBSERVED. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. IN 1975 THE U.S. GEOLOGICAL SURVEY WILL SAMPLE THE LAKE FOUR TIMES.



Conconully (35N-25E-18) Lake, Okanogan County.
From Washington Department of Game, July 30, 1974.



Conconully (35N-25E-18) Lake, Okanogan County.
July 11, 1973. Approx. scale 1:12,000.

CONCONULLY (SALMON) LAKE OKANOGAN COUNTY

LATITUDE 48°33'29" LONGITUDE 119°44'40" T35N-R25E-6
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	50.3 SQ MI	RESIDENTIAL DEVELOPMENT	6 %
ALTITUDE	2319. FT		
LAKE AREA	270. ACRES	NUMBER OF NEARSHORE HOMES	36
LAKE VOLUME	13000. ACRE-FT		
MEAN DEPTH	47. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	110. FT		
SHORELINE LENGTH	6.8 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.9	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.43	AGRICULTURAL	2 %
BOTTOM SLOPE	2.8 %	FOREST OR UNPRODUCTIVE	97 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	1 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

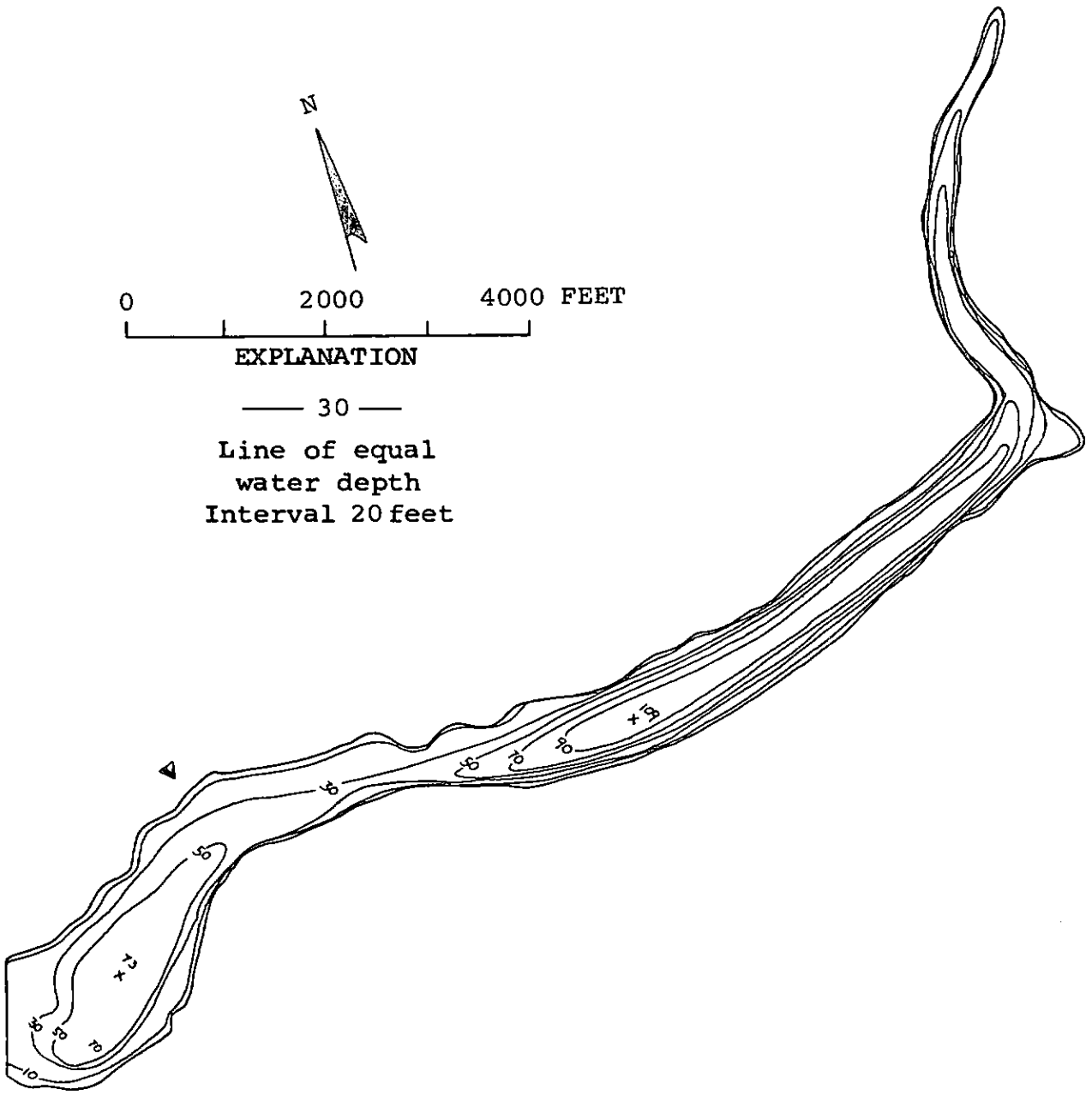
SAMPLE SITE	1	
DATE	7/16/74	
TIME	1110	1115
DEPTH (FT)	3.	98.
TOTAL NITRATE (N)	0.01	0.38
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.03	0.10
TOTAL ORGANIC NITROGEN (N)	0.26	0.17
TOTAL PHOSPHORUS (P)	0.019	0.15
TOTAL ORTHOPHOSPHATE (P)	0.004	0.14
SPECIFIC CONDUCTANCE (MICROMHOS)	210	240
WATER TEMPERATURE (DEG C)	18.4	5.0
COLOR (PLATINUM-COBALT UNITS)	15	10
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	9.4	0.6

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

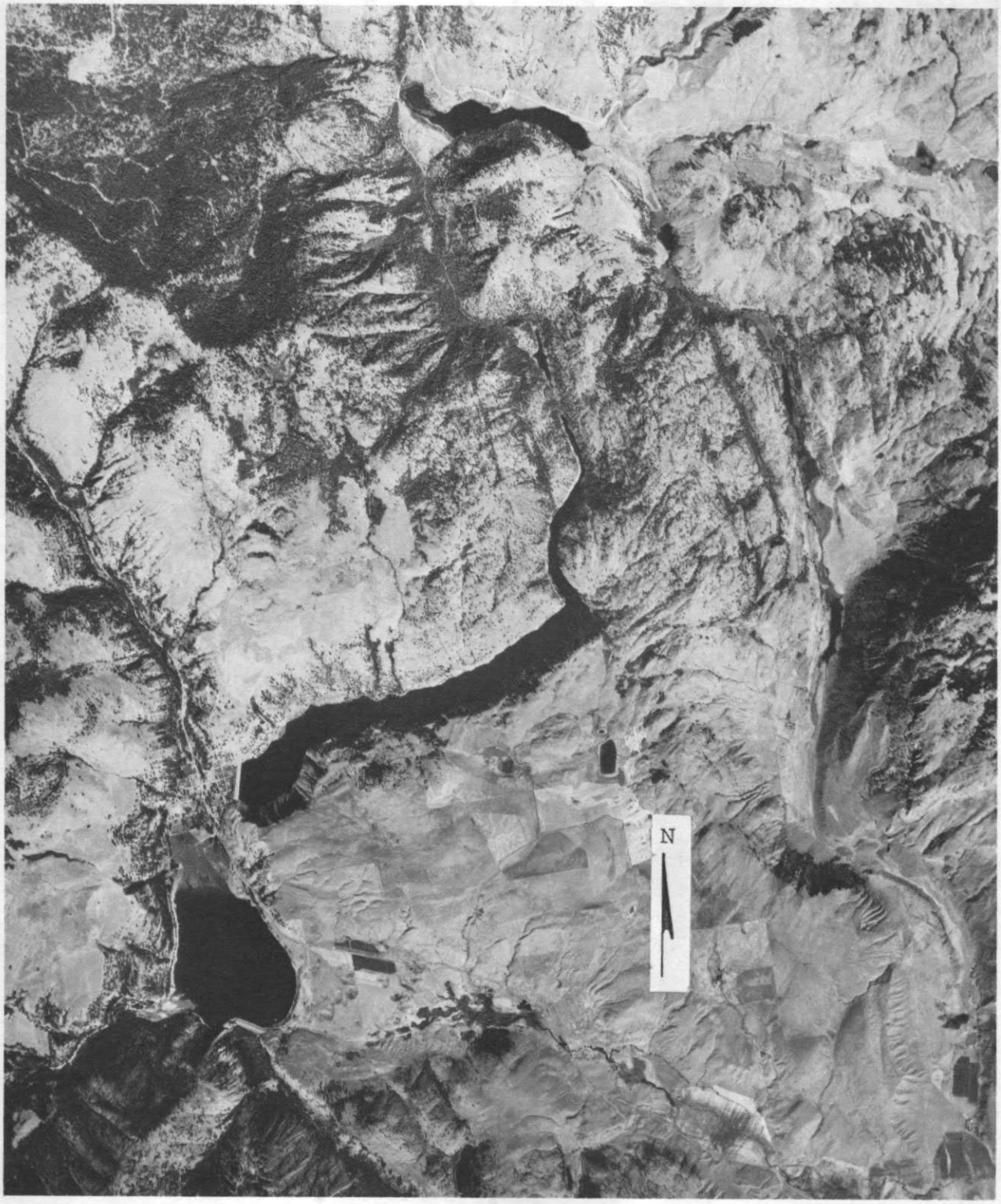
DATE	7/16/74
TIME	1123
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

AN ARTIFICIAL RESERVOIR CREATED BY A DAM ON SALMON CREEK BY THE U.S. BUREAU OF RECLAMATION IN 1921, INUNDATING A NATURAL LAKE. THE WATER IS USED FOR IRRIGATION PURPOSES AND RECREATIONAL USE OF THE LAKE IS HEAVY. AN ALGAL BLOOM WAS OBSERVED BUT THE LAKE HAD VERY FEW AQUATIC MACROPHYTES. THE LITTORAL BOTTOM IS MUCK. FLOATING AND SUBMERGED LOGS OCCURRED ALONG THE SOUTH SHORE.



Conconully (Salmon) Lake, Okanogan County.
From Washington Department of Game, January 1950.



Conconully (Salmon) Lake, Okanogan County.
September 15, 1967. Approx. scale 1:60,000.

DAVIS LAKE OKANOGAN COUNTY

LATITUDE 48*26' 3" LONGITUDE 120* 7' 8" T34N-R22E-20
METHOW RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.77 SQ MI	RESIDENTIAL DEVELOPMENT	4 %
ALTITUDE	2120. FT		
LAKE AREA	61. ACRES	NUMBER OF NEARSHORE HOMES	2
LAKE VOLUME	1200. ACRE-FT		
MEAN DEPTH	19. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	34. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.56	AGRICULTURAL	95 %
BOTTOM SLOPE	1.8 %	FOREST OR UNPRODUCTIVE	<1 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	5 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

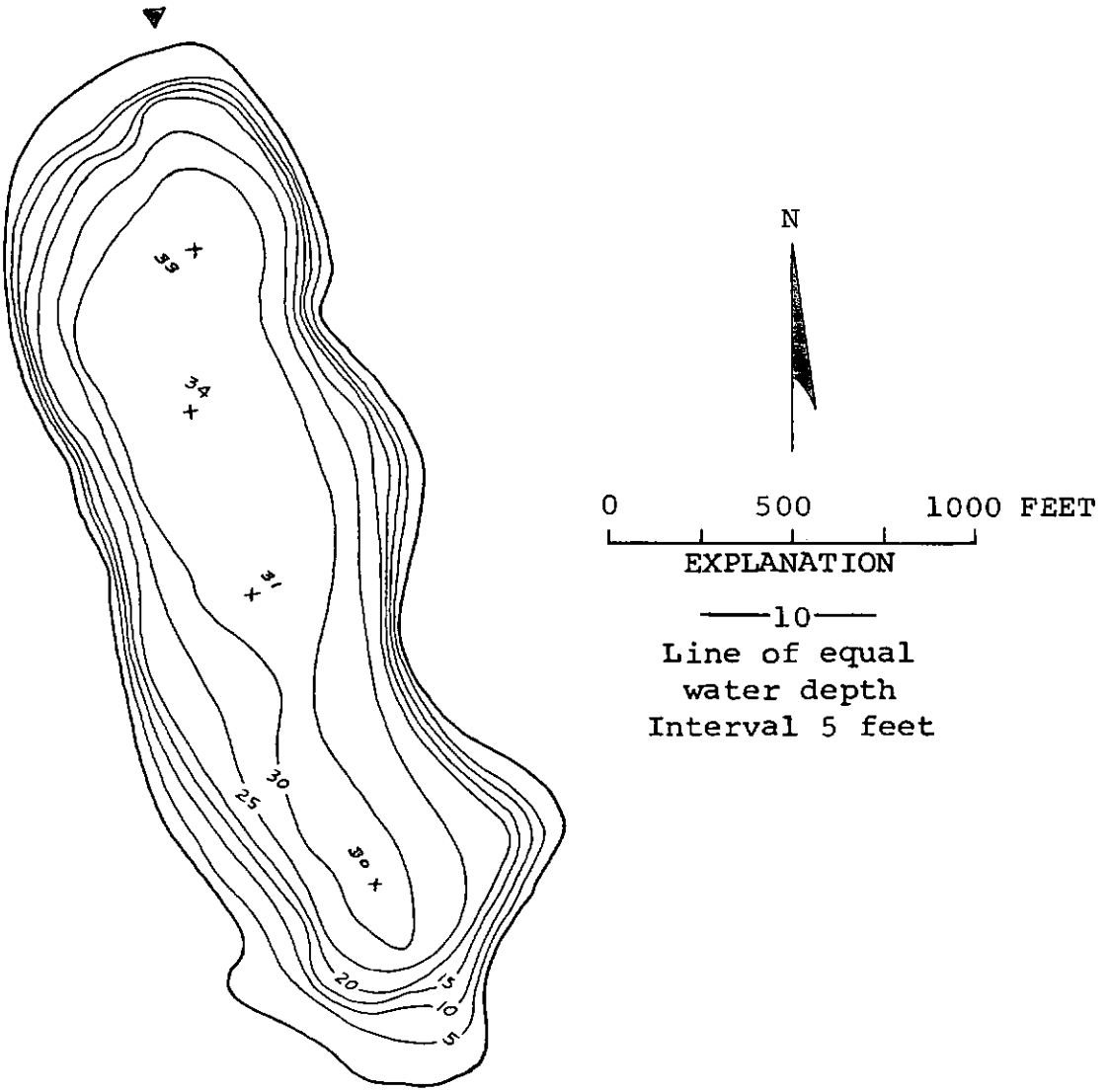
SAMPLE SITE	1	
DATE	7/23/74	
TIME	1235	1240
DEPTH (FT)	3.	43.
TOTAL NITRATE (N)	0.00	0.01
TOTAL NITRITE (N)	0.01	0.00
TOTAL AMMONIA (N)	0.07	1.6
TOTAL ORGANIC NITROGEN (N)	0.68	1.3
TOTAL PHOSPHORUS (P)	0.019	0.25
TOTAL ORTHOPHOSPHATE (P)	0.002	0.22
SPECIFIC CONDUCTANCE (MICROMHOS)	490	540
WATER TEMPERATURE (DEG C)	21.2	7.2
COLOR (PLATINUM-COBALT UNITS)	15	25
SECCHI-DISC VISIBILITY (FT)	13	
DISSOLVED OXYGEN	10.6	0.1

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	7/23/74
TIME	1252
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	3
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

AN ALGAL BLOOM WAS OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.



Davis Lake, Okanogan County. From Washington Department of Game, January 9, 1947.

Davis Lake, Okanogan County. July 2, 1973. Approx. scale 1:12,000.

DUCK (BIDE-A-WEE) LAKE OKANOGAN COUNTY

LATITUDE 48*27'13" LONGITUDE 119*32'12" T34N-R26E-10
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	2 %
ALTITUDE	1241. FT		
LAKE AREA	39. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	1200. ACRE-FT		
MEAN DEPTH	31. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	65. FT		
SHORELINE LENGTH	1.4 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	1.6		
DEVELOPMENT OF VOLUME	0.48		
BOTTOM SLOPE	4.4 %		
BASIN GEOLOGY	SED./META.		
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

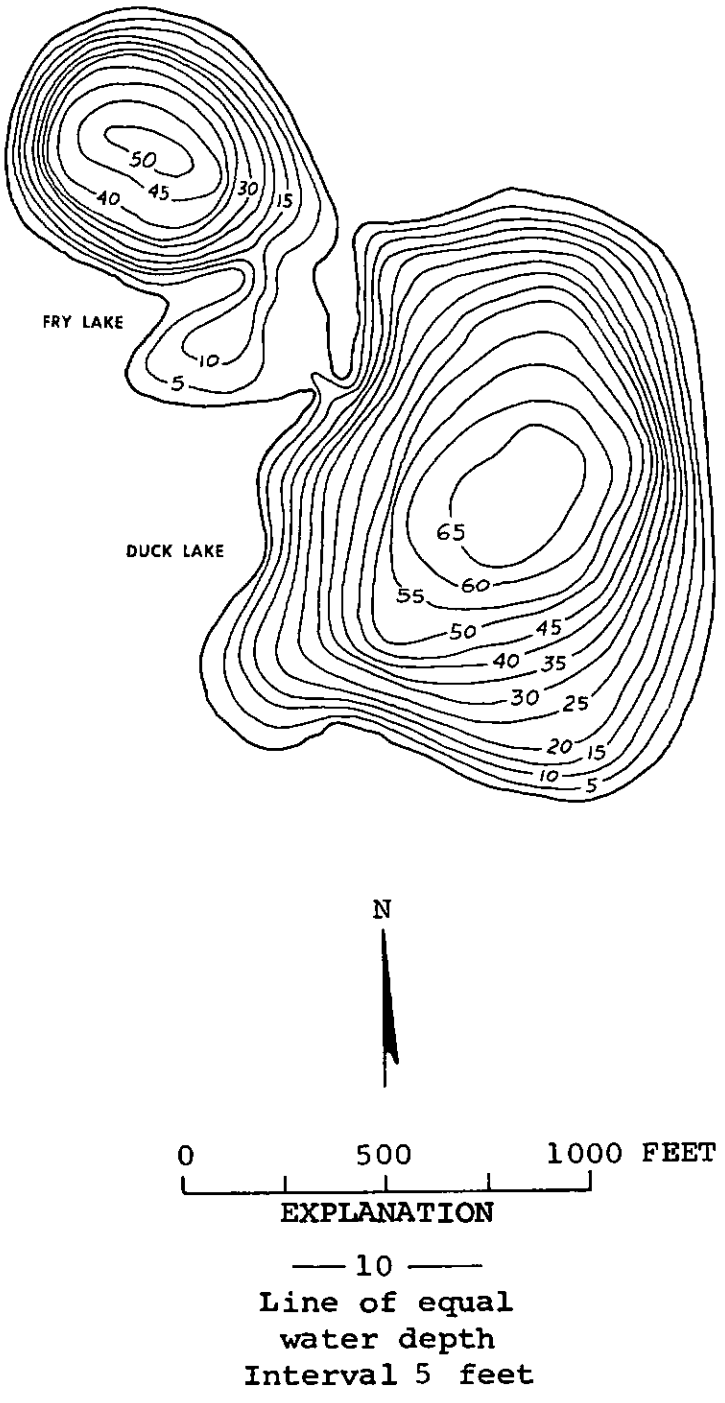
SAMPLE SITE	1	
DATE	7/22/74	
TIME	1520	1525
DEPTH (FT)	3.	59.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.05	1.6
TOTAL ORGANIC NITROGEN (N)	0.31	0.40
TOTAL PHOSPHORUS (P)	0.014	0.36
TOTAL ORTHOPHOSPHATE (P)	0.004	0.33
SPECIFIC CONDUCTANCE (MICROMHOS)	520	650
WATER TEMPERATURE (DEG C)	22.2	5.7
COLOR (PLATINUM-COBALT UNITS)	25	25
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	8.6	0.3

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

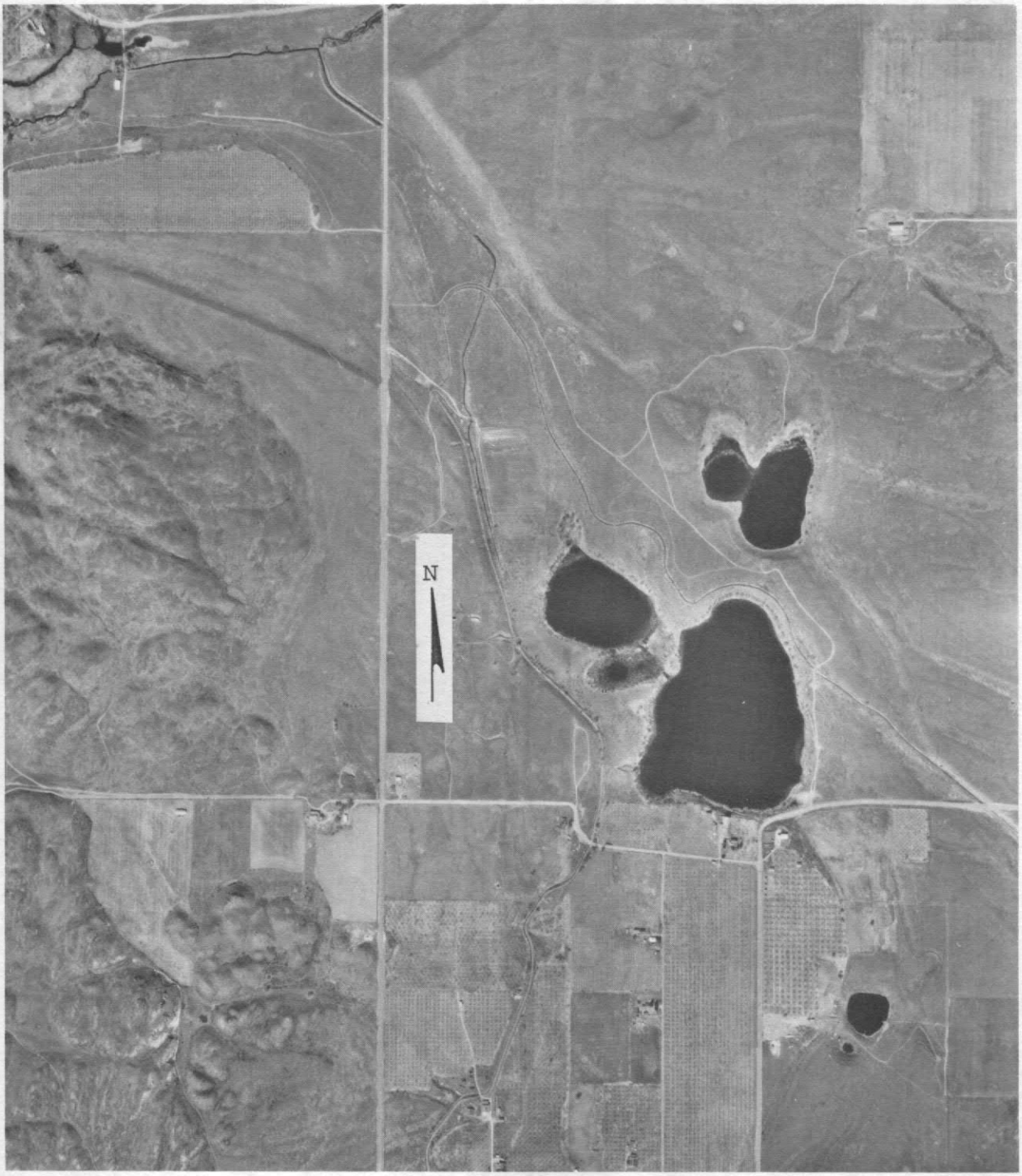
DATE	7/22/74
TIME	1530
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE LAKE IS FED INTERMITTENTLY BY SALMON CREEK AND JOHNSON CREEK. THE WATER IS USED FOR IRRIGATION PURPOSES. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE LAKE RECEIVES IRRIGATION WATER IMPORTED FROM OUTSIDE THE NATURAL DRAINAGE AREA. THE SHORELINE IS BRUSHY.



Duck (Bide-a-Wee) Lake, Okanogan County. From Washington Department of Game, June 18, 1946.



Duck (Bide-a-Wee) Lake, Okanogan County.
April 7, 1973. Approx. scale 1:12,000.

EVANS LAKE OKANOGAN COUNTY

LATITUDE 48°30'34" LONGITUDE 119°34' 9" T35N-R26E-28
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.32 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1721. FT		
LAKE AREA	38. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	550. ACRE-FT		
MEAN DEPTH	14. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	30. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.48	AGRICULTURAL	94 %
BOTTOM SLOPE	2.1 %	FOREST OR UNPRODUCTIVE	2 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	4 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

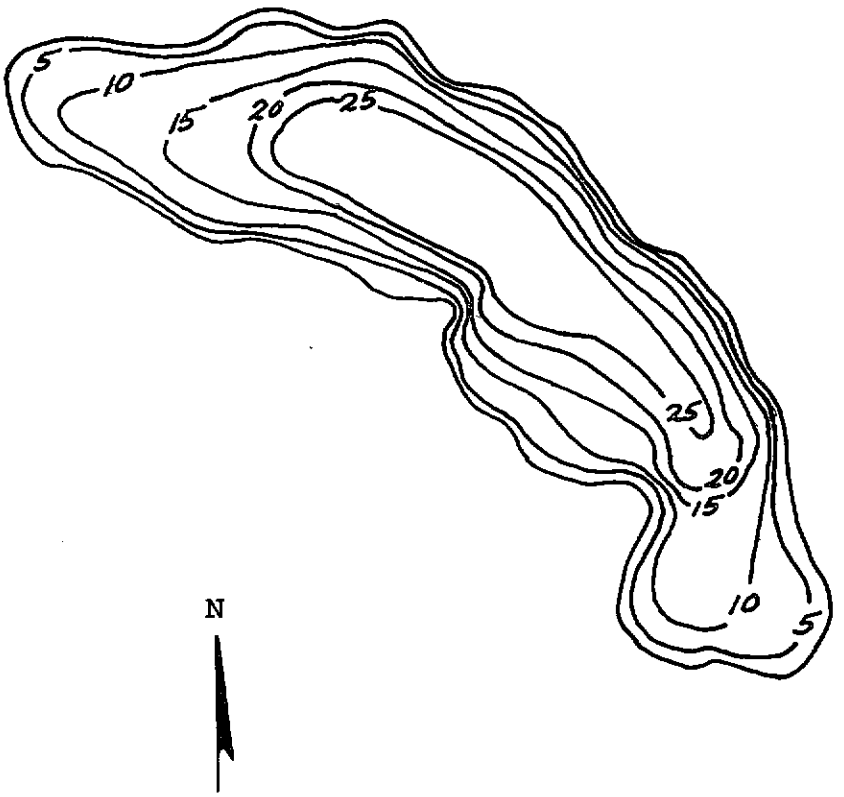
SAMPLE SITE	1	
DATE	7/18/74	
TIME	1445	1450
DEPTH (FT)	3.	13.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.11	0.21
TOTAL ORGANIC NITROGEN (N)	0.89	0.79
TOTAL PHOSPHORUS (P)	0.025	0.023
TOTAL ORTHOPHOSPHATE (P)	0.003	0.004
SPECIFIC CONDUCTANCE (MICROMHOS)	1500	1500
WATER TEMPERATURE (DEG C)	21.0	19.9
COLOR (PLATINUM-COBALT UNITS)	30	35
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	6.7	3.7

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/18/74
TIME	1502
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE LITTORAL BOTTOM IS SILT.



Evans Lake, Okanogan County. From
U.S. Geological Survey, September 14, 1974.

Evans Lake, Okanogan County. April 7, 1973. Approx. scale 1:12,000.

FANCHERS DAM LAKE OKANOGAN COUNTY

LATITUDE 48°49'45" LONGITUDE 119°15'43" T39N-R28E-35
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	34.3 SQ MI	RESIDENTIAL DEVELOPMENT	2 %
ALTITUDE	3160. FT		
LAKE AREA	28. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	420. ACRE-FT		
MEAN DEPTH	15. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	36. FT		
SHORELINE LENGTH	1.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.42	AGRICULTURAL	50 %
BOTTOM SLOPE	2.9 %	FOREST OR UNPRODUCTIVE	50 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	<1 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

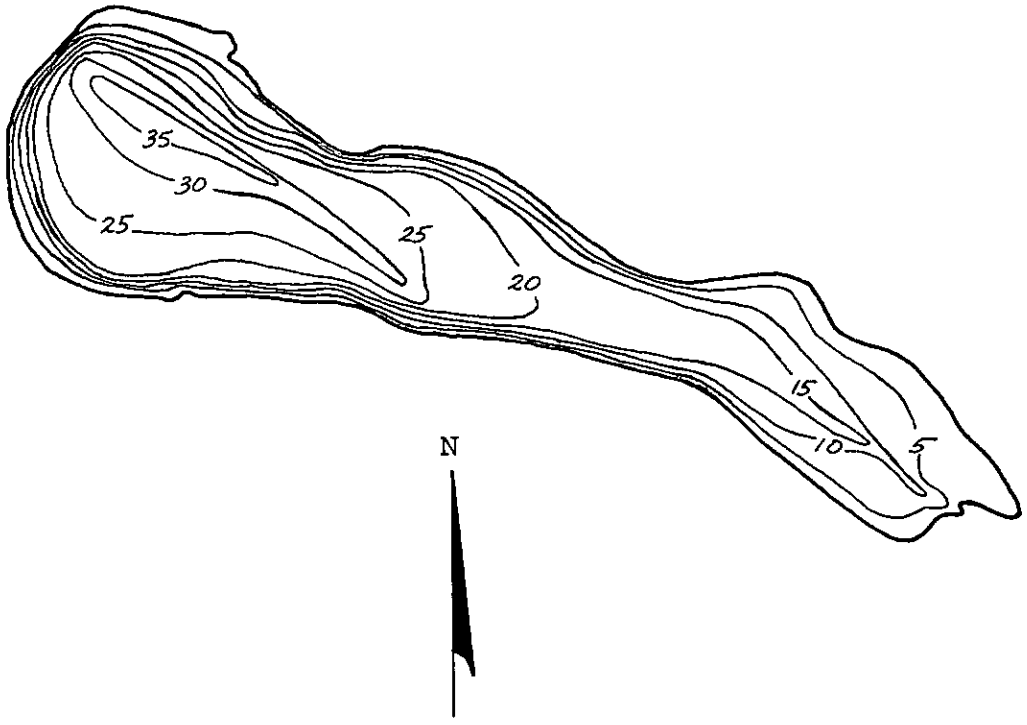
SAMPLE SITE	1	
DATE	7/19/74	
TIME	1125	1130
DEPTH (FT)	3.	33.
TOTAL NITRATE (N)	0.00	0.23
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.08	0.08
TOTAL ORGANIC NITROGEN (N)	0.25	0.26
TOTAL PHOSPHORUS (P)	0.054	0.043
TOTAL ORTHOPHOSPHATE (P)	0.033	0.028
SPECIFIC CONDUCTANCE (MICROMHOS)	--	--
WATER TEMPERATURE (DEG C)	17.6	4.8
COLOR (PLATINUM-COBALT UNITS)	25	25
SECCHI-DISC VISIBILITY (FT)	9	
DISSOLVED OXYGEN	8.2	3.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/19/74
TIME	1145
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

AN ARTIFICIAL RESERVOIR CREATED BY A DAM ON ANTOINE CREEK IN 1927 AND RAISED IN 1961. THE WATER IS USED FOR STOCK-WATERING PURPOSES. THE LITTORAL BOTTOM IS SILT AND MUCK. THE UPPER (SOUTHEAST) END OF THE LAKE IS CHOKED WITH TREES, BRUSH, AND SUBMERGED STUMPS. VERY FEW AQUATIC MACROPHYTES WERE OBSERVED. THE LAKE WAS TEMPORARILY DRAINED IN AUGUST 1973. SPECIFIC CONDUCTANCE VALUES WERE NOT RECORDED.



Fanchers Dam Lake, Okanogan County. From U.S. Geological Survey, August 13, 1974.

Fanchers Dam Lake, Okanogan County. July 11, 1973. Approx. scale 1:12,000.

FIELDS LAKE OKANOGAN COUNTY

LATITUDE 48°56'20" LONGITUDE 119° 7'32" T40N-R29E-26
KETTLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	4.12 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3800. FT		
LAKE AREA	25. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	190. ACRE-FT		
MEAN DEPTH	8. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	38. FT		
SHORELINE LENGTH	1.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.20	AGRICULTURAL	79 %
BOTTOM SLOPE	3.2 %	FOREST OR UNPRODUCTIVE	20 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	1 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

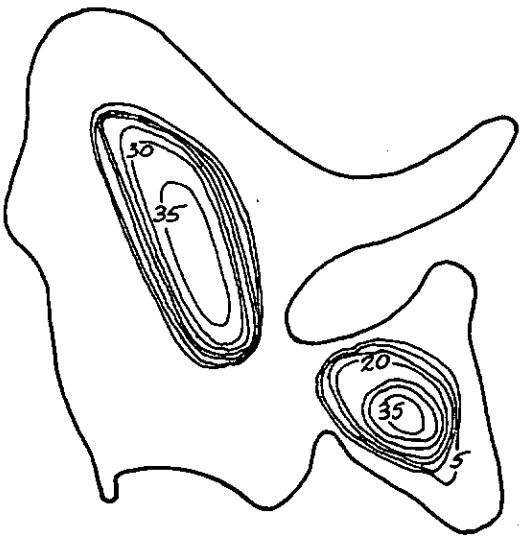
SAMPLE SITE	1	
DATE	7/18/74	
TIME	1230	1235
DEPTH (FT)	3.	23.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.14	0.97
TOTAL ORGANIC NITROGEN (N)	0.67	1.2
TOTAL PHOSPHORUS (P)	0.014	0.12
TOTAL ORTHOPHOSPHATE (P)	0.004	0.039
SPECIFIC CONDUCTANCE (MICROMHOS)	540	660
WATER TEMPERATURE (DEG C)	17.8	5.0
COLOR (PLATINUM-COBALT UNITS)	--	--
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	6.2	0.3

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	26- 50 %

DATE	7/18/74
TIME	1250
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	3
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

THE WATER IS USED FOR IRRIGATION PURPOSES. THE LAKE SUPPORTS A MODERATELY LARGE WATERFOWL POPULATION AND WINTER FISH KILLS ARE COMMON. A LARGE PART OF THE BOTTOM WAS COVERED WITH SUBMERSED AQUATIC PLANTS. FLOATING LOGS WERE OBSERVED ALONG THE SHORELINE. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE WATER WAS YELLOW-GREEN IN COLOR AND NO COLOR DETERMINATIONS WERE MADE.



N

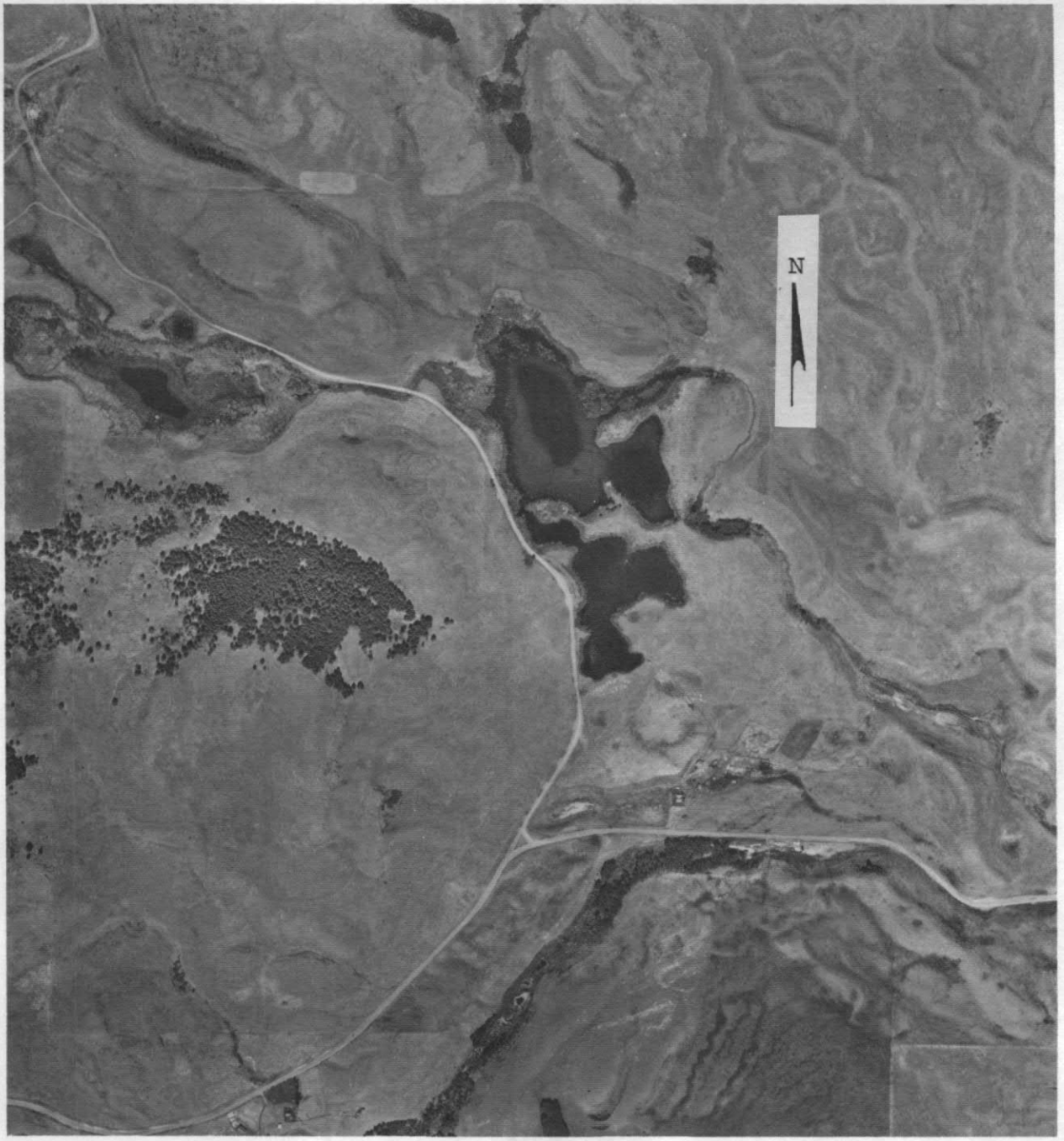
0 500 1000 FEET

EXPLANATION

—20—

Line of equal
water depth
Interval 5 feet

Fields Lake, Okanogan County. From
U.S. Geological Survey, August 14, 1974.



Fields Lake, Okanogan County. July 12, 1973. Approx. scale 1:12,000.

FISH LAKE OKANOGAN COUNTY

LATITUDE 48*36'36" LONGITUDE 119*41' 3" T36N-R25E-22
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	10.6 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1798. FT		
LAKE AREA	100. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	2800. ACRE-FT		
MEAN DEPTH	28. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	60. FT		
SHORELINE LENGTH	2.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.47	AGRICULTURAL	0 %
BOTTOM SLOPE	2.5 %	FOREST OR UNPRODUCTIVE	99 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	1 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

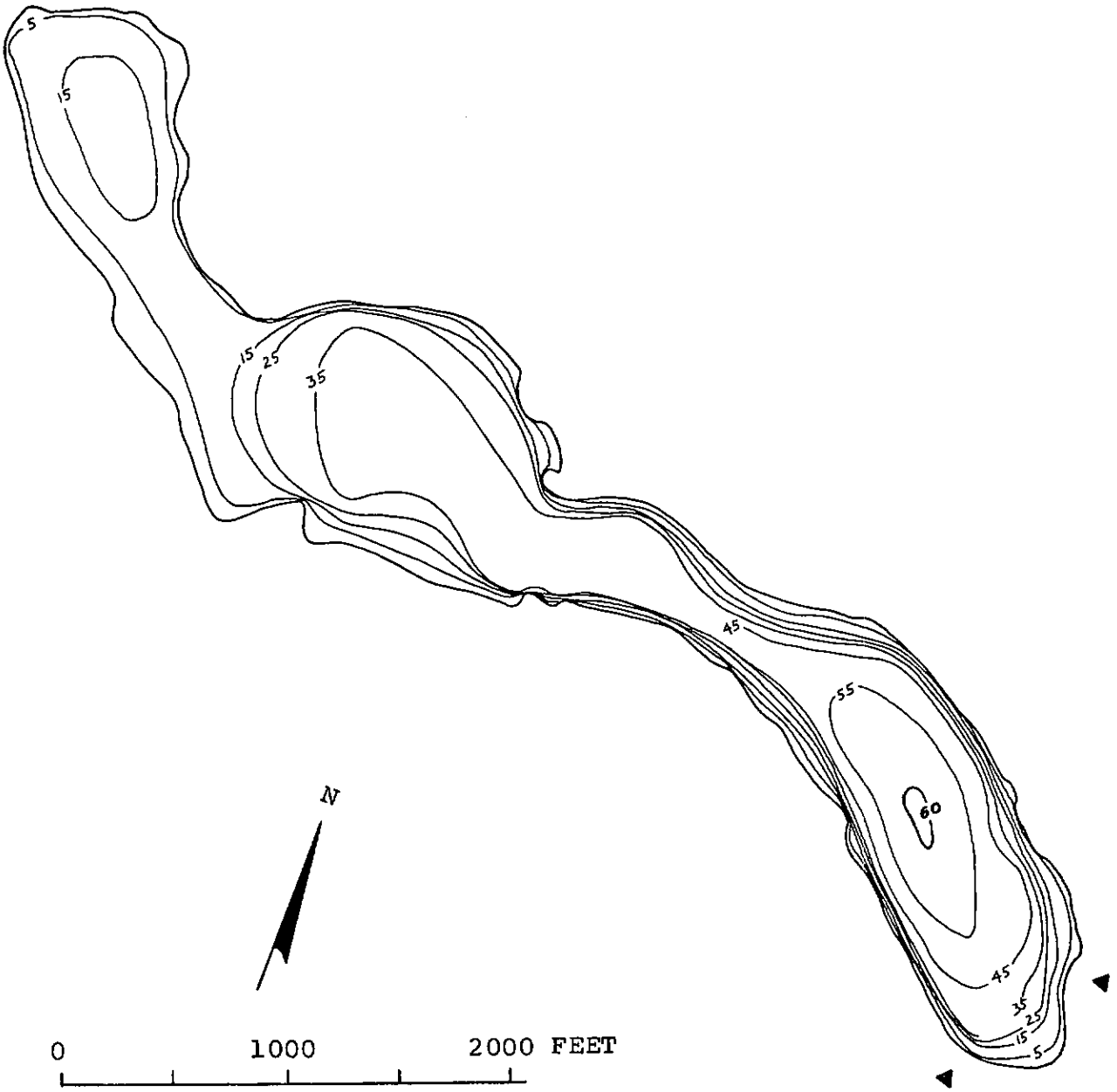
SAMPLE SITE	1	
DATE	7/16/74	
TIME	1255	1300
DEPTH (FT)	3.	56.
TOTAL NITRATE (N)	0.00	0.11
TOTAL NITRITE (N)	0.01	0.07
TOTAL AMMONIA (N)	0.15	0.46
TOTAL ORGANIC NITROGEN (N)	0.77	0.32
TOTAL PHOSPHORUS (P)	0.031	0.34
TOTAL ORTHOPHOSPHATE (P)	0.008	0.28
SPECIFIC CONDUCTANCE (MICROMHOS)	280	380
WATER TEMPERATURE (DEG C)	18.3	7.0
COLOR (PLATINUM-COBALT UNITS)	30	20
SECCHI-DISC VISIBILITY (FT)	4	
DISSOLVED OXYGEN	11.8	0.1

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/16/74
TIME	1255
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	4
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

TREES AND SHRUBS OVERHANG THE WATER ON THE WEST SHORE. A DENSE ALGAL BLOOM WAS OBSERVED.



Fish Lake, Okanogan County. From Washington Department of Game, July 30, 1949.

Fish Lake, Okanogan County. June 4, 1973. Approx. scale 1:12,000.

GREEN LAKE OKANOGAN COUNTY

LATITUDE 48*26'35" LONGITUDE 119*37'40" T34N-R25E-13
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.41 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1540. FT		
LAKE AREA	50. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	920. ACRE-FT		
MEAN DEPTH	18. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	40. FT		
SHORELINE LENGTH	2.0 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.46	AGRICULTURAL	8 %
BOTTOM SLOPE	2.4 %	FOREST OR UNPRODUCTIVE	86 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	6 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

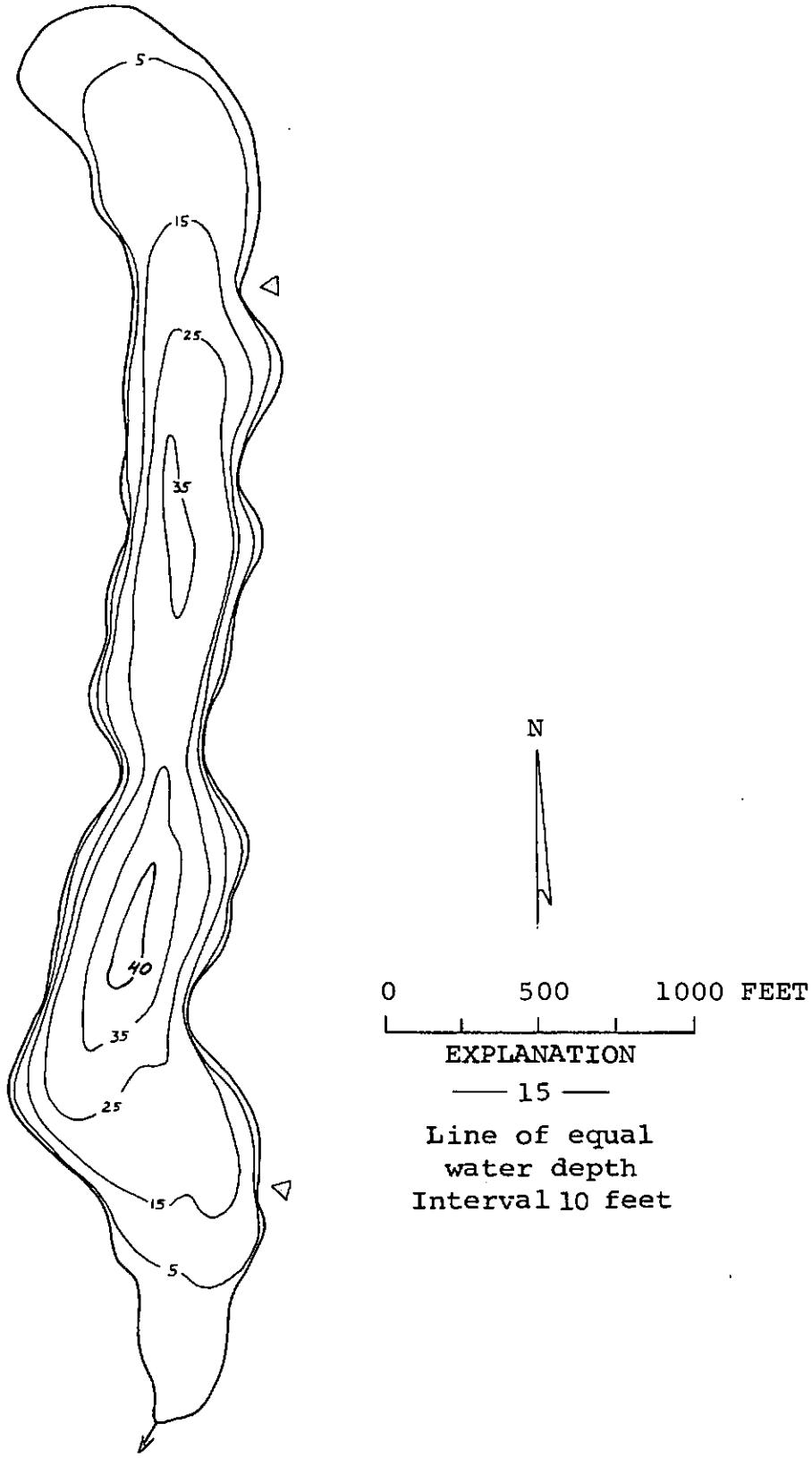
SAMPLE SITE	1	
DATE	7/15/74	
TIME	1150	1155
DEPTH (FT)	3.	36.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.11	0.62
TOTAL ORGANIC NITROGEN (N)	0.46	0.38
TOTAL PHOSPHORUS (P)	0.014	0.044
TOTAL ORTHOPHOSPHATE (P)	0.004	0.021
SPECIFIC CONDUCTANCE (MICROMHOS)	660	780
WATER TEMPERATURE (DEG C)	20.9	10.7
COLOR (PLATINUM-COBALT UNITS)	15	25
SECCHI-DISC VISIBILITY (FT)	17	
DISSOLVED OXYGEN	8.1	0.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

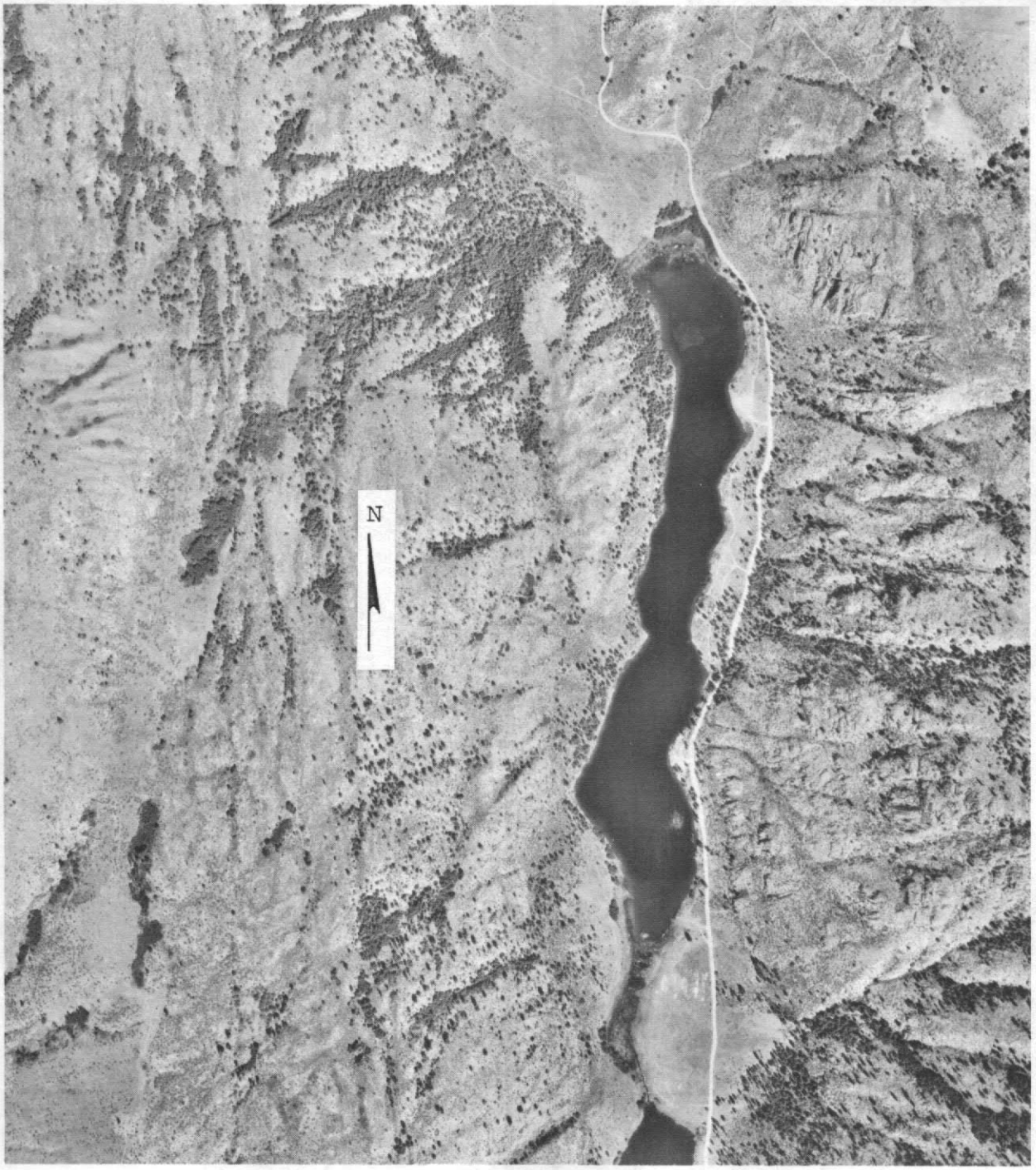
DATE	7/15/74
TIME	1207
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	3
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE LAKE IS IN A STEEP-WALLED VALLEY. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.



Green Lake, Okanogan County. From Washington Department of Game, December 15, 1951.



Green Lake, Okanogan County. June 4, 1973. Approx. scale 1:12,000.

HORSESHOE (35N-26E-17) LAKE OKANOGAN COUNTY

LATITUDE 48*32'21" LONGITUDE 119*36' 8" T35N-R26E-17
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.54 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2360. FT		
LAKE AREA	35. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	830. ACRE-FT		
MEAN DEPTH	24. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	71. FT		
SHORELINE LENGTH	1.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.33	AGRICULTURAL	89 %
BOTTOM SLOPE	5.1 %	FOREST OR UNPRODUCTIVE	1 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	10 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

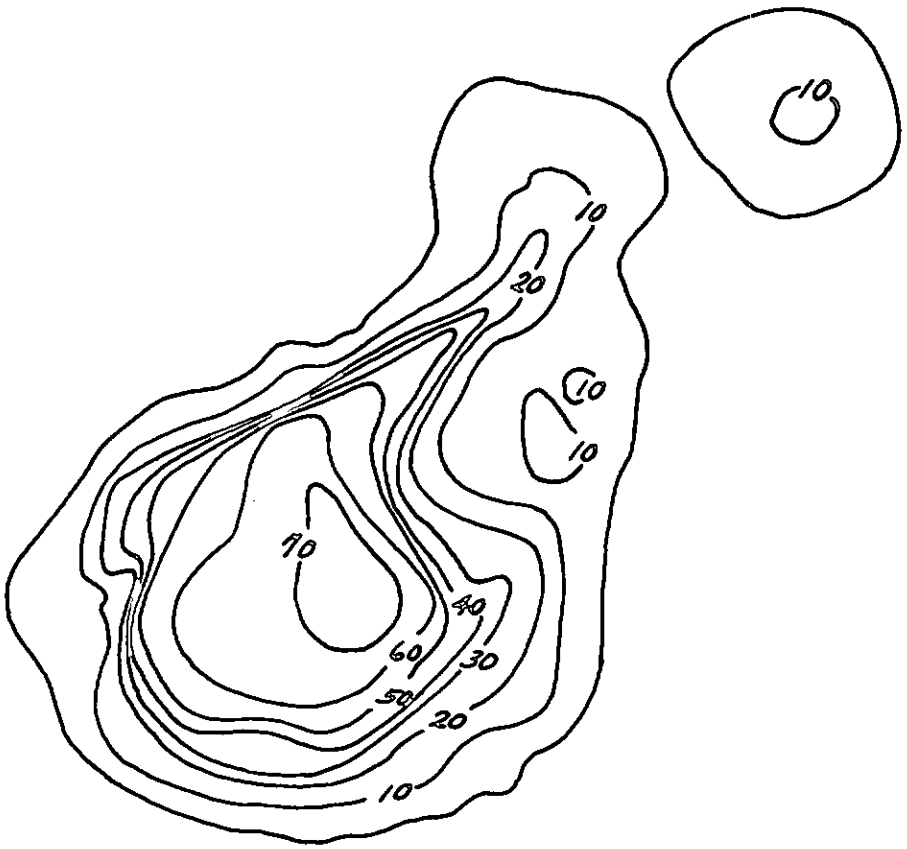
SAMPLE SITE	1	
DATE	7/22/74	
TIME	1635	1640
DEPTH (FT)	3.	62.
TOTAL NITRATE (N)	0.04	0.01
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.24	0.86
TOTAL ORGANIC NITROGEN (N)	1.3	2.7
TOTAL PHOSPHORUS (P)	0.007	0.068
TOTAL ORTHOPHOSPHATE (P)	0.004	0.062
SPECIFIC CONDUCTANCE (MICROMHOS)	2500	5500
WATER TEMPERATURE (DEG C)	21.6	4.2
COLOR (PLATINUM-COBALT UNITS)	15	--
SECCHI-DISC VISIBILITY (FT)	8	
DISSOLVED OXYGEN	9.8	0.3

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	7/22/74
TIME	1657
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	4
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

VERY FEW AQUATIC MACROPHYTES WERE OBSERVED. THE WATER SAMPLE FROM THE HYPOLIMNION WAS VIOLET IN COLOR AND CONTAINED HYDROGEN SULFIDE.



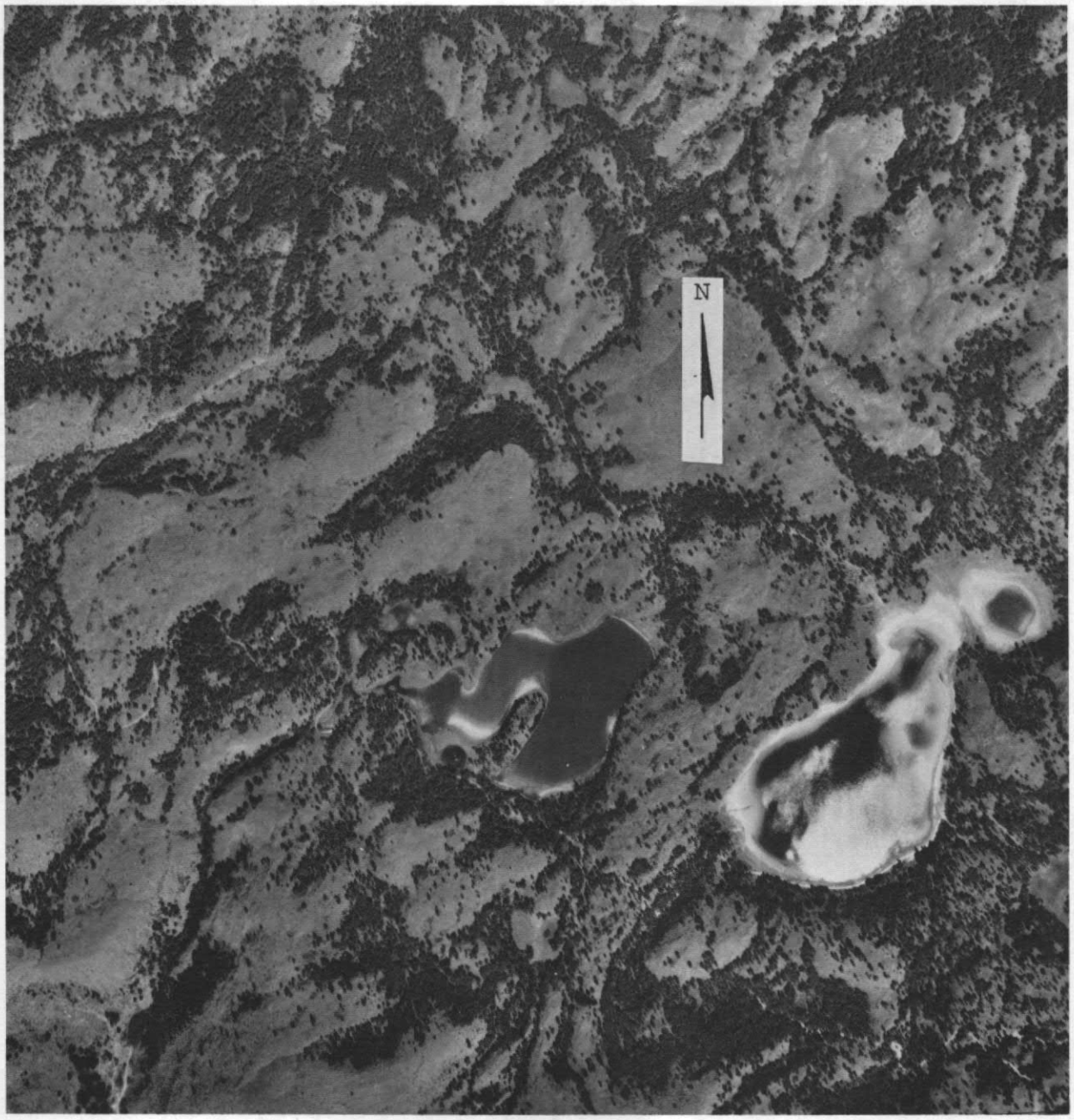
0 500 1000 FEET

EXPLANATION

— 20 —

Line of equal
water depth
Interval 10 feet

Horseshoe (35N-26E-17) Lake, Okanogan County.
From U.S. Geolocial Survey, September 13, 1974.



Horseshoe (35N-26E-17) Lake, Okanogan County.
June 4, 1973. Approx. scale 1:12,000.

HORSESHOE (39N-27E-27) LAKE OKANOGAN COUNTY

LATITUDE 48°51'20" LONGITUDE 119°25'17" T39N-R27E-27
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.46 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	960. FT		
LAKE AREA	86. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	250. ACRE-FT		
MEAN DEPTH	3. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	6. FT		
SHORELINE LENGTH	3.7 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.9	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.49	AGRICULTURAL	71 %
BOTTOM SLOPE	0.28 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	29 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

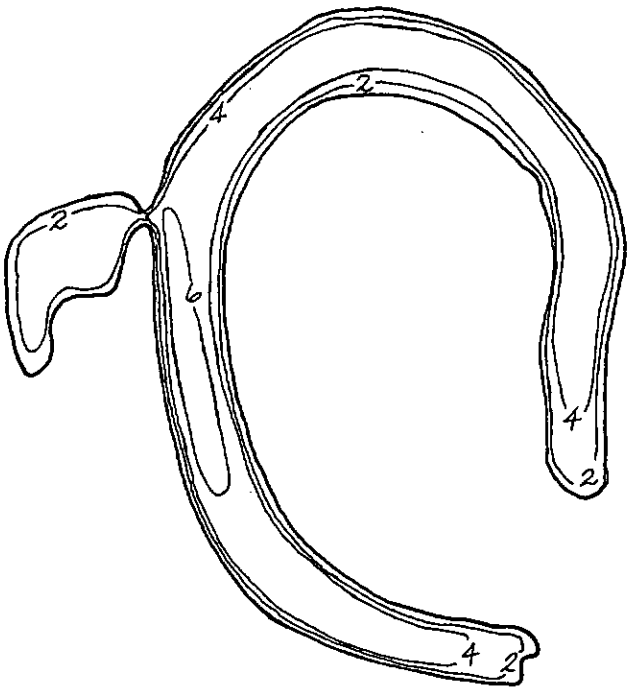
SAMPLE SITE	1	
DATE	7/22/74	
TIME	1345	1350
DEPTH (FT)	3.	5.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.16	0.14
TOTAL ORGANIC NITROGEN (N)	0.41	0.43
TOTAL PHOSPHORUS (P)	0.047	0.047
TOTAL ORTHOPHOSPHATE (P)	0.013	0.015
SPECIFIC CONDUCTANCE (MICROMHOS)	380	380
WATER TEMPERATURE (DEG C)	23.1	22.8
COLOR (PLATINUM-COBALT UNITS)	50	55
SECCHI-DISC VISIBILITY (FT)	2	
DISSOLVED OXYGEN	8.1	8.0

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	7/22/74
TIME	1402
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	13
FECAL COLIFORM, MEAN (COL./100ML)	6

REMARKS

AN OXBOW LAKE IN THE OKANOGAN RIVER BOTTOMS. VERY FEW AQUATIC MACROPHYTES WERE OBSERVED. THE LITTORAL BOTTOM IS MUCK AND SILT.



N

0 1000 2000 FEET

EXPLANATION

—— 4 ——

Line of equal
water depth
Interval 2 feet

Horseshoe (39N-27E-27) Lake, Okanogan County.
From U.S. Geological Survey, August 13, 1974.

Horseshoe (39N-27E-27) Lake, Okanogan County.
July 11, 1973. Approx. scale 1:15,000.

"L" LAKE OKANOGAN COUNTY

LATITUDE 48*36' 9" LONGITUDE 119* 6'59" T36N-R30E-19
SANPOIL RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	6.47 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2592. FT		
LAKE AREA	24. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	280. ACRE-FT		
MEAN DEPTH	12. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	19. FT		
SHORELINE LENGTH	0.92 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.63	AGRICULTURAL	63 %
BOTTOM SLOPE	1.6 %	FOREST OR UNPRODUCTIVE	36 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	1 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

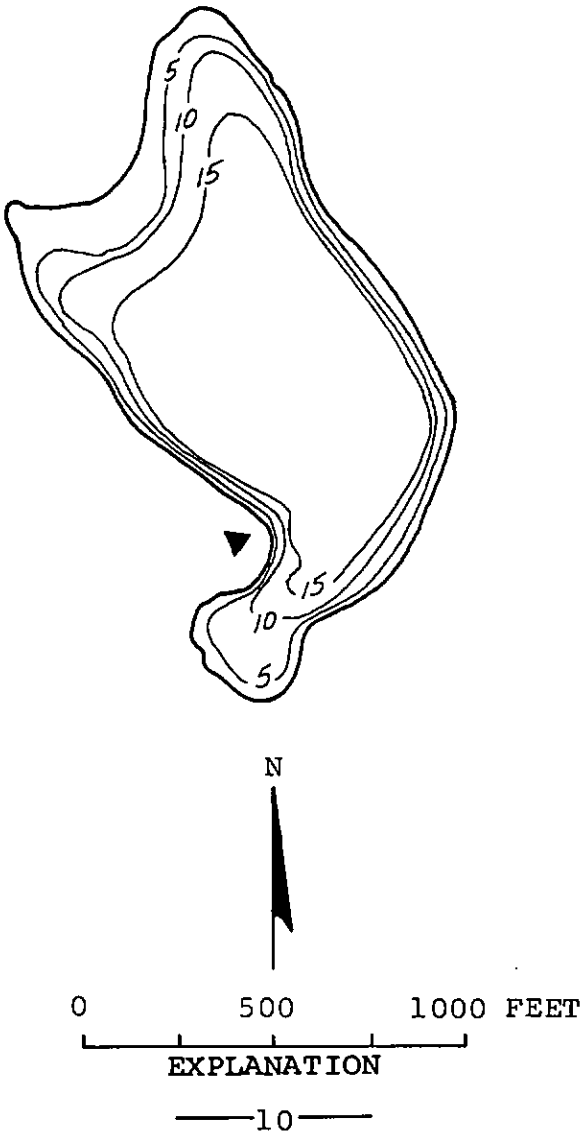
SAMPLE SITE	1	
DATE	7/19/74	
TIME	1405	1410
DEPTH (FT)	3.	16.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.15	0.56
TOTAL ORGANIC NITROGEN (N)	0.62	0.44
TOTAL PHOSPHORUS (P)	0.012	0.20
TOTAL ORTHOPHOSPHATE (P)	0.010	0.16
SPECIFIC CONDUCTANCE (MICROMHOS)	--	--
WATER TEMPERATURE (DEG C)	20.1	14.8
COLOR (PLATINUM-COBALT UNITS)	40	50
SECCHI-DISC VISIBILITY (FT)	12	
DISSOLVED OXYGEN	5.9	0.3

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/19/74
TIME	1330
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	4
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE LAKE IS IN A GLACIAL KETTLE. LARGE AREAS OF THE BOTTOM AND SHORELINE WERE COVERED WITH AQUATIC MACROPHYTES. THE WATER HAD A HIGH ALGAL DENSITY. SPECIFIC CONDUCTANCE VALUES WERE NOT RECORDED.



"L" Lake, Okanogan County.
From U.S. Geological Survey, August 1, 1974.

"L" Lake, Okanogan County. July 13, 1973. Approx. scale 1:12,000.

LEADER LAKE OKANOGAN COUNTY

LATITUDE 48*21'41" LONGITUDE 119*41'45" T33N-R25E-16
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2273. FT		
LAKE AREA	170. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	3600. ACRE-FT		
MEAN DEPTH	21. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	62. FT		
SHORELINE LENGTH	3.? MI	NOT DETERMINED	
SHORELINE CONFIGURATION	1.7		
DEVELOPMENT OF VOLUME	0.34		
BOTTOM SLOPE	2.0 %		
BASIN GEOLOGY	IGNEOUS		
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

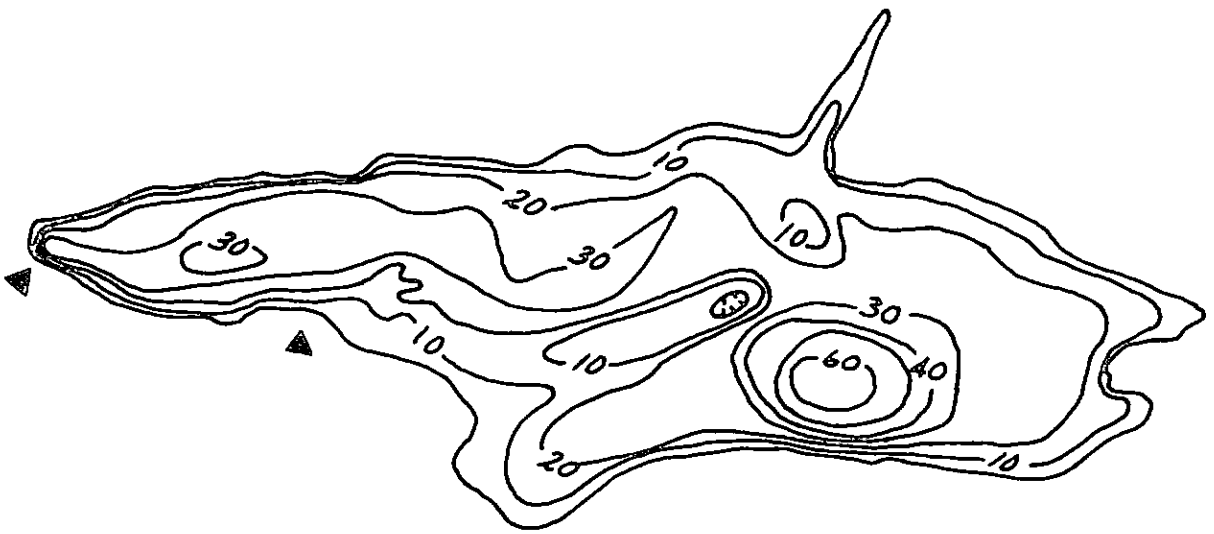
SAMPLE SITE	1	
DATE	7/18/74	
TIME	1530	1535
DEPTH (FT)	3.	30.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.07	0.33
TOTAL ORGANIC NITROGEN (N)	0.55	0.51
TOTAL PHOSPHORUS (P)	0.033	0.22
TOTAL ORTHOPHOSPHATE (P)	0.004	0.19
SPECIFIC CONDUCTANCE (MICROMHOS)	275	360
WATER TEMPERATURE (DEG C)	21.6	10.7
COLOR (PLATINUM-COBALT UNITS)	20	25
SECCHI-DISC VISIBILITY (FT)	5	
DISSOLVED OXYGEN	10.8	0.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/18/74
TIME	1545
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	3
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

A NATURAL LAKE ENLARGED BY A DAM ABOUT 1910 AND FED BY DIVERSIONS FROM LITTLE LOUP LOUP CREEK. THE LAKE LEVEL FLUCTUATES 25-30 FEET ANNUALLY. A HIGH ALGAL DENSITY WAS OBSERVED. RECREATIONAL USE OF THE LAKE IS HEAVY. THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION. THE DRAINAGE AREA WAS NOT MEASURED BECAUSE WATER IS IMPORTED FROM LITTLE LOUP LOUP CREEK.



N

0 1000 2000 FEET

EXPLANATION

—20—

Line of equal
water depth
Interval 10 feet

Leader Lake, Okanogan County. From
U.S. Geological Survey, July 25, 1974.

Leader Lake, Okanogan County. June 4, 1973. Approx. scale 1:12,000.

LEMANASKY LAKE OKANOGAN COUNTY

LATITUDE 48*42' 7" LONGITUDE 119*37'33" T37N-R25E-13
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.69 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3480. FT		
LAKE AREA	24. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	360. ACRE-FT		
MEAN DEPTH	15. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	36. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.41	AGRICULTURAL	27 %
BOTTOM SLOPE	3.1 %	FOREST OR UNPRODUCTIVE	71 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	2 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

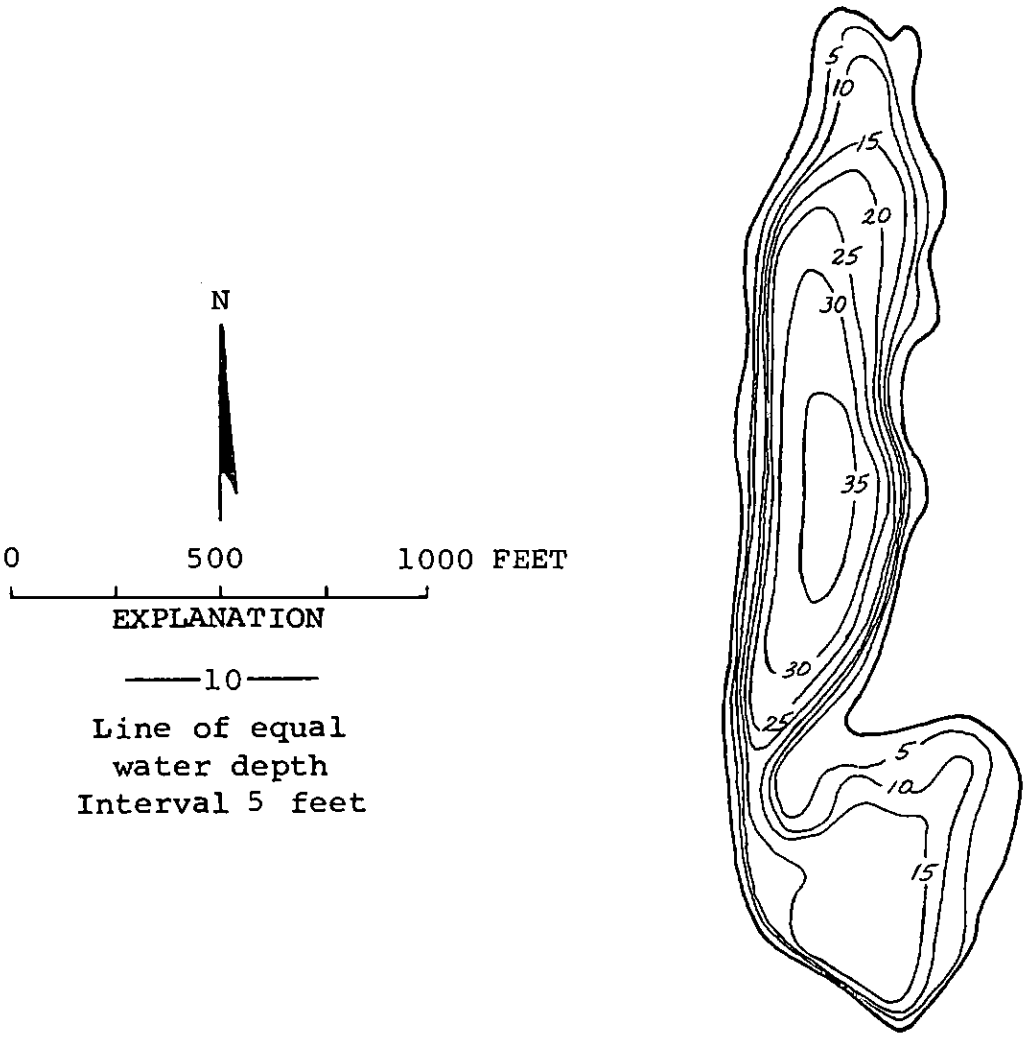
SAMPLE SITE	1	
DATE	7/23/74	
TIME	950	955
DEPTH (FT)	3.	33.
TOTAL NITRATE (N)	0.01	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.07	1.7
TOTAL ORGANIC NITROGEN (N)	0.50	0.80
TOTAL PHOSPHORUS (P)	0.026	0.17
TOTAL ORTHOPHOSPHATE (P)	0.005	0.080
SPECIFIC CONDUCTANCE (MICROMHOS)	190	360
WATER TEMPERATURE (DEG C)	18.8	5.2
COLOR (PLATINUM-COBALT UNITS)	25	45
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	9.1	0.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/23/74
TIME	1010
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE LAKE IS STABILIZED BY AN EARTHEN DAM BUILT ABOUT 1948. THE SHORELINE IS MUCKY AND COVERED WITH BRUSH, FLOATING LOGS, AND DEAD TREES. A HIGH ALGAL DENSITY WAS OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE LAKE SUPPORTS LARGE BEAVER AND WATERFOWL POPULATIONS.



Lemanasky Lake, Okanogan County. From
U.S. Geological Survey, August 1, 1974.

Lemanasky Lake, Okanogan County. June 4, 1973. Approx. scale 1:12,000.

MEADOW LAKE OKANOGAN COUNTY

LATITUDE 48°45'55" LONGITUDE 119° 4' 2" T38N-R30E-29
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	11.1 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3480. FT		
LAKE AREA	52. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	130. ACRE-FT		
MEAN DEPTH	2. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	13. FT		
SHORELINE LENGTH	1.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.9	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.19	AGRICULTURAL	2 %
BOTTOM SLOPE	0.77 %	FOREST OR UNPRODUCTIVE	95 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	3 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

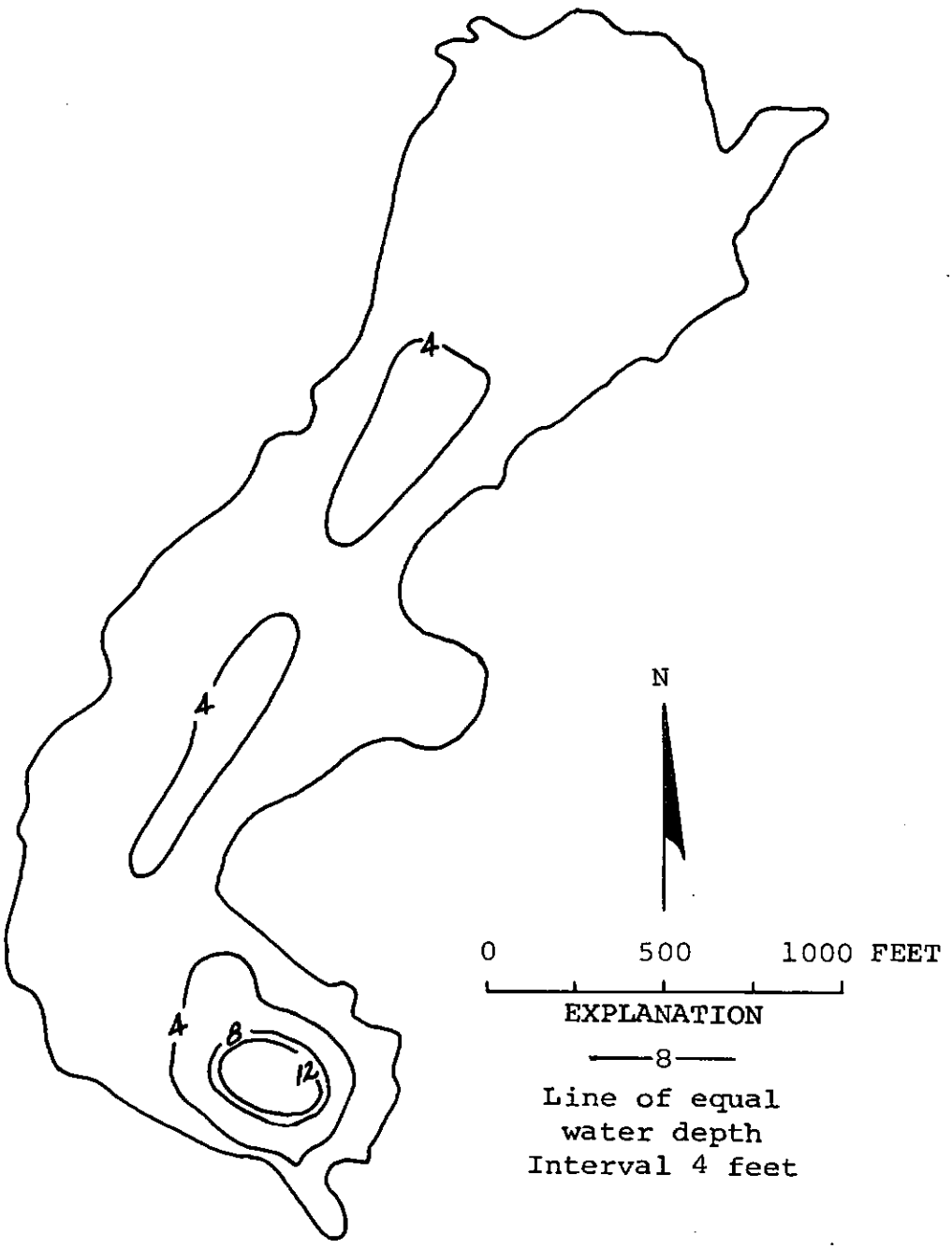
SAMPLE SITE	1	
DATE	7/16/74	
TIME	1225	1230
DEPTH (FT)	1.	3.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.11	0.11
TOTAL ORGANIC NITROGEN (N)	0.58	0.55
TOTAL PHOSPHORUS (P)	0.014	0.014
TOTAL ORTHOPHOSPHATE (P)	0.006	0.004
SPECIFIC CONDUCTANCE (MICROMHOS)	160	160
WATER TEMPERATURE (DEG C)	16.8	16.8
COLOR (PLATINUM-COBALT UNITS)	45	45
SECCHI-DISC VISIBILITY (FT)	> 3	
DISSOLVED OXYGEN	8.7	8.7

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	76-100 %

DATE	7/16/74
TIME	1245
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

A SHALLOW LAKE SURROUNDED BY MARSH. A SMALL AREA OF OPEN WATER WAS SURROUNDED BY EMERSED AQUATIC PLANTS (YELLOW LILY AND PONDWEED). MOST OF THE LAKE BOTTOM WAS COVERED WITH SUBMERSED AQUATIC PLANTS.



Meadow Lake, Okanogan County. From
U.S. Geological Survey, October 3, 1974.

Meadow Lake, Okanogan County. From
U.S. Geological Survey, October 3, 1974.

MEDICINE LAKE OKANOGAN COUNTY

LATITUDE 48*33'20" LONGITUDE 119*35'34" T35N-R26E-5
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.10 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2367. FT		
LAKE AREA	51. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	1400. ACRE-FT		
MEAN DEPTH	28. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	67. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.41	AGRICULTURAL	93 %
BOTTOM SLOPE	4.0 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	7 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

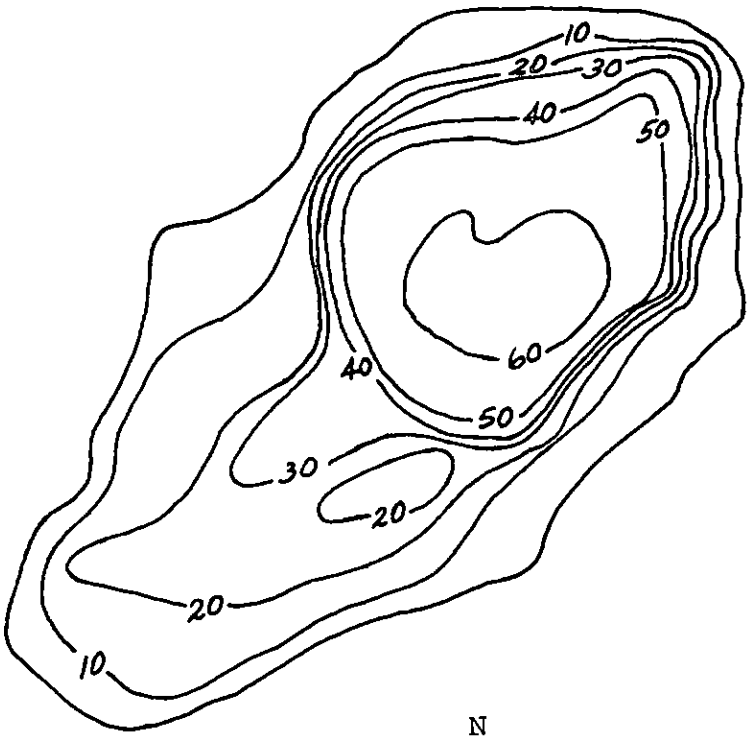
SAMPLE SITE	1	
DATE	7/23/74	
TIME	1440	1445
DEPTH (FT)	3.	52.
TOTAL NITRATE (N)	0.02	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.89	0.90
TOTAL ORGANIC NITROGEN (N)	0.61	1.9
TOTAL PHOSPHORUS (P)	0.007	0.030
TOTAL ORTHOPHOSPHATE (P)	0.001	0.017
SPECIFIC CONDUCTANCE (MICROMHOS)	2000	5000
WATER TEMPERATURE (DEG C)	21.2	4.4
COLOR (PLATINUM-COBALT UNITS)	5	--
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	9.0	0.3

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

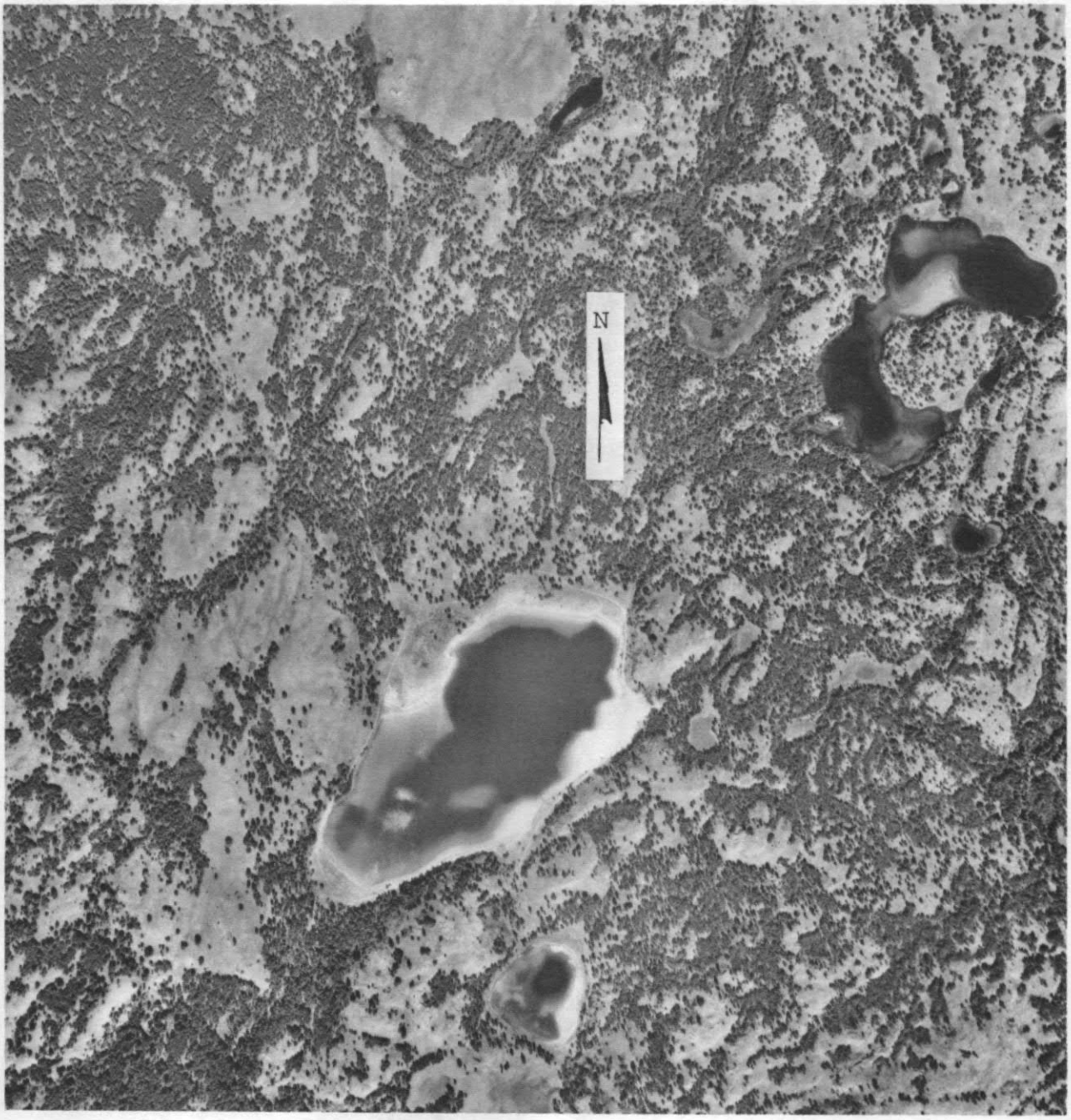
DATE	7/23/74
TIME	1527
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

A HIGHLY SALINE LAKE WITHOUT FISH. THE SURFACE WATER IS BRIGHT LIGHT GREEN IN COLOR. THE WATER SAMPLE FROM THE HYPOLIMNION WAS LAVENDER IN COLOR AND CONTAINED HYDROGEN SULFIDE. THE LAKE HAS A WELL DEVELOPED SANDY BEACH. VERY FEW AQUATIC MACROPHYTES WERE OBSERVED.



Medicine Lake, Okanogan County. From
U.S. Geological Survey, July 31, 1974.



Medicine Lake, Okanogan County. June 4, 1973. Approx. scale 1:12,000.

MOCCASIN LAKE OKANOGAN COUNTY

LATITUDE 48*25' 5" LONGITUDE 120*12' 1" T34N-R21E-27
METHOW RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.53 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2213. FT		
LAKE AREA	27. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	880. ACRE-FT		
MEAN DEPTH	32. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	62. FT		
SHORELINE LENGTH	0.99 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.52	AGRICULTURAL	92 %
BOTTOM SLOPE	5.1 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	8 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

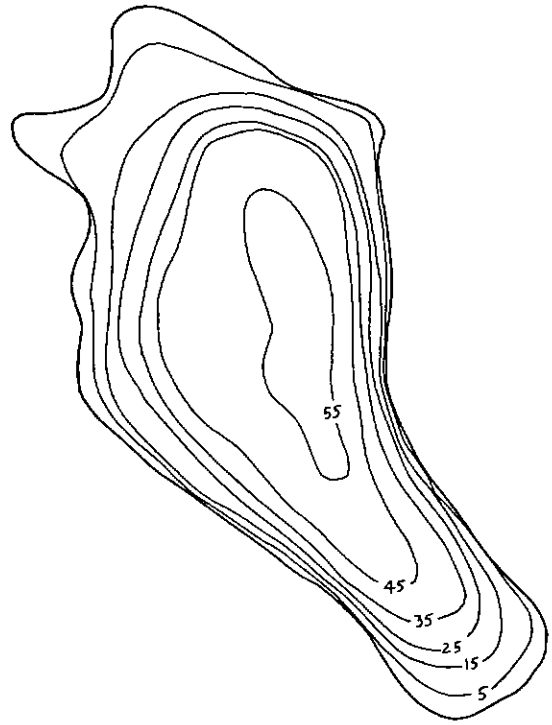
SAMPLE SITE	1	
DATE	7/23/74	
TIME	1020	1025
DEPTH (FT)	3.	52.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.07	1.8
TOTAL ORGANIC NITROGEN (N)	0.37	0.70
TOTAL PHOSPHORUS (P)	0.020	0.40
TOTAL ORTHOPHOSPHATE (P)	0.002	0.38
SPECIFIC CONDUCTANCE (MICROMHOS)	290	340
WATER TEMPERATURE (DEG C)	19.9	6.1
COLOR (PLATINUM-COBALT UNITS)	20	20
SECCHI-DISC VISIBILITY (FT)	16	
DISSOLVED OXYGEN	9.8	0.1

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/23/74
TIME	1037
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

FLOATING LOGS WERE OBSERVED AT THE SOUTH END OF THE LAKE. THE LITTORAL BOTTOM IS MUCK. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. AN ALGAL BLOOM WAS OBSERVED.



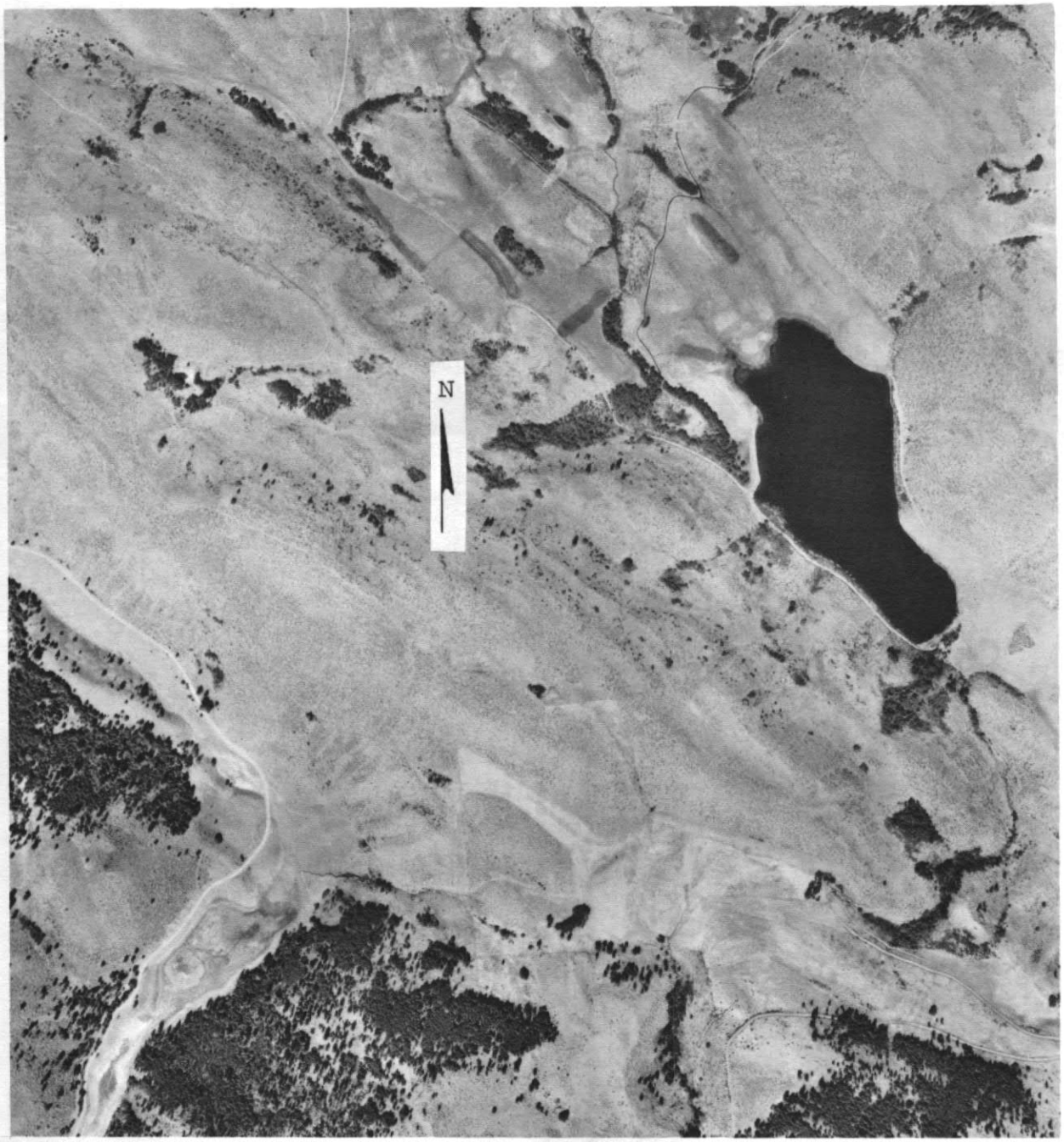
0 500 1000 FEET

EXPLANATION

——15——

Line of equal water depth Interval 10 feet

Moccasin Lake, Okanogan County. From Washington Department of Game, January 10, 1947.



Moccasin Lake, Okanogan County. July 11, 1973. Approx. scale 1:12,000.

MOLSON LAKE OKANOGAN COUNTY

LATITUDE 48*59' 2" LONGITUDE 119*12'19" T40N-R29E-8
KETTLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	3.08 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3660. FT		
LAKE AREA	23. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	130. ACRE-FT		
MEAN DEPTH	6. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	20. FT		
SHORELINE LENGTH	0.96 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.29	AGRICULTURAL	64 %
BOTTOM SLOPE	1.8 %	FOREST OR UNPRODUCTIVE	35 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	1 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

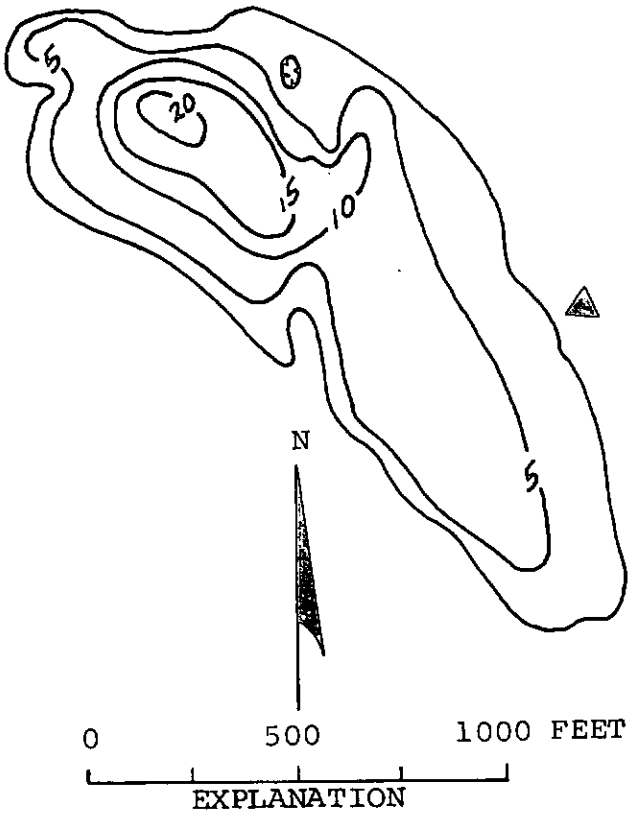
SAMPLE SITE	1	
DATE	7/18/74	
TIME	1115	1120
DEPTH (FT)	3.	8.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.00
TOTAL AMMONIA (N)	0.12	0.09
TOTAL ORGANIC NITROGEN (N)	1.5	1.5
TOTAL PHOSPHORUS (P)	0.033	0.024
TOTAL ORTHOPHOSPHATE (P)	0.007	0.004
SPECIFIC CONDUCTANCE (MICROMHOS)	1050	950
WATER TEMPERATURE (DEG C)	18.2	18.2
COLOR (PLATINUM-COBALT UNITS)	25	15
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	6.6	6.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

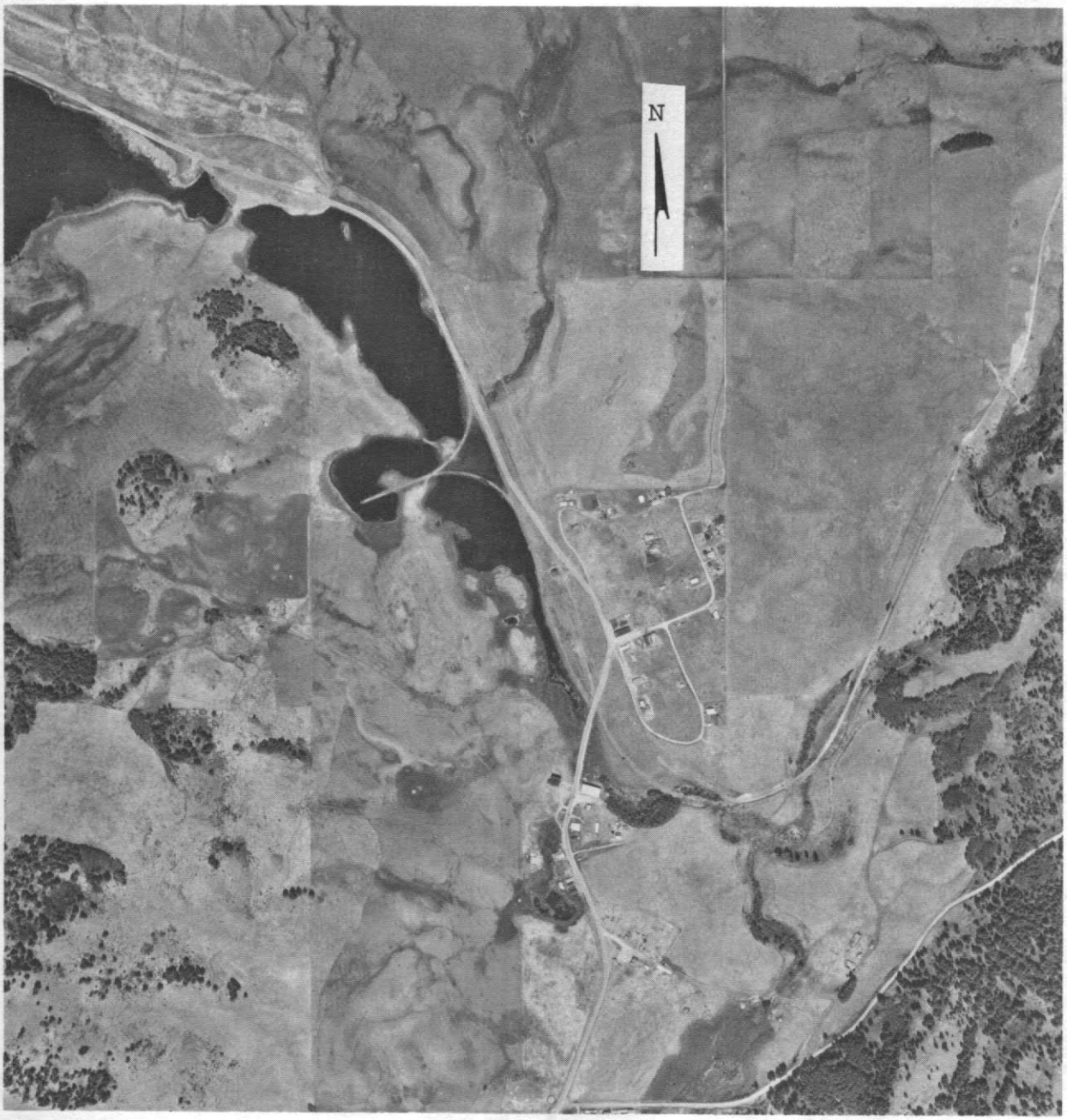
DATE	7/18/74
TIME	1130
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	5
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

THE BOTTOM IS SILTY MUCK AND WAS COVERED WITH SUBMERSED AQUATIC PLANTS (CHARA). MOST OF THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (RUSHES).



Molson Lake, Okanogan County. From
U.S. Geological Survey, August 14, 1974.



Molson Lake, Okanogan County. July 12, 1973. Approx. scale 1:12,000.

MUSKRAT LAKE OKANOGAN COUNTY

LATITUDE 48°52'35" LONGITUDE 119° 9'30" T39N-R29E-15
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.33 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	4220. FT		
LAKE AREA	51. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	170. ACRE-FT		
MEAN DEPTH	3. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	6. FT		
SHORELINE LENGTH	1.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.55	AGRICULTURAL	81 %
BOTTOM SLOPE	0.36 %	FOREST OR UNPRODUCTIVE	16 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	3 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

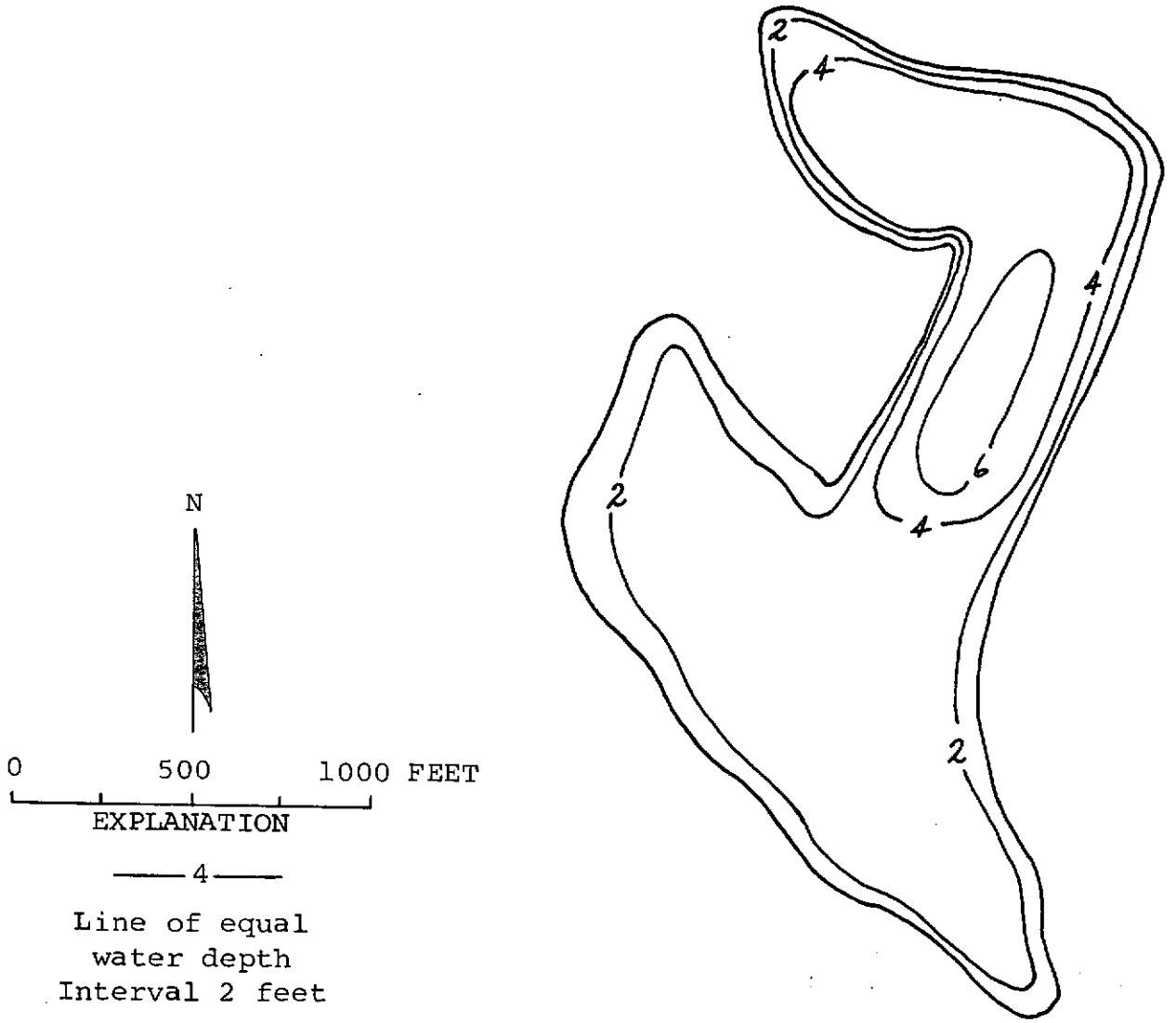
SAMPLE SITE	1	
DATE	7/19/74	
TIME	1020	1025
DEPTH (FT)	1.	3.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.12	0.12
TOTAL ORGANIC NITROGEN (N)	1.2	1.1
TOTAL PHOSPHORUS (P)	0.052	0.044
TOTAL ORTHOPHOSPHATE (P)	0.008	0.009
SPECIFIC CONDUCTANCE (MICROMHOS)	--	--
WATER TEMPERATURE (DEG C)	18.2	18.2
COLOR (PLATINUM-COBALT UNITS)	40	40
SECCHI-DISC VISIBILITY (FT)	5	
DISSOLVED OXYGEN	7.9	7.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

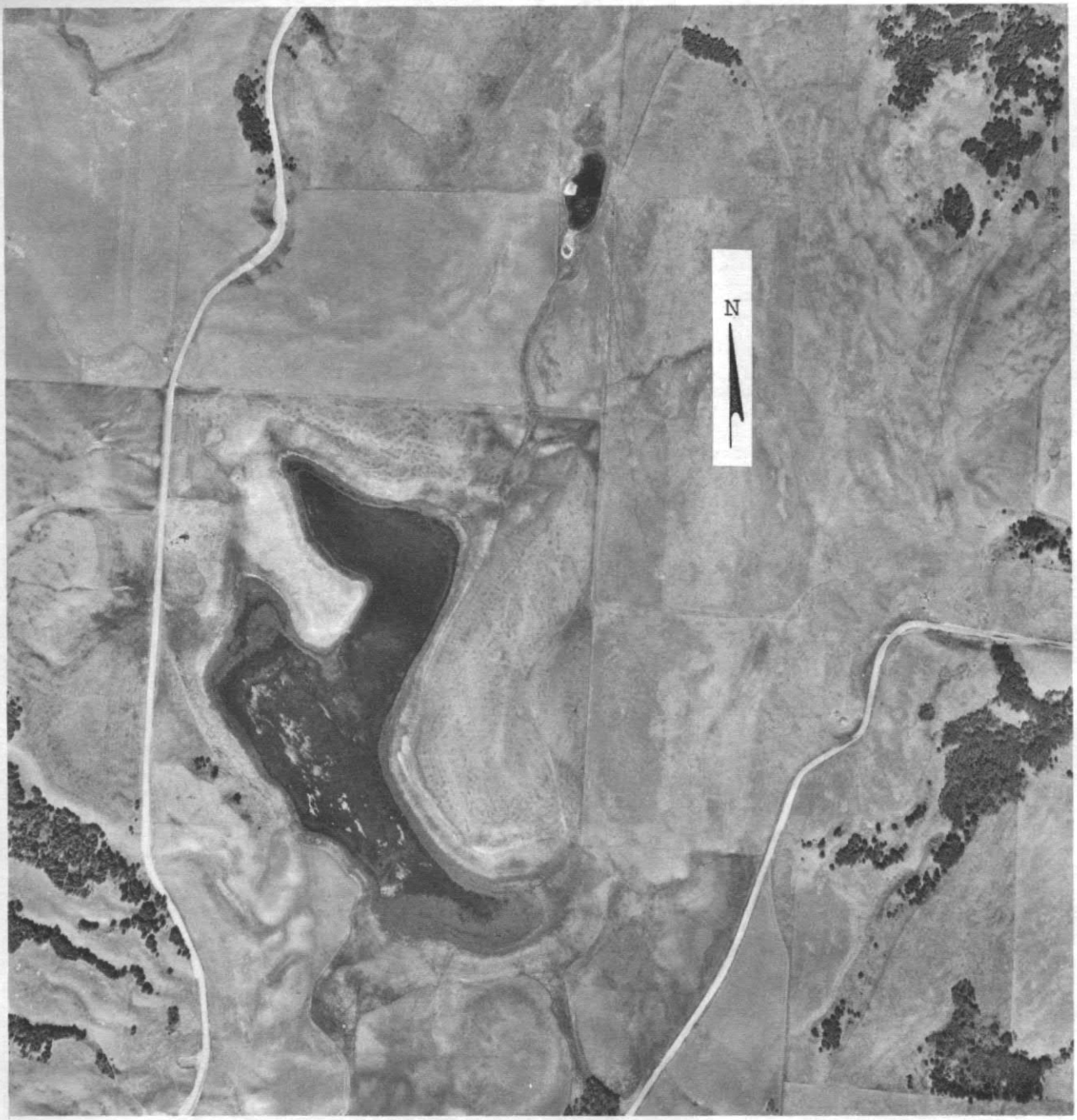
DATE	7/19/74
TIME	1030
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	4
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE LAKE IS SHALLOW, WEEDY, AND CONTAINS NO FISH. THE BOTTOM IS SILTY MUCK AND COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (WATER MILFOIL AND PONDWEED). THE LAKE WAS SURROUNDED BY A BROAD BAND OF EMERSED AQUATIC PLANTS (SEDGE AND RUSHES). SPECIFIC CONDUCTANCE VALUES WERE NOT RECORDED.



Muskrat Lake, Okanogan County. From
U.S. Geological Survey, August 14, 1974.



Muskrat Lake, Okanogan County. July 12, 1973. Approx. scale 1:12,000.

OSOYOOS LAKE OKANOGAN COUNTY

LATITUDE 48°57' 0" LONGITUDE 119°25'42" T40N-R27E-22
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	3150. SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	911. FT		
LAKE AREA	5800. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	270000. ACRE-FT		
MEAN DEPTH	46. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	210. FT		
SHORELINE LENGTH	30. MI	NOT DETERMINED	
SHORELINE CONFIGURATION	2.8		
DEVELOPMENT OF VOLUME	0.22		
BOTTOM SLOPE	1.2 %		
BASIN GEOLOGY	IGNEOUS		
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

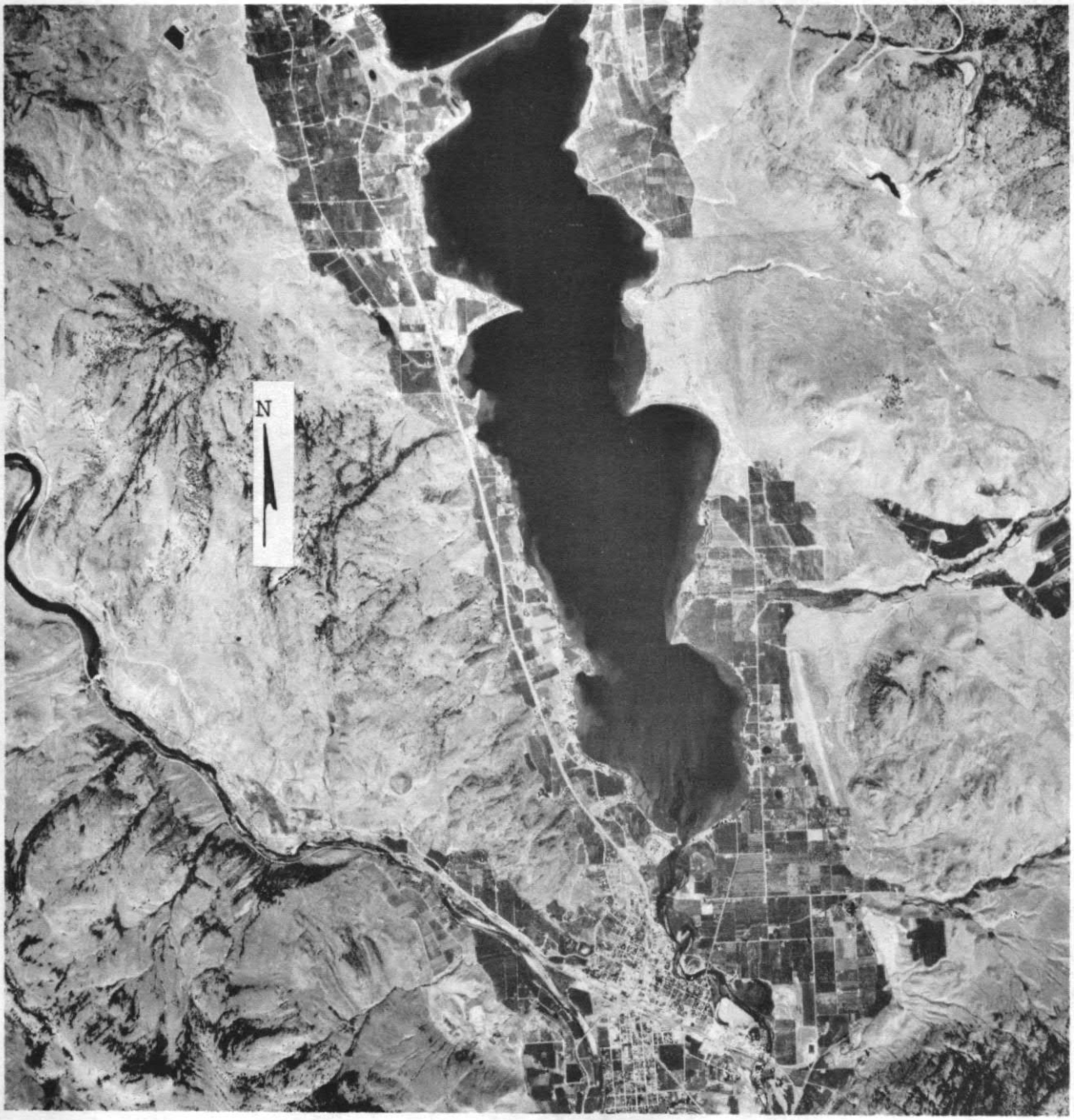
SAMPLE SITE	1		2	
DATE	7/22/74		7/22/74	
TIME	1205	1210	1230	1235
DEPTH (FT)	3.	49.	3.	39.
TOTAL NITRATE (N)	--	0.07	0.01	0.04
TOTAL NITRITE (N)	--	0.00	0.00	0.00
TOTAL AMMONIA (N)	--	0.08	0.04	0.06
TOTAL ORGANIC NITROGEN (N)	--	0.23	0.36	0.28
TOTAL PHOSPHORUS (P)	--	0.014	0.012	0.017
TOTAL ORTHOPHOSPHATE (P)	--	0.002	0.004	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	240	280	250	270
WATER TEMPERATURE (DEG C)	22.3	14.4	21.7	16.3
COLOR (PLATINUM-COBALT UNITS)	25	30	25	25
SECCHI-DISC VISIBILITY (FT)	7		7	
DISSOLVED OXYGEN	9.4	0.9	9.6	3.4

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	7/22/74
TIME	1305
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	6
FECAL COLIFOPM, MEAN (COL./100ML)	2

REMARKS

THIS LAKE IS ABOUT 65 PERCENT IN CANADA AND 35 PERCENT IN THE UNITED STATES. THE LOSS OF A SAMPLE BOTTLE PRECLUDED AN ANALYSIS OF NUTRIENTS FOR THE SHALLOW SAMPLE AT SITE 1. THE LAKE HAS WELL DEVELOPED SAND AND GRAVEL BEACHES AND VERY FEW AQUATIC MACROPHYTES. A MODERATE ALGAL DENSITY WAS OBSERVED. RECREATIONAL USE OF THE LAKE IS HEAVY. THE U.S. GEOLOGICAL SURVEY HAS MAINTAINED A LAKE-STAGE RECORDER ON THE LAKE SINCE 1929. THE LIMNOLOGY OF OSOYOOS LAKE HAS BEEN DESCRIBED BY STOCKNER AND NORTHCOTE (1974).



Osoyoos Lake, Okanogan County. August 4, 1967. Approx. scale 1:60,000.

PALMER LAKE OKANOGAN COUNTY

LATITUDE 48*54'39" LONGITUDE 119*38'43" T39N-R25E-11
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	296. SQ MI	RESIDENTIAL DEVELOPMENT	9 %
ALTITUDE	1145. FT		
LAKE AREA	2100. ACRES	NUMBER OF NEARSHORE HOMES	25
LAKE VOLUME	110000. ACRE-FT		
MEAN DEPTH	51. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	79. FT		
SHORELINE LENGTH	9.9 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	1.5		
DEVELOPMENT OF VOLUME	0.64		
BOTTOM SLOPE	0.73 %		
BASIN GEOLOGY	IGNEOUS		
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

SAMPLE SITE	1		2	
DATE	7/18/74		7/18/74	
TIME	1135	1140	1240	1245
DEPTH (FT)	3.	66.	3.	62.
TOTAL NITRATE (N)	0.00	0.29	0.02	0.28
TOTAL NITRITE (N)	0.00	0.01	0.01	0.01
TOTAL AMMONIA (N)	0.06	0.08	0.06	0.12
TOTAL ORGANIC NITROGEN (N)	0.43	0.78	0.32	0.18
TOTAL PHOSPHORUS (P)	0.020	0.14	0.019	0.14
TOTAL ORTHOPHOSPHATE (P)	0.008	0.11	0.007	0.11
SPECIFIC CONDUCTANCE (MICROMHOS)	210	290	210	290
WATER TEMPERATURE (DEG C)	19.2	8.0	18.9	8.1
COLOR (PLATINUM-COBALT UNITS)	30	15	30	15
SECCHI-DISC VISIBILITY (FT)	8		7	
DISSOLVED OXYGEN	9.0	0.8	9.1	1.7

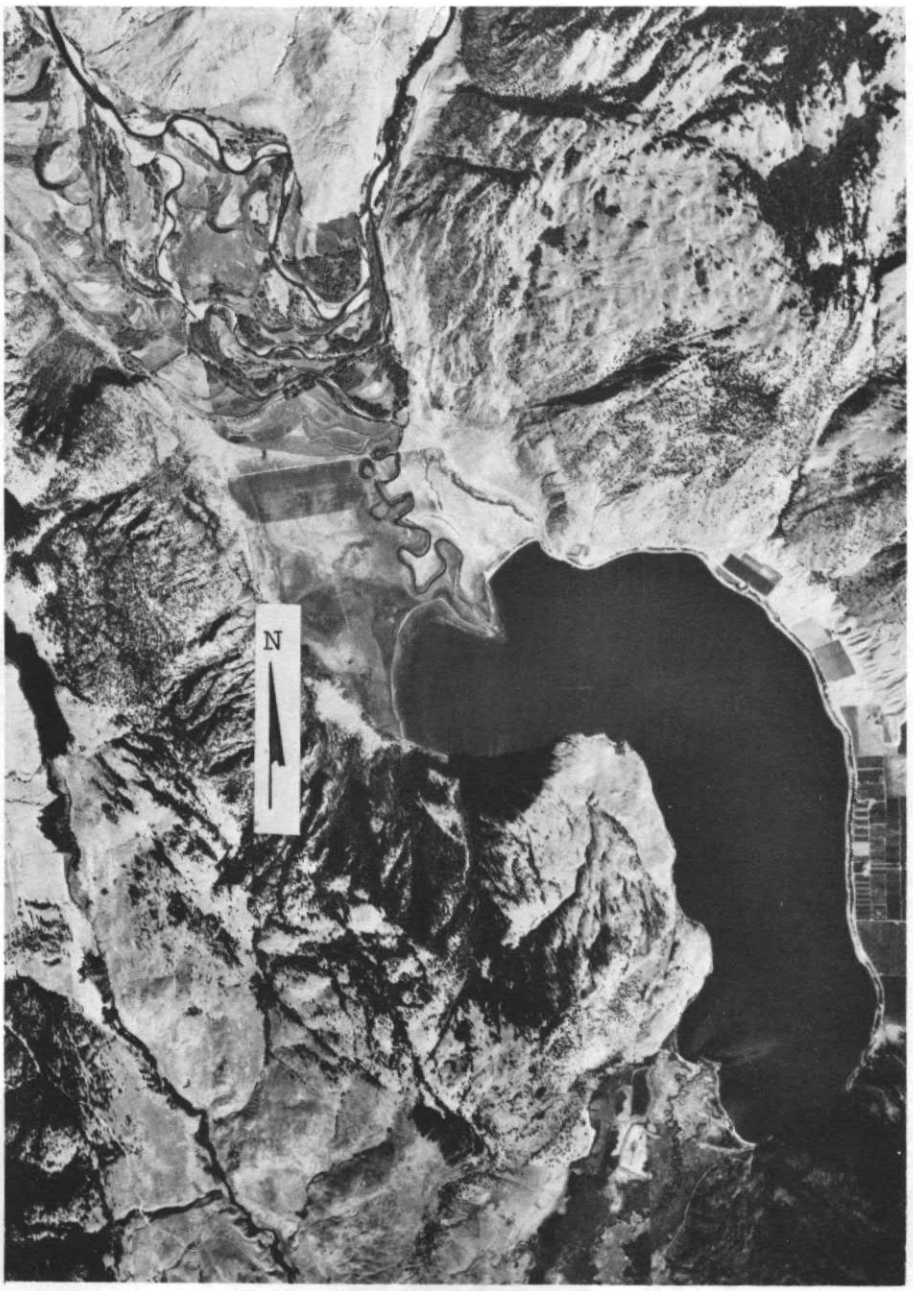
LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	7/18/74
TIME	1202
NUMBER OF FECAL COLIFORM SAMPLES	5
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	4
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

AN ALGAL BLOOM WAS OBSERVED, BUT VERY FEW AQUATIC MACROPHYTES. THE WATER IS USED FOR IRRIGATION PURPOSES. BOTH THE INLET AND OUTLET STREAMS FLOW THROUGH MARSH. IN 1975 THE U.S. GEOLOGICAL SURVEY WILL SAMPLE THE LAKE FOUR TIMES. LAND USE WAS NOT DETERMINED BECAUSE OF THE SIZE OF THE DRAINAGE AREA.

Palmer Lake, Okanogan County. From
U.S. Geological Survey, August 6, 1974.



Palmer Lake, Okanogan County. September 15, 1967. Approx. scale 1:60,000.

PATTERSON LAKE OKANOGAN COUNTY

LATITUDE 48*27'59" LONGITUDE 120*14'59" T34N-R21E-8
METHOW RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	2 %
ALTITUDE	2387. FT		
LAKE AREA	130. ACRES	NUMBER OF NEARSHORE HOMES	3
LAKE VOLUME	4300. ACRE-FT		
MEAN DEPTH	33. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	85. FT		
SHORELINE LENGTH	3.1 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	2.0		
DEVELOPMENT OF VOLUME	0.39		
BOTTOM SLOPE	3.2 %		
BASIN GEOLOGY	SED./META.		
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

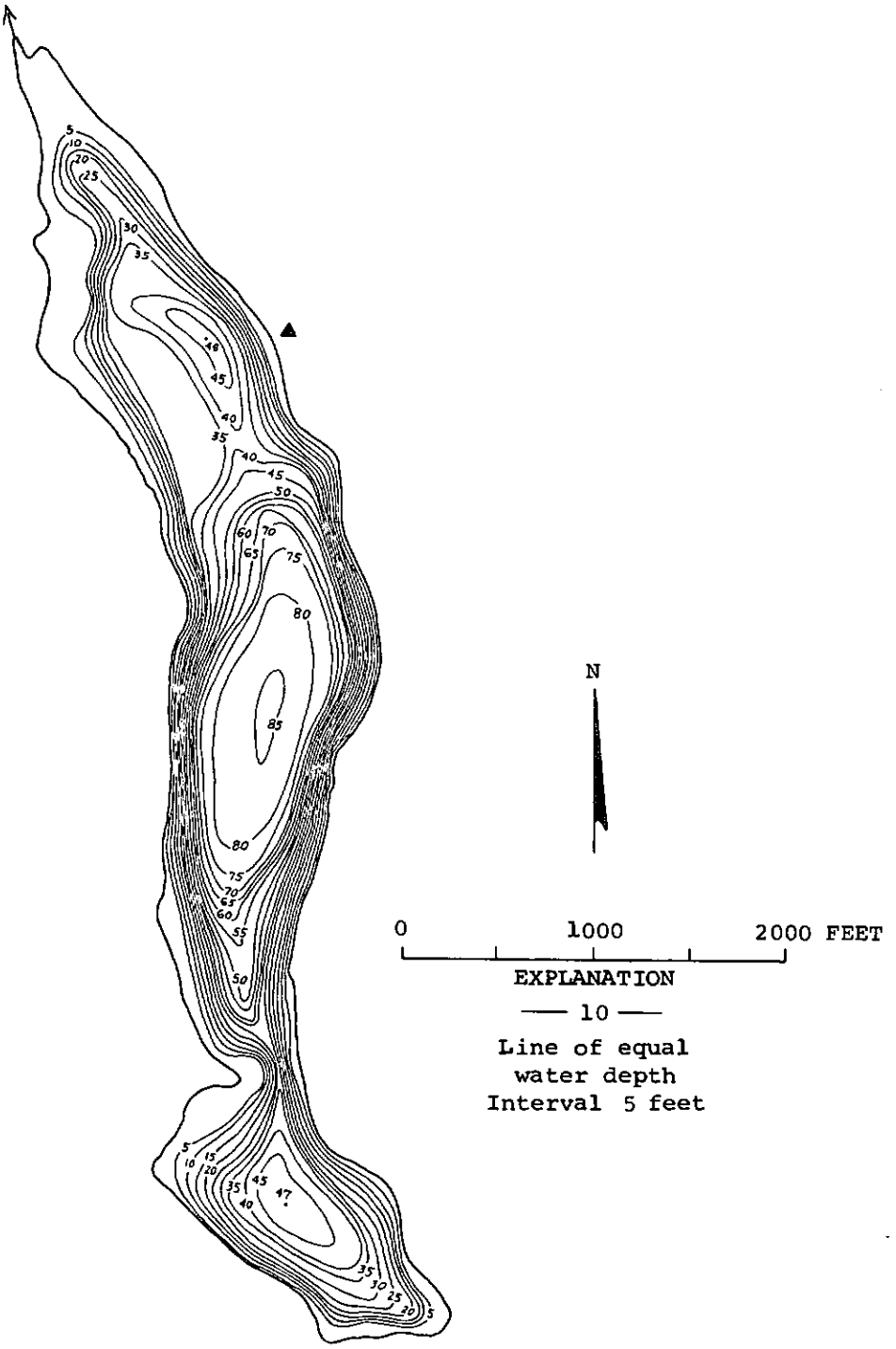
SAMPLE SITE	1	
DATE	7/16/74	
TIME	1120	1130
DEPTH (FT)	3.	95.
TOTAL NITRATE (N)	0.01	0.24
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.02	0.07
TOTAL ORGANIC NITROGEN (N)	0.14	0.12
TOTAL PHOSPHORUS (P)	0.010	0.034
DISSOLVED ORTHOPHOSPHATE (P)	0.001	0.018
SPECIFIC CONDUCTANCE (MICROMHOS)	176	174
WATER TEMPERATURE (DEG C)	17.5	6.5
COLOR (PLATINUM-COBALT UNITS)	10	15
SECCHI-DISC VISIBILITY (FT)	16	
DISSOLVED OXYGEN	9.1	1.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/16/74
TIME	1230
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

A NATURAL LAKE ENLARGED BY A DAM IN 1924. THE LAKE IS FED BY DIVERSIONS FROM WOLF CREEK AND LARGE WATER-LEVEL FLUCTUATIONS ARE COMMON. THE WATER IS USED FOR IRRIGATION PURPOSES. IN 1974 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE AUGUST 20, 1974. THE DRAINAGE AREA WAS NOT MEASURED BECAUSE WATER IS IMPORTED FROM WOLF CREEK.



Patterson Lake, Okanogan County. From Washington Department of Game, January 9, 1950.

Patterson Lake, Okanogan County. August 4, 1967. Approx. scale 1:60,000.

PEARRYGIN LAKE OKANOGAN COUNTY

LATITUDE 48*29'32" LONGITUDE 120* 9'46" T35N-R21E-36
METHOW RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	11.8 SQ MI	RESIDENTIAL DEVELOPMENT	2 %
ALTITUDE	1924. FT		
LAKE AREA	210. ACRES	NUMBER OF NEARSHORE HOMES	3
LAKE VOLUME	6300. ACRE-FT		
MEAN DEPTH	30. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	48. FT		
SHORELINE LENGTH	3.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.62	AGRICULTURAL	29 %
BOTTOM SLOPE	1.4 %	FOREST OR UNPRODUCTIVE	68 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	3 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

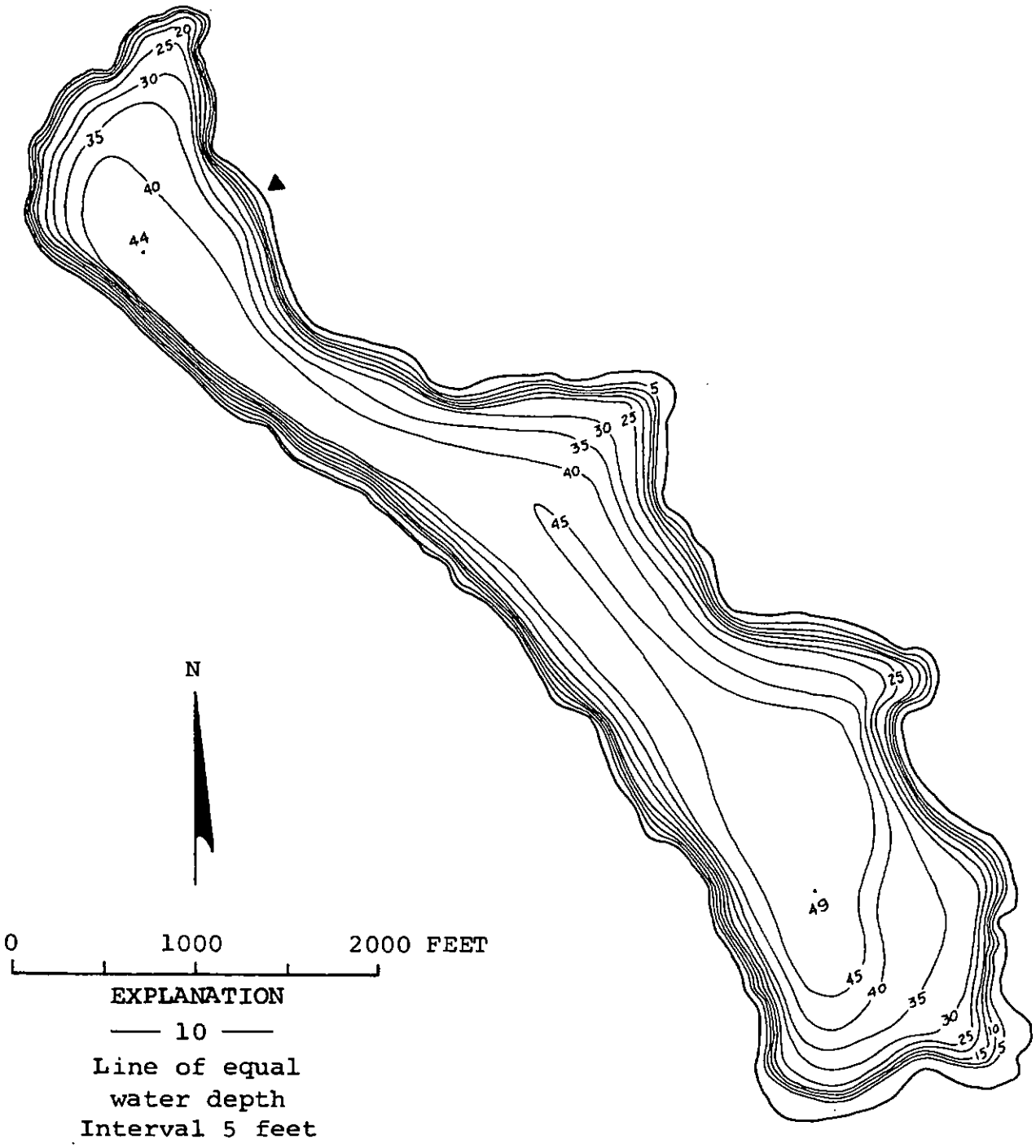
SAMPLE SITE	1	
DATE	7/15/74	
TIME	1605	1615
DEPTH (FT)	3.	39.
TOTAL NITRATE (N)	0.02	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.61
TOTAL ORGANIC NITROGEN (N)	0.32	0.33
TOTAL PHOSPHORUS (P)	0.012	0.074
DISSOLVED ORTHOPHOSPHATE (P)	0.001	0.038
SPECIFIC CONDUCTANCE (MICROMHOS)	235	279
WATER TEMPERATURE (DEG C)	20.0	9.5
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	12	
DISSOLVED OXYGEN	9.2	0.1

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

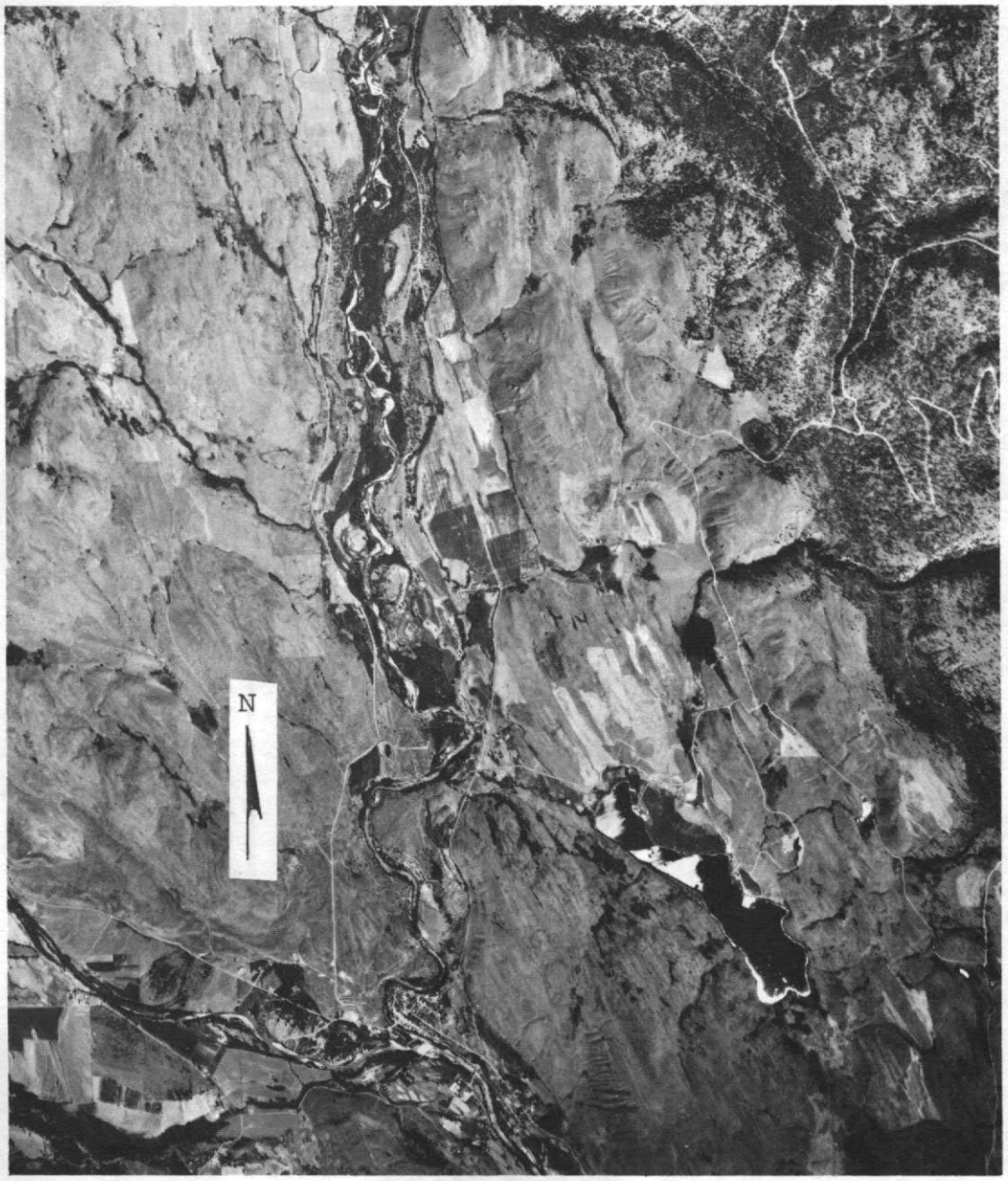
DATE	7/15/74
TIME	1725
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS FED BY DIVERSIONS FROM THE CHEWACK RIVER. THE WATER IS USED FOR IRRIGATION PURPOSES. THE LAKE HAS A STATE PARK AND RESORTS. THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (RUSHES AND CATTAIL). THE LITTORAL BOTTOM IS MUCK AND SILT. IN 1974 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE ON AUGUST 19, 1974.



Pearrygin Lake, Okanogan County. From
Washington Department of Game, January 1948.



Pearrygin Lake, Okanogan County. August 4, 1967. Approx. scale 1:60,000.

PENINSULA LAKE OKANOGAN COUNTY

LATITUDE 48°32'33" LONGITUDE 119°36'54" T35N-R26E-7
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.25 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2310. FT		
LAKE AREA	24. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	290. ACRE-FT		
MEAN DEPTH	12. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	37. FT		
SHORELINE LENGTH	1.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.32	AGRICULTURAL	92 %
BOTTOM SLOPE	3.2 %	FOREST OR UNPRODUCTIVE	5 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	3 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

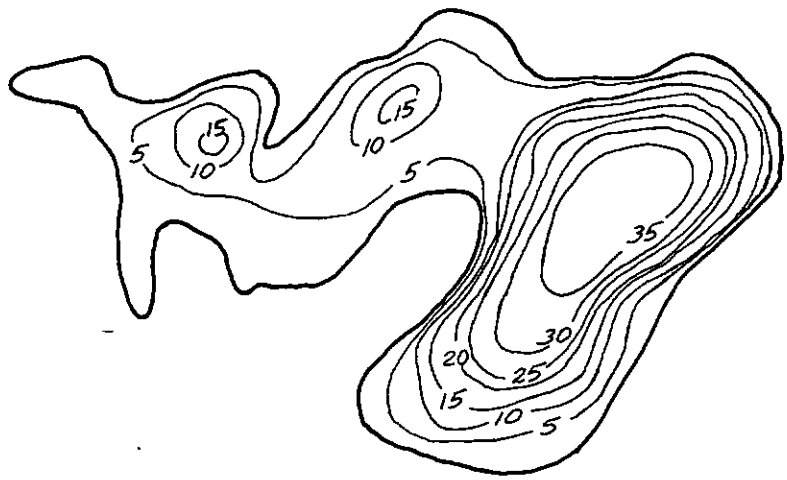
SAMPLE SITE	1	
DATE	7/22/74	
TIME	1545	1550
DEPTH (FT)	3.	30.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.04
TOTAL AMMONIA (N)	0.10	1.4
TOTAL ORGANIC NITROGEN (N)	0.89	2.2
TOTAL PHOSPHORUS (P)	0.012	0.053
TOTAL ORTHOPHOSPHATE (P)	0.002	0.17
SPECIFIC CONDUCTANCE (MICROMHOS)	820	1500
WATER TEMPERATURE (DEG C)	22.5	5.2
COLOR (PLATINUM-COBALT UNITS)	15	30
SECCHI-DISC VISIBILITY (FT)	15	
DISSOLVED OXYGEN	10.5	0.2

LAKE SHORELINE COVERED BY EMERSED PLANTS	LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/22/74
TIME	1557
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

THE LAKE WILL NOT SUPPORT FISH LIFE. A FEW FLOATING LOGS OCCURRED NEAR SHORE BUT VERY FEW EMERSED AQUATIC PLANTS WERE OBSERVED. THE LITTORAL BOTTOM IS SILT. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.



N

0 500 1000 FEET

EXPLANATION

—10—
Line of equal
water depth
Interval 5 feet

Peninsula Lake, Okanogan County. From
U.S. Geological Survey, September 13, 1974.

RAT LAKE OKANOGAN COUNTY

LATITUDE 48°10'37" LONGITUDE 119°48'21" T31N-R24E-22
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	27.1 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1676. FT		
LAKE AREA	71. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	3000. ACRE-FT		
MEAN DEPTH	43. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	78. FT		
SHORELINE LENGTH	1.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.55	AGRICULTURAL	4 %
BOTTOM SLOPE	3.9 %	FOREST OR UNPRODUCTIVE	96 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	<1 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

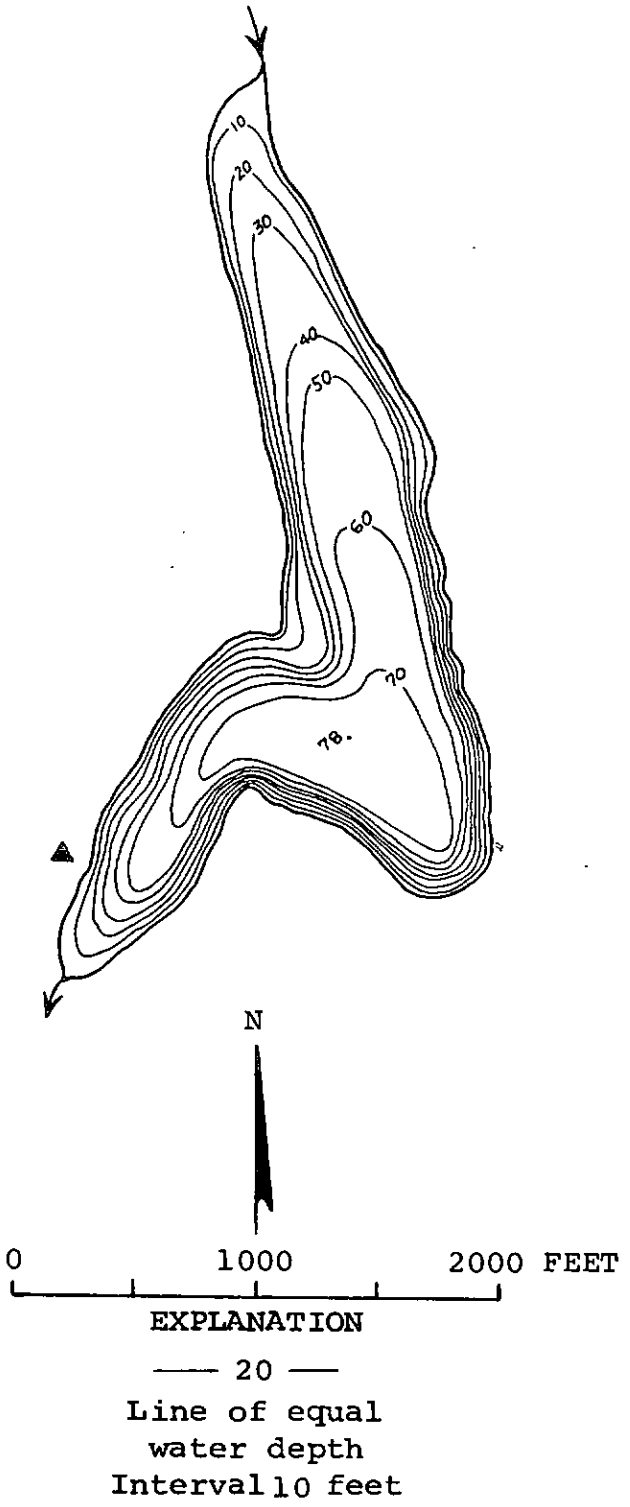
SAMPLE SITE	1	
DATE	7/25/74	
TIME	1100	1105
DEPTH (FT)	3.	69.
TOTAL NITRATE (N)	0.02	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.34
TOTAL ORGANIC NITROGEN (N)	0.48	0.54
TOTAL PHOSPHORUS (P)	0.039	0.25
TOTAL ORTHOPHOSPHATE (P)	0.018	0.21
SPECIFIC CONDUCTANCE (MICROMHOS)	290	340
WATER TEMPERATURE (DEG C)	20.8	6.3
COLOR (PLATINUM-COBALT UNITS)	25	30
SECCHI-DISC VISIBILITY (FT)	16	
DISSOLVED OXYGEN	8.4	0.4

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

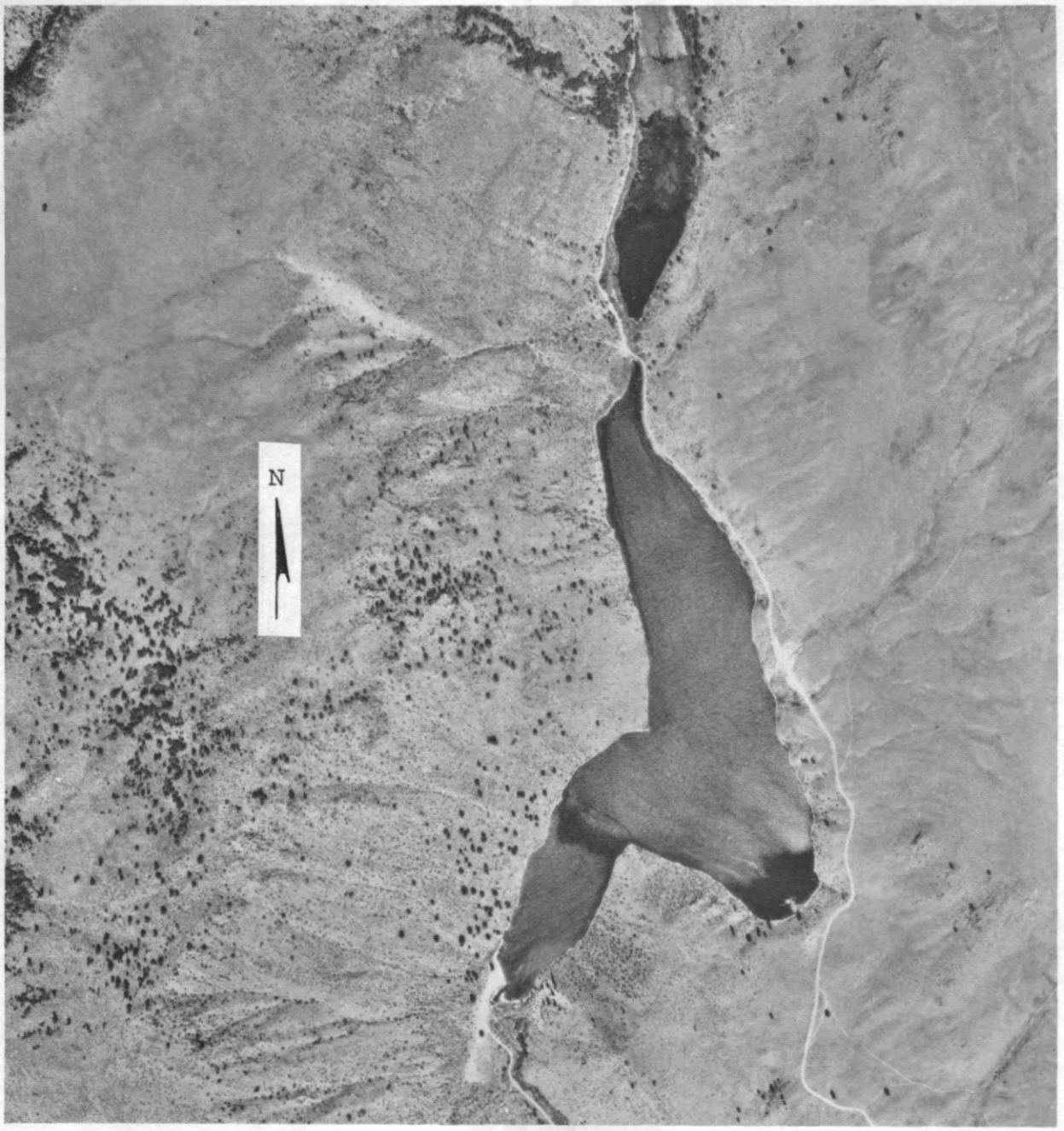
DATE	7/25/74
TIME	1130
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	4
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

AN ARTIFICIAL RESERVOIR CREATED BY A DAM ON WHITESTONE CREEK PRIOR TO 1917. THE RESERVOIR WAS ORIGINALLY BUILT TO STORE IRRIGATION WATER BUT IS NOW BEING USED FOR FLOOD CONTROL. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.



Rat Lake, Okanogan County. From Washington Department of Game, December 29, 1951.



Rat Lake, Okanogan County. June 29, 1973. Approx. scale 1:12,000.

ROBERTS LAKE OKANOGAN COUNTY

LATITUDE 48*33'16" LONGITUDE 119*41'41" T35N-R25E-9
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.59 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2750. FT		
LAKE AREA	41. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	340. ACRE-FT		
MEAN DEPTH	8. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	22. FT		
SHORELINE LENGTH	1.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.37	AGRICULTURAL	89 %
BOTTOM SLOPE	1.4 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	11 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

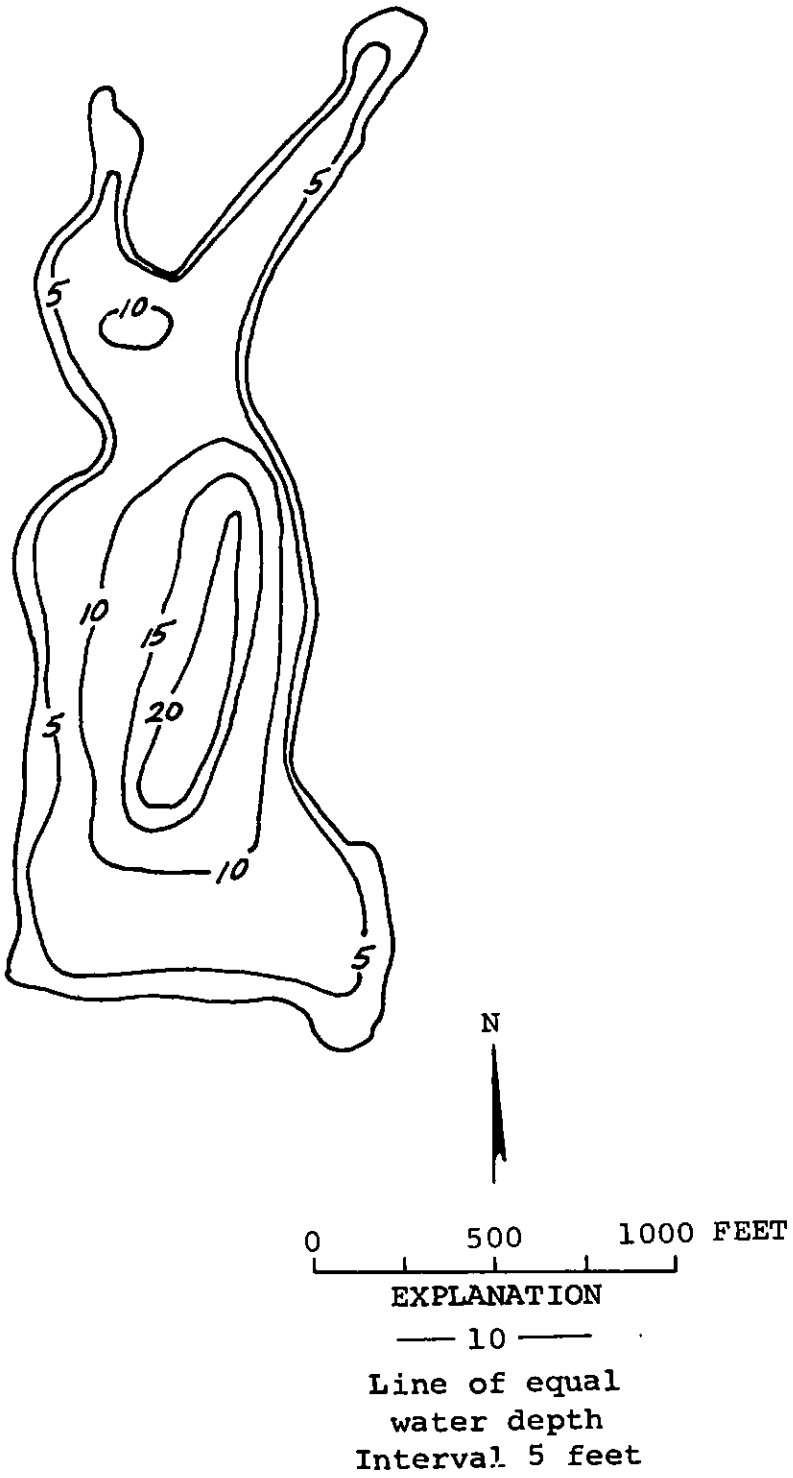
SAMPLE SITE	1	
DATE	7/16/74	
TIME	1155	1200
DEPTH (FT)	3.	16.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.09
TOTAL AMMONIA (N)	0.21	4.4
TOTAL ORGANIC NITROGEN (N)	1.6	3.2
TOTAL PHOSPHORUS (P)	0.025	0.55
TOTAL ORTHOPHOSPHATE (P)	0.003	0.52
SPECIFIC CONDUCTANCE (MICROMHOS)	1600	4300
WATER TEMPERATURE (DEG C)	18.2	9.3
COLOR (PLATINUM-COBALT UNITS)	30	70
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	4.9	0.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/16/74
TIME	1207
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	19
FECAL COLIFORM, MEAN (COL./100ML)	8

REMARKS

MOST OF THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (RUSHES) BUT VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.



Roberts Lake, Okanogan County. From
U.S. Geological Survey, September 13, 1974.

Roberts Lake, Okanogan County. June 4, 1973. Approx. scale 1:12,000.

ROUND LAKE OKANOGAN COUNTY

LATITUDE 48*36'22" LONGITUDE 119* 7'21" T36N-R30E-19
SANPOIL RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.73 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2583. FT		
LAKE AREA	20. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	480. ACRE-FT		
MEAN DEPTH	24. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	42. FT		
SHORELINE LENGTH	0.72 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.58	AGRICULTURAL	39 %
BOTTOM SLOPE	4.0 %	FOREST OR UNPRODUCTIVE	57 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	4 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

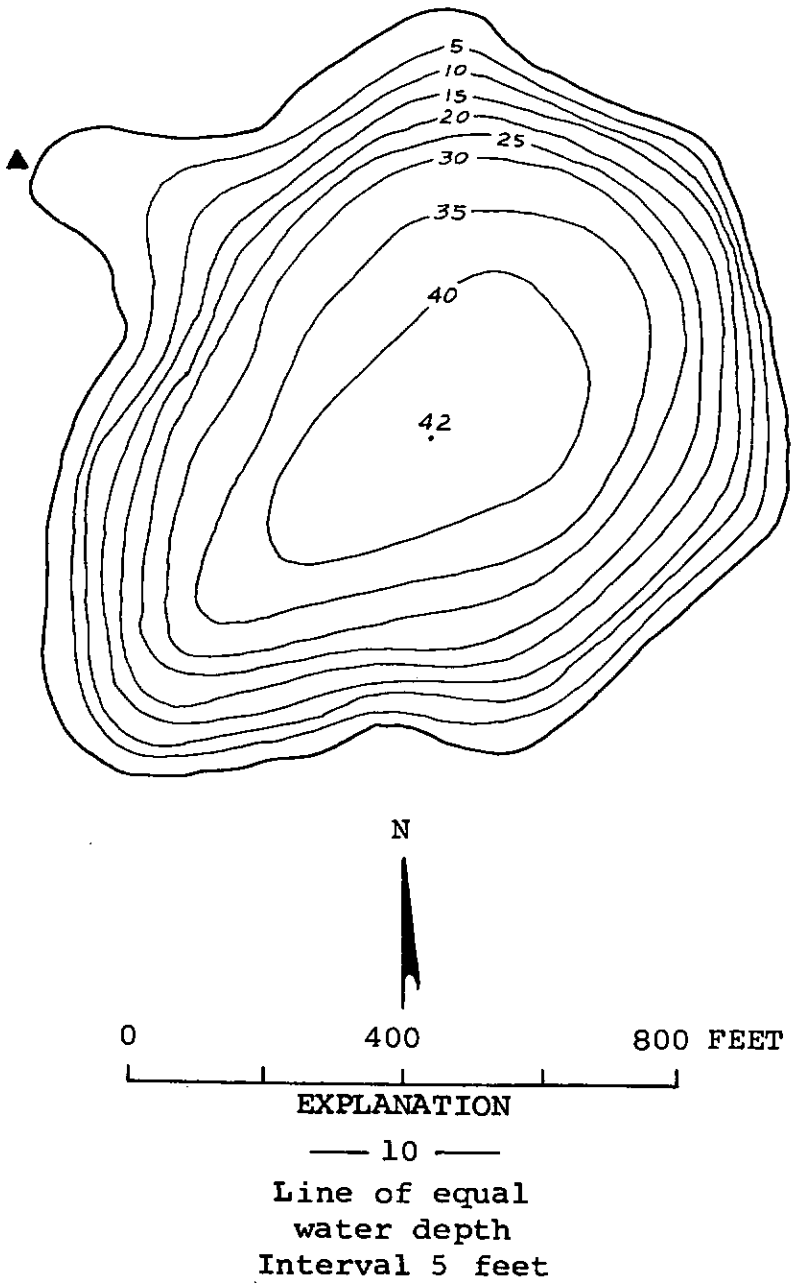
SAMPLE SITE	1	
DATE	7/19/74	
TIME	1250	1255
DEPTH (FT)	3.	39.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.09
TOTAL ORGANIC NITROGEN (N)	0.26	0.48
TOTAL PHOSPHORUS (P)	0.011	0.046
TOTAL ORTHOPHOSPHATE (P)	0.002	0.008
SPECIFIC CONDUCTANCE (MICROMHOS)	--	--
WATER TEMPERATURE (DEG C)	20.2	9.9
COLOR (PLATINUM-COBALT UNITS)	15	15
SECCHI-DISC VISIBILITY (FT)	13	
DISSOLVED OXYGEN	8.0	0.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

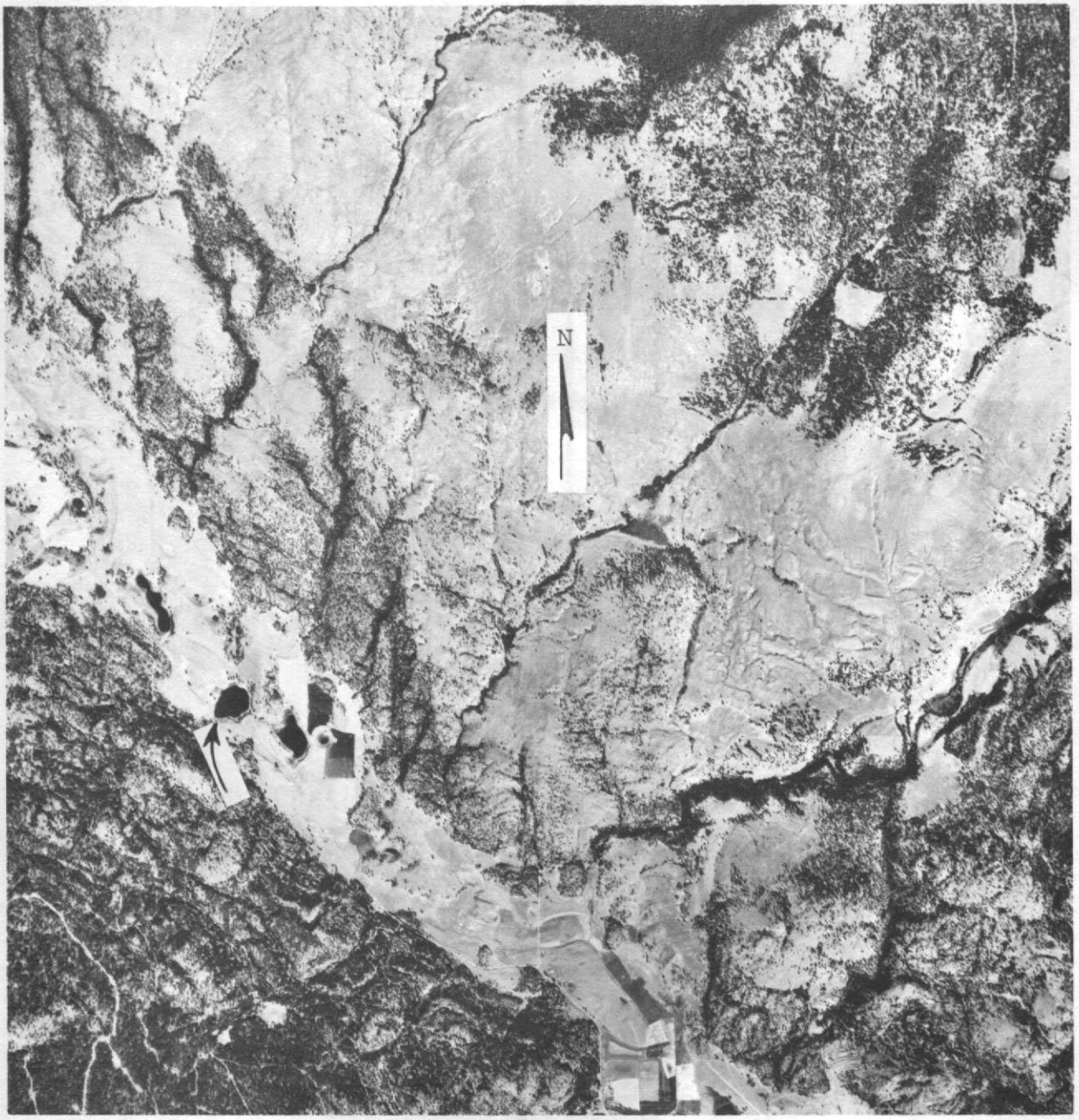
DATE	7/19/74
TIME	1320
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE LAKE IS IN A GLACIAL KETTLE. MOST OF THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (RUSHES). HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. SPECIFIC CONDUCTANCE VALUES WERE NOT RECORDED.



Round Lake, Okanogan County. From Washington Department of Game, January 14, 1948.



Round Lake, Okanogan County. September 14, 1967. Approx. scale 1:60,000.

SIDLEY LAKE OKANOGAN COUNTY

LATITUDE 48*59'18" LONGITUDE 119*12'56" T40N-R29E-6
KETTLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.48 SQ MI	RESIDENTIAL DEVELOPMENT	8 %
ALTITUDE	3660. FT		
LAKE AREA	120. ACRES	NUMBER OF NEARSHORE HOMES	5
LAKE VOLUME	1700. ACRE-FT		
MEAN DEPTH	15. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	22. FT		
SHORELINE LENGTH	2.5 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.68	AGRICULTURAL	56 %
BOTTOM SLOPE	0.87 %	FOREST OR UNPRODUCTIVE	37 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	7 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

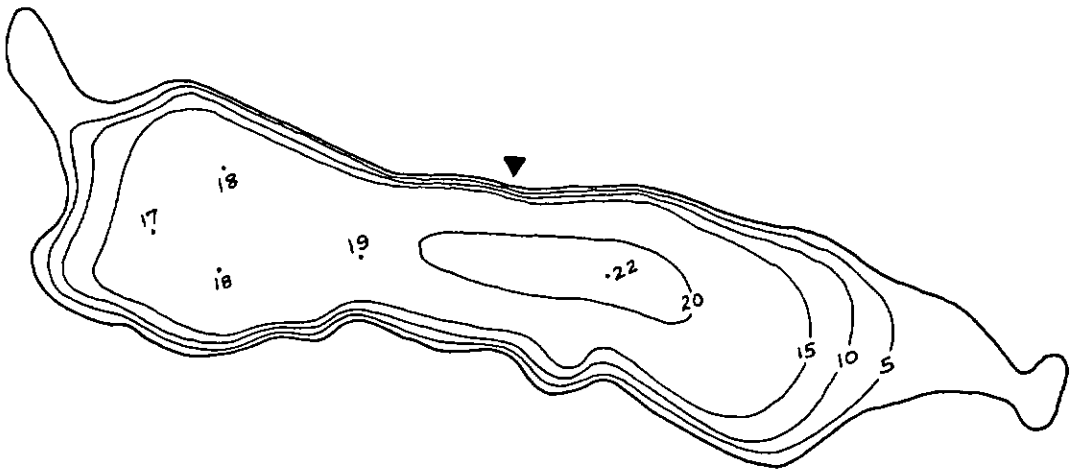
SAMPLE SITE	1	
DATE	7/18/74	
TIME	1015	1020
DEPTH (FT)	3.	16.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.26	0.50
TOTAL ORGANIC NITROGEN (N)	1.5	1.3
TOTAL PHOSPHORUS (P)	0.035	0.035
TOTAL ORTHOPHOSPHATE (P)	0.009	0.009
SPECIFIC CONDUCTANCE (MICROMHOS)	2700	3000
WATER TEMPERATURE (DEG C)	18.7	18.5
COLOR (PLATINUM-COBALT UNITS)	25	25
SECCHI-DISC VISIBILITY (FT)	12	
DISSOLVED OXYGEN	9.6	9.9

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/18/74
TIME	1030
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	48
FECAL COLIFORM, MEAN (COL./100ML)	30

REMARKS

THE SOUTH SHORE WAS LITTERED WITH STUMPS AND WOOD DEBRIS. THE NORTH SHORE IS OCCUPIED CHIEFLY WITH ROAD FILL. THE BOTTOM IS REDDISH BROWN SILTY MUCK AND WAS LOCALLY COVERED WITH SPHAGNUM MOSS. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. THE WATER CONTAINED A LARGE POPULATION OF ZOOPLANKTON.



N

0 1000 2000 FEET

EXPLANATION

— 10 —

Line of equal
water depth
Interval 5 feet

Sidley Lake, Okanogan County. From Washington Department of Game, December 16, 1951.

Sidley Lake, Okanogan County. July 11, 1973. Approx. scale 1:12,000.

SPECTACLE LAKE OKANOGAN COUNTY

LATITUDE 48°48'55" LONGITUDE 119°31'20" T38N-R26E-2
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	9 %
ALTITUDE	1363. FT		
LAKE AREA	310. ACRES	NUMBER OF NEARSHORE HOMES	11
LAKE VOLUME	9800. ACRE-FT		
MEAN DEPTH	32. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	60. FT		
SHORELINE LENGTH	6.3 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	2.6		
DEVELOPMENT OF VOLUME	0.53		
BOTTOM SLOPE	1.4 %		
BASIN GEOLOGY	IGNEOUS		
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

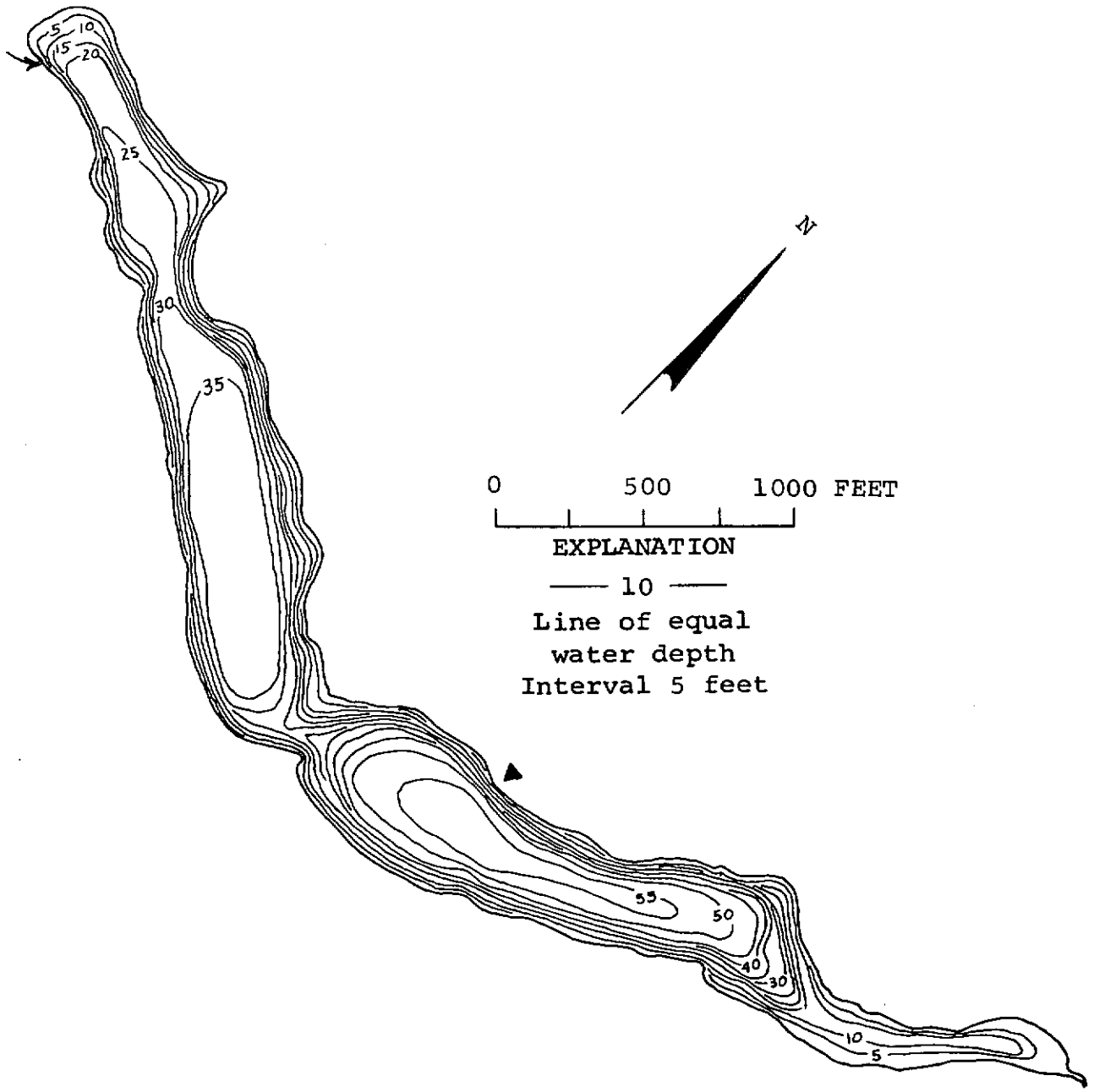
SAMPLE SITE	1		2	
DATE	7/19/74		7/19/74	
TIME	1130	1135	1215	1220
DEPTH (FT)	3.	46.	3.	59.
TOTAL NITRATE (N)	0.00	0.01	0.01	0.00
TOTAL NITRITE (N)	0.00	0.01	0.00	0.00
TOTAL AMMONIA (N)	0.06	0.21	0.04	1.2
TOTAL ORGANIC NITROGEN (N)	0.32	0.21	0.32	0.40
TOTAL PHOSPHORUS (P)	0.017	0.12	0.014	0.28
TOTAL ORTHOPHOSPHATE (P)	0.002	0.097	0.002	0.24
SPECIFIC CONDUCTANCE (MICROMHOS)	320	370	310	400
WATER TEMPERATURE (DEG C)	20.8	10.9	21.3	5.3
COLOR (PLATINUM-COBALT UNITS)	15	25	20	20
SECCHI-DISC VISIBILITY (FT)	10		11	
DISSOLVED OXYGEN	9.9	0.1	9.8	0.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/19/74
TIME	1245
NUMBER OF FECAL COLIFORM SAMPLES	5
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION OF SITE 2. THE WATER IS USED FOR IRRIGATION PURPOSES AND RECREATIONAL USE OF THE LAKE IS HEAVY. A LOW-DENSITY ALGAL BLOOM WAS OBSERVED. THE U.S. GEOLOGICAL SURVEY HAS MAINTAINED A STAFF GAGE ON THE LAKE SINCE 1958. IN 1975 THE U.S. GEOLOGICAL SURVEY WILL SAMPLE THE LAKE FOUR TIMES. THE DRAINAGE AREA WAS NOT MEASURED BECAUSE IRRIGATION WATER IS IMPORTED FROM OUTSIDE THE NATURAL DRAINAGE AREA.



Spectacle Lake, Okanogan County. From Washington Department of Game, December 9, 1947.

Spectacle Lake, Okanogan County. August 4, 1967. Approx. scale 1:60,000.

TWIN, BIG LAKE OKANOGAN COUNTY

LATITUDE 48°26'35" LONGITUDE 120°11'39" T34N-R21E-15
METHOW RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.35 SQ MI	RESIDENTIAL DEVELOPMENT	5 %
ALTITUDE	1799. FT		
LAKE AREA	79. ACRES	NUMBER OF NEARSHORE HOMES	2
LAKE VOLUME	1900. ACRE-FT		
MEAN DEPTH	24. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	70. FT		
SHORELINE LENGTH	1.5 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.35	AGRICULTURAL	30 %
BOTTOM SLOPE	3.3 %	FOREST OR UNPRODUCTIVE	61 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	9 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

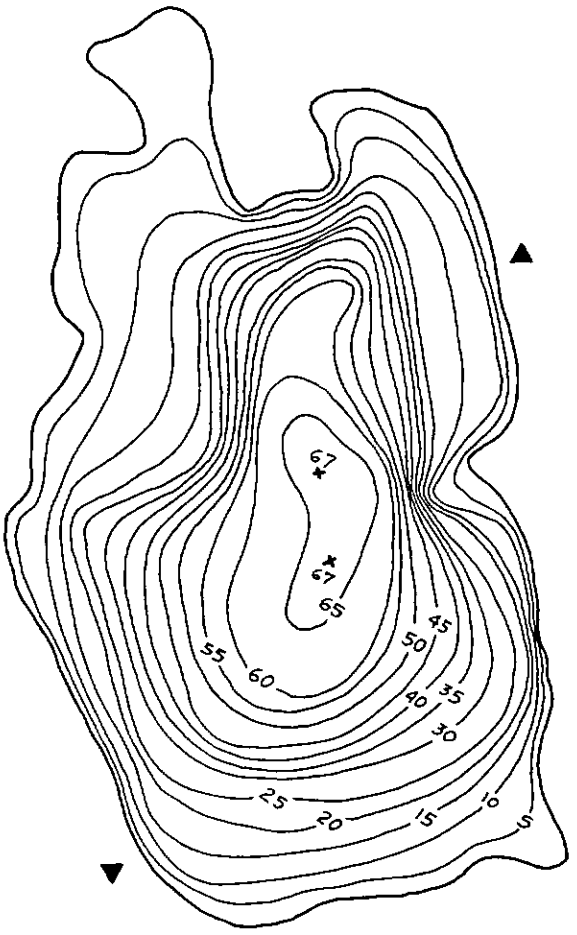
SAMPLE SITE	1	
DATE	7/16/74	
TIME	1525	1535
DEPTH (FT)	3.	56.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.09	1.1
TOTAL ORGANIC NITROGEN (N)	0.12	0.20
TOTAL PHOSPHORUS (P)	0.020	0.083
DISSOLVED ORTHOPHOSPHATE (P)	0.001	0.048
SPECIFIC CONDUCTANCE (MICROMHOS)	255	262
WATER TEMPERATURE (DEG C)	19.5	6.0
COLOR (PLATINUM-COBALT UNITS)	15	20
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	9.9	0.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/16/74
TIME	1607
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

THE LITTORAL BOTTOM IS MOSTLY SAND, GRAVEL, AND ROCK. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. IN 1974 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE ON AUGUST 20, 1974.



N

0 500 1000 FEET

EXPLANATION

10

Line of equal
water depth
Interval 5 feet

Twin, Big Lake, Okanogan County. From Washington Department of Game, September 1946.

Twin, Big Lake, Okanogan County. July 11, 1973. Approx. scale 1:12,000.

TWIN, LITTLE LAKE OKANOGAN COUNTY

LATITUDE 48°26'50" LONGITUDE 120°11' 8" T34N-R21E-14
METHOW RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.35 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1797. FT		
LAKE AREA	23. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	330. ACRE-FT		
MEAN DEPTH	14. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	33. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.44	AGRICULTURAL	30 %
BOTTOM SLOPE	2.9 %	FOREST OR UNPRODUCTIVE	67 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	3 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

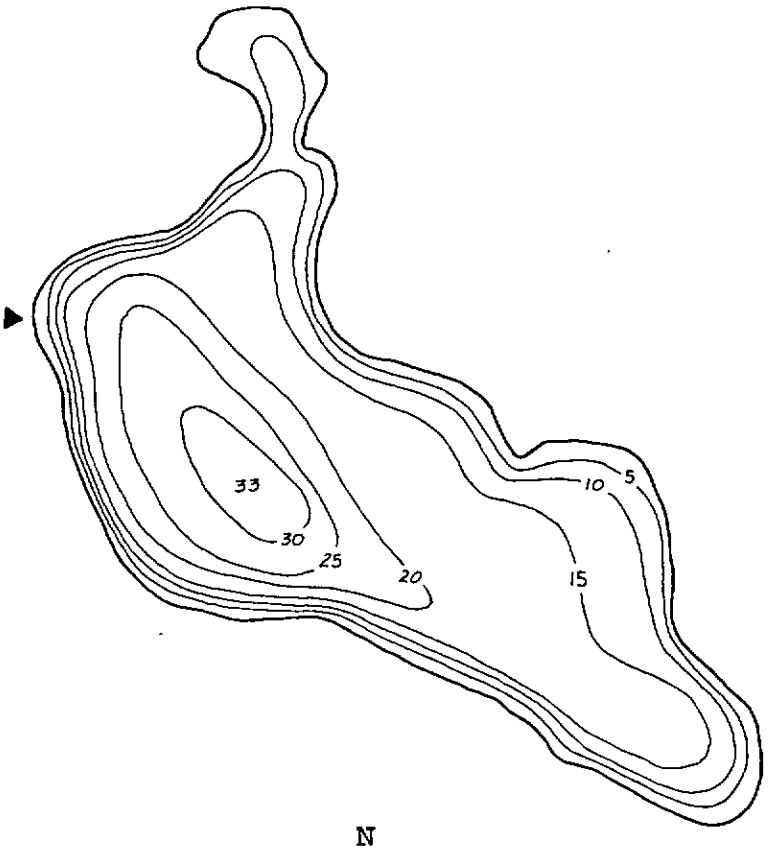
SAMPLE SITE	1	
DATE	7/23/74	
TIME	1115	1120
DEPTH (FT)	3.	26.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.03	0.52
TOTAL ORGANIC NITROGEN (N)	0.57	1.3
TOTAL PHOSPHORUS (P)	0.012	0.095
TOTAL ORTHOPHOSPHATE (P)	0.002	0.014
SPECIFIC CONDUCTANCE (MICROMHOS)	290	360
WATER TEMPERATURE (DEG C)	20.7	13.0
COLOR (PLATINUM-COBALT UNITS)	15	20
SECCHI-DISC VISIBILITY (FT)	13	
DISSOLVED OXYGEN	9.6	0.1

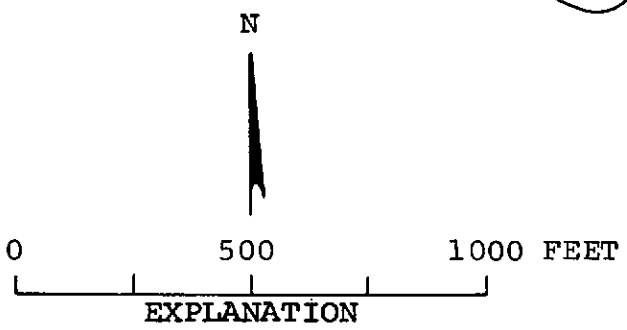
LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/23/74
TIME	1129
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE LITTORAL ZONE WAS COVERED WITH EMERSED AND SUBMERSED AQUATIC PLANTS. RECREATIONAL USE OF THE LAKE IS HEAVY. THE LITTORAL BOTTOM IS SILT. A LOW-DENSITY ALGAL BLOOM WAS OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.





Twin, Little Lake, Okanogan County. From
Washington Department of Game, January 8, 1947.

Twin, Little Lake, Okanogan County. July 11, 1973. Approx. scale 1:12,000.

UNNAMED (36N-27E-30) LAKE OKANOGAN COUNTY

LATITUDE 48*35'27" LONGITUDE 119*29'28" T36N-R27E-30
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.27 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	920. FT		
LAKE AREA	23. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME (EST.)	100. ACRE-FT		
MEAN DEPTH (EST.)	4. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	8. FT		
SHORELINE LENGTH	0.84 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.55	AGRICULTURAL	33 %
BOTTOM SLOPE	0.70 %	FOREST OR UNPRODUCTIVE	54 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	13 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

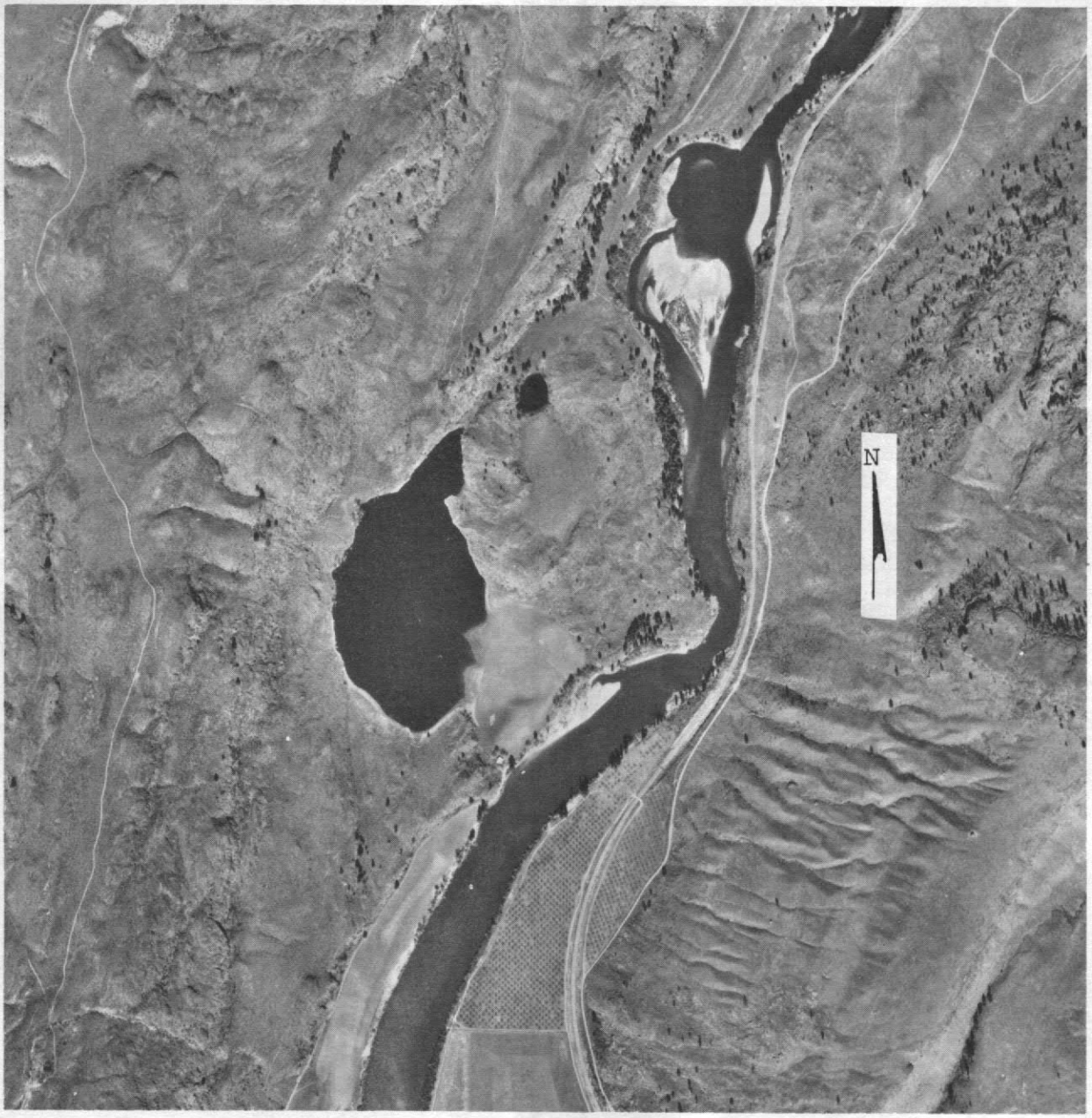
SAMPLE SITE	1	
DATE	7/23/74	
TIME	1150	1155
DEPTH (FT)	3.	7.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.24	0.24
TOTAL ORGANIC NITROGEN (N)	2.4	2.3
TOTAL PHOSPHORUS (P)	0.12	0.13
TOTAL ORTHOPHOSPHATE (P)	0.029	0.029
SPECIFIC CONDUCTANCE (MICROMHOS)	900	900
WATER TEMPERATURE (DEG C)	23.1	22.5
COLOR (PLATINUM-COBALT UNITS)	70	65
SECCHI-DISC VISIBILITY (FT)	2	
DISSOLVED OXYGEN	8.9	7.2

LAKE SHORELINE COVERED BY EMERSED PLANTS	LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/23/74
TIME	1210
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	10
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

THE LAKE IS ON THE OKANOGAN RIVER BOTTOMS. THE ALGAL DENSITY WAS HIGH. THE LITTORAL BOTTOM IS BLACK MUCK BUT VERY FEW EMERSED AQUATIC PLANTS WERE OBSERVED. THE VOLUME AND MEAN DEPTH ARE ESTIMATED.



Unnamed (36N-27E-30) Lake, Okanogan County.
April 7, 1973. Approx. scale 1:12,000.

UNNAMED (39N-27E-27) LAKE OKANOGAN COUNTY

LATITUDE 48°50'58" LONGITUDE 119°24'50" T39N-R27E-27
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.17 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	960. FT		
LAKE AREA	18. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	51. ACRE-FT		
MEAN DEPTH	3. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	6. FT		
SHORELINE LENGTH	0.91 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.48	AGRICULTURAL	84 %
BOTTOM SLOPE	0.61 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	16 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

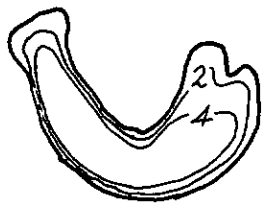
SAMPLE SITE	1	
DATE	7/22/74	
TIME	1345	1350
DEPTH (FT)	3.	5.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.07	0.11
TOTAL ORGANIC NITROGEN (N)	0.34	0.43
TOTAL PHOSPHORUS (P)	0.023	0.041
TOTAL ORTHOPHOSPHATE (P)	0.007	0.020
SPECIFIC CONDUCTANCE (MICROMHOS)	270	270
WATER TEMPERATURE (DEG C)	23.9	23.7
COLOR (PLATINUM-COBALT UNITS)	30	35
SECCHI-DISC VISIBILITY (FT)	> 6	
DISSOLVED OXYGEN	7.6	7.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	26- 50 %

DATE	7/22/74
TIME	1415
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	4
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

AN OXBOW LAKE THAT IS ON THE OKANOGAN RIVER BOTTOMS. THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (POLYGONIUM). BRUSH AND WOOD DEBRIS LITTERED THE SOUTH SHORE. THE LITTORAL BOTTOM IS GRAY CLAYEY SILT.



0 1000 2000 FEET

EXPLANATION

—— 4 ——

Line of equal
water depth
Interval 2 feet

Unnamed (39N-27E-27) Lake, Okanogan County. From U.S. Geological Survey, August 15, 1974.

Unnamed (39N-27E-27) Lake, Okanogan County.
July 11, 1973. Approx. scale 1:14,000.

UNNAMED (40N-25E-16) LAKE OKANOGAN COUNTY

LATITUDE 48°57'29" LONGITUDE 119°42'40" T40N-R25E-16
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	3.28 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1160. FT		
LAKE AREA	32. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	100. ACRE-FT		
MEAN DEPTH	3. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	14. FT		
SHORELINE LENGTH	2.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.8	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.22	AGRICULTURAL	9 %
BOTTOM SLOPE	1.0 %	FOREST OR UNPRODUCTIVE	89 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	2 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

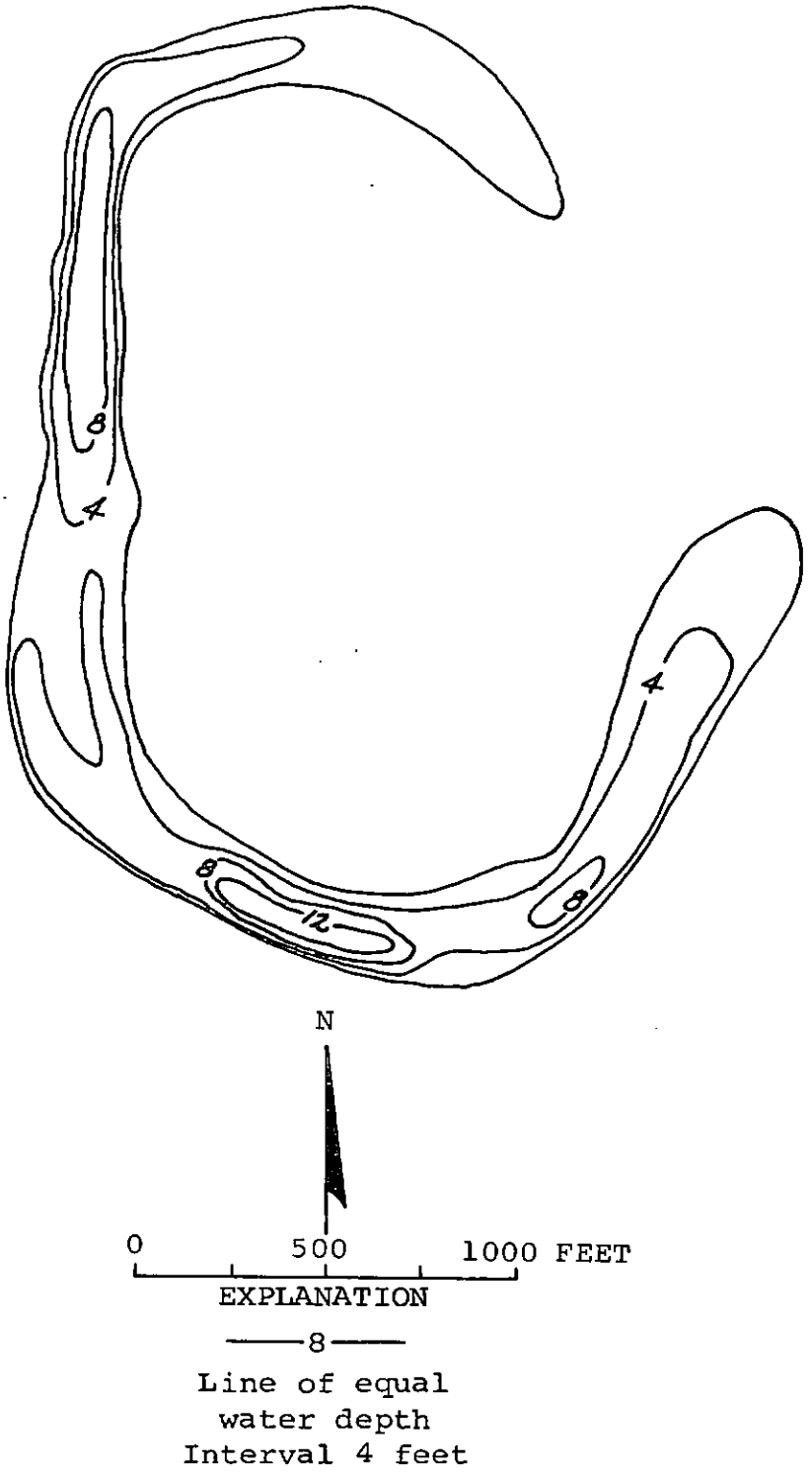
SAMPLE SITE	1	
DATE	7/18/74	
TIME	1030	1035
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.01	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.05	0.06
TOTAL ORGANIC NITROGEN (N)	0.12	0.13
TOTAL PHOSPHORUS (P)	0.012	0.014
TOTAL ORTHOPHOSPHATE (P)	0.002	0.008
SPECIFIC CONDUCTANCE (MICROMHOS)	410	410
WATER TEMPERATURE (DEG C)	18.4	18.2
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	> 5	
DISSOLVED OXYGEN	9.6	9.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	51- 75 %

DATE	7/18/74
TIME	1042
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

AN OXBOW LAKE ON THE SIMILKAMEEN RIVER BOTTOMS. THE BOTTOM IS SILT AND CLAY AND WAS ALMOST COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS.



Unnamed (40N-25E-16) Lake, Okanogan County. From U.S. Geological Survey, August 6, 1974.

Unnamed (40N-25E-16) Lake, Okanogan County.
July 12, 1973. Approx. scale 1:16,000.

WALKER LAKE OKANOGAN COUNTY

LATITUDE 48*45'35" LONGITUDE 119* 1'26" T38N-R30E-27
KETTLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.87 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	4146. FT		
LAKE AREA	40. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	530. ACRE-FT		
MEAN DEPTH	13. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	32. FT		
SHORELINE LENGTH	1.0 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.42	AGRICULTURAL	17 %
BOTTOM SLOPE	2.1 %	FOREST OR UNPRODUCTIVE	76 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	7 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

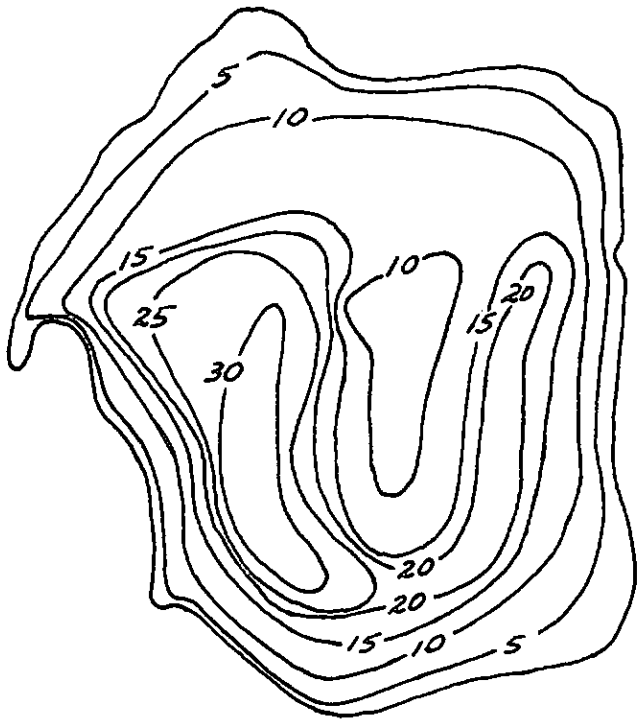
SAMPLE SITE	1	
DATE	7/16/74	
TIME	1345	1350
DEPTH (FT)	3.	10.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.02
TOTAL AMMONIA (N)	0.18	0.32
TOTAL ORGANIC NITROGEN (N)	2.2	2.4
TOTAL PHOSPHORUS (P)	0.048	0.051
TOTAL ORTHOPHOSPHATE (P)	0.008	0.027
SPECIFIC CONDUCTANCE (MICROMHOS)	900	920
WATER TEMPERATURE (DEG C)	18.1	16.6
COLOR (PLATINUM-COBALT UNITS)	35	50
SECCHI-DISC VISIBILITY (FT)	5	
DISSOLVED OXYGEN	9.4	4.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	7/16/74
TIME	1400
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	--
FECAL COLIFORM, MEAN (COL./100ML)	--

REMARKS

THE LITTORAL BOTTOM IS SANDY CLAY AND WAS LOCALLY COVERED WITH SPHAGNUM MOSS. AN ALGAL BLOOM AND A LARGE WATERFOWL POPULATION WERE OBSERVED. WINTER FISH KILLS ARE COMMON IN THIS LAKE. THE FECAL COLIFORM COLONIES IN ONE SAMPLE WERE TOO NUMEROUS TO COUNT.



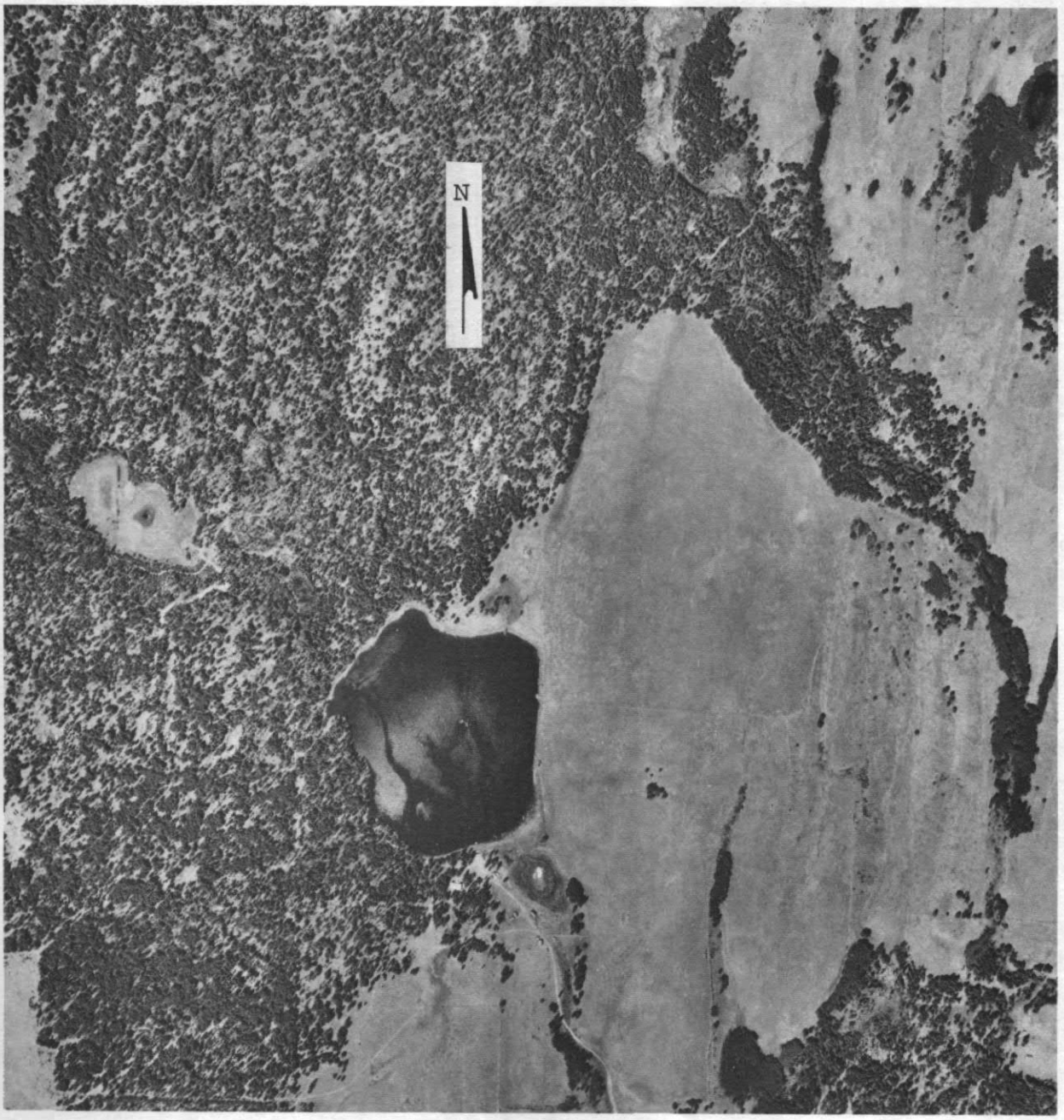
0 500 1000 FEET

EXPLANATION

——10——

Line of equal
water depth
Interval 5 feet

Walker Lake, Okanogan County. From
U.S. Geological Survey, August 15, 1974.



Walker Lake, Okanogan County. July 12, 1973. Approx. scale 1:12,000.

WANNACUT LAKE OKANOGAN COUNTY

LATITUDE 48*52' 5" LONGITUDE 119*30'54" T39N-R26E-24
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	20.0 SQ MI	RESIDENTIAL DEVELOPMENT	8 %
ALTITUDE	1880. FT		
LAKE AREA	410. ACRES	NUMBER OF NEARSHORE HOMES	11
LAKE VOLUME	23000. ACRE-FT		
MEAN DEPTH	55. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	160. FT		
SHORELINE LENGTH	5.4 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.9	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.35	AGRICULTURAL	8 %
BOTTOM SLOPE	3.3 %	FOREST OR UNPRODUCTIVE	89 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	3 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

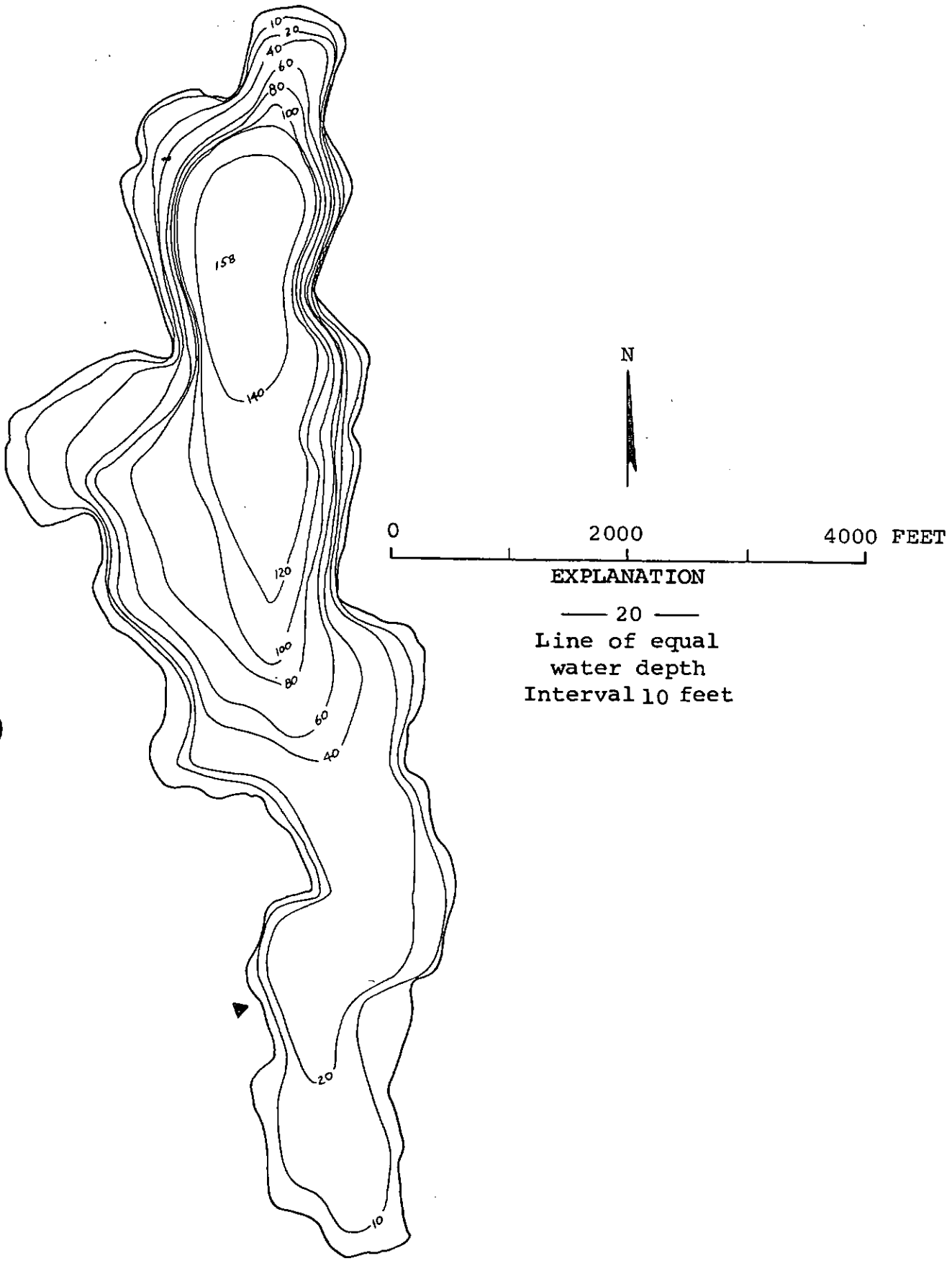
SAMPLE SITE	1	
DATE	7/22/74	
TIME	1135	1140
DEPTH (FT)	3.	131.
TOTAL NITRATE (N)	0.00	0.14
TOTAL NITRITE (N)	0.00	0.09
TOTAL AMMONIA (N)	0.40	52.
TOTAL ORGANIC NITROGEN (N)	0.60	17.
TOTAL PHOSPHORUS (P)	0.008	7.2
TOTAL ORTHOPHOSPHATE (P)	0.003	3.7
SPECIFIC CONDUCTANCE (MICROMHOS)	5500	35000
WATER TEMPERATURE (DEG C)	20.6	11.1
COLOR (PLATINUM-COBALT UNITS)	15	--
SECCHI-DISC VISIBILITY (FT)	15	
DISSOLVED OXYGEN	9.0	0.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/22/74
TIME	1204
NUMBER OF FECAL COLIFORM SAMPLES	5
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	6
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

A SLIGHTLY SALINE LAKE. THE LAKE HAS SEVERAL RESORTS AND RECREATIONAL USE IS HEAVY. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. IN 1975 THE U.S. GEOLOGICAL SURVEY WILL SAMPLE THE LAKE FOUR TIMES. THE LIMNOLOGY OF WANNACUT LAKE WAS DESCRIBED BY BENNETT (1962) AND WALKER (1974). A COLOR DETERMINATION OF THE DEEP WATER SAMPLE WAS NOT MADE.



Wannacut Lake, Okanogan County. From
Washington Department of Game, February 7, 1955.

Wannacut Lake, Okanogan County. August 4, 1967. Approx. scale 1:60,000.

WHITESTONE LAKE OKANOGAN COUNTY

LATITUDE 48*47'15" LONGITUDE 119*27'49" T38N-R27E-17
OKANOGAN RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	8 %
ALTITUDE	1320. FT		
LAKE AREA	170. ACRES	NUMBER OF NEARSHORE HOMES	4
LAKE VOLUME	2100. ACRE-FT		
MEAN DEPTH	12. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	26. FT		
SHORELINE LENGTH	3.8 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	2.1		
DEVELOPMENT OF VOLUME	0.48		
BOTTOM SLOPE	0.84 %		
BASIN GEOLOGY	SED./META.		
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

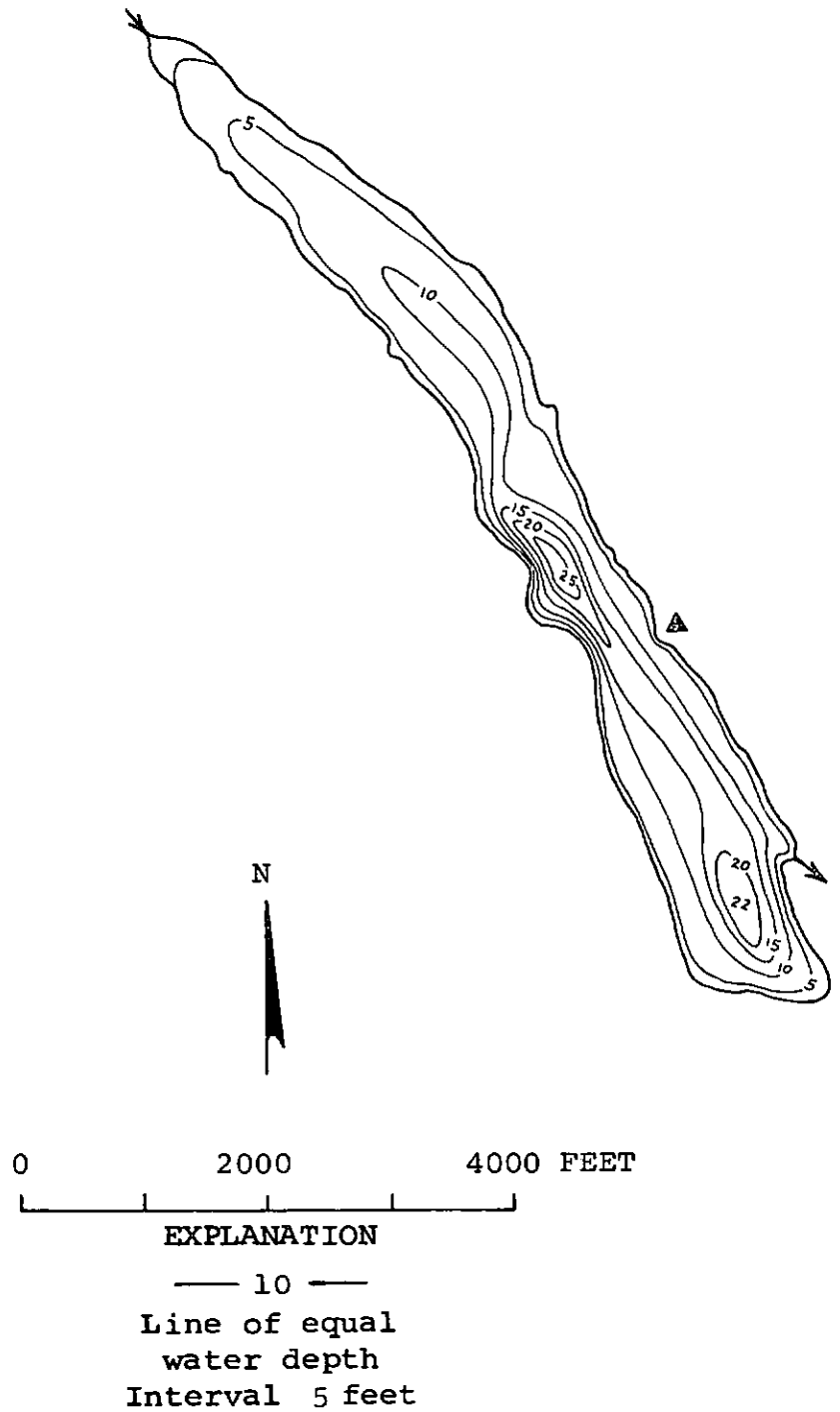
SAMPLE SITE	1	
DATE	7/19/74	
TIME	1020	1025
DEPTH (FT)	3.	20.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.07	0.10
TOTAL ORGANIC NITROGEN (N)	0.48	0.45
TOTAL PHOSPHORUS (P)	0.014	0.012
TOTAL ORTHOPHOSPHATE (P)	0.003	0.003
SPECIFIC CONDUCTANCE (MICROMHOS)	880	860
WATER TEMPERATURE (DEG C)	21.8	20.4
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	9	
DISSOLVED OXYGEN	8.5	5.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/19/74
TIME	1027
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	122
FECAL COLIFORM, MEAN (COL./100ML)	66

REMARKS

A NATURAL LAKE STABILIZED BY A SMALL DAM. THE WATER IS USED FOR IRRIGATION AND RECREATIONAL USE OF THE LAKE IS HEAVY. THE LITTORAL BOTTOM IS SILT. THE U.S. GEOLOGICAL SURVEY HAS MAINTAINED A LAKE-STAGE RECORDER ON THE LAKE SINCE 1959. THE DRAINAGE AREA WAS NOT MEASURED BECAUSE IRRIGATION WATER IS IMPORTED FROM OUTSIDE THE NATURAL DRAINAGE AREA.



Whitestone Lake, Okanogan County. From
Washington Department of Game, February 8, 1951.

Whitestone Lake, Okanogan County.
August 4, 1967. Approx. scale 1:60,000.

BYRON LAKE YAKIMA COUNTY

LATITUDE 46*11'34" LONGITUDE 119*53' 4" T8N-R23E-12
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	700. FT		
LAKE AREA	16. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME (EST.)	47. ACRE-FT		
MEAN DEPTH (EST.)	3. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	6. FT		
SHORELINE LENGTH	1.3 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	2.2		
DEVELOPMENT OF VOLUME	0.49		
BOTTOM SLOPE	0.64 %		
BASIN GEOLOGY	SED./META.		
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

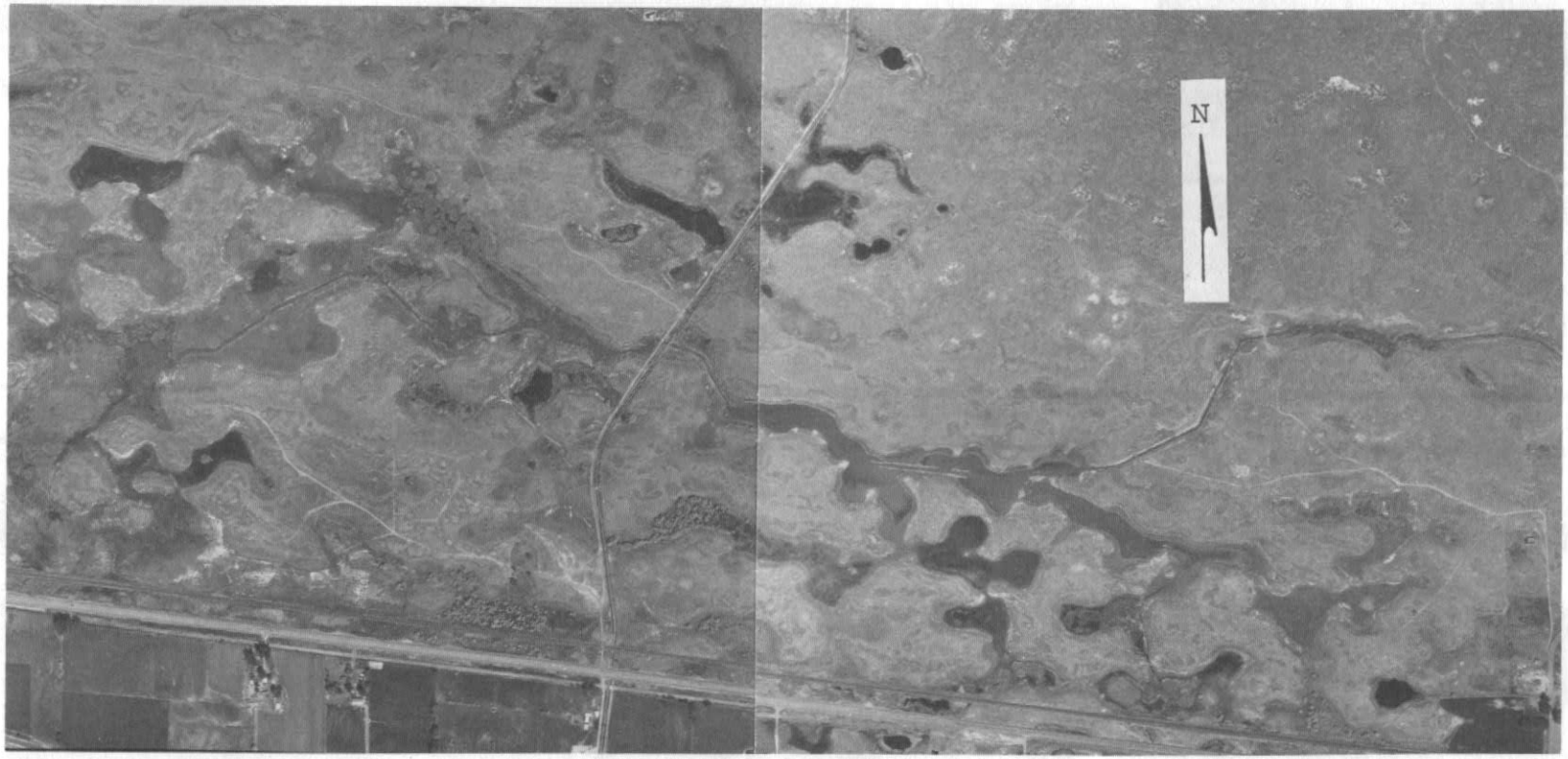
SAMPLE SITE	1	
DATE	5/16/74	
TIME	1545	1550
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.10	0.13
TOTAL ORGANIC NITROGEN (N)	1.3	1.9
TOTAL PHOSPHORUS (P)	0.18	0.23
TOTAL ORTHOPHOSPHATE (P)	0.086	0.11
SPECIFIC CONDUCTANCE (MICROMHOS)	660	670
WATER TEMPERATURE (DEG C)	15.0	14.5
COLOR (PLATINUM-COBALT UNITS)	40	35
SECCHI-DISC VISIBILITY (FT)	3	
DISSOLVED OXYGEN	9.9	10.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	26- 50 %

DATE	5/16/74
TIME	1600
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	32
FECAL COLIFORM, MEAN (COL./100ML)	15

REMARKS

ONLY THE LOWER BYRON LAKE WAS SAMPLED. THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS AND THE ALGAL DENSITY WAS HIGH. THE LITTORAL BOTTOM IS MUCK AND SILT. THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION. THE DRAINAGE AREA WAS NOT MEASURED BECAUSE THE LAKE RECEIVES WATER FROM OUTSIDE THE NATURAL DRAINAGE AREA. THE VOLUME AND MEAN DEPTH ARE ESTIMATED.



Bryon Lake, Yakima County. May 25, 1972. Approx. scale 1:12,000.

FREEWAY LAKE YAKIMA COUNTY

LATITUDE 46*37°39" LONGITUDE 120*30°21" T13N-R19E-7
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1070. FT		
LAKE AREA	26. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	350. ACRE-FT		
MEAN DEPTH	14. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	21. FT		
SHORELINE LENGTH	0.95 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	1.3		
DEVELOPMENT OF VOLUME	0.65		
BOTTOM SLOPE	1.8 %		
BASIN GEOLOGY	SED./META.		
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

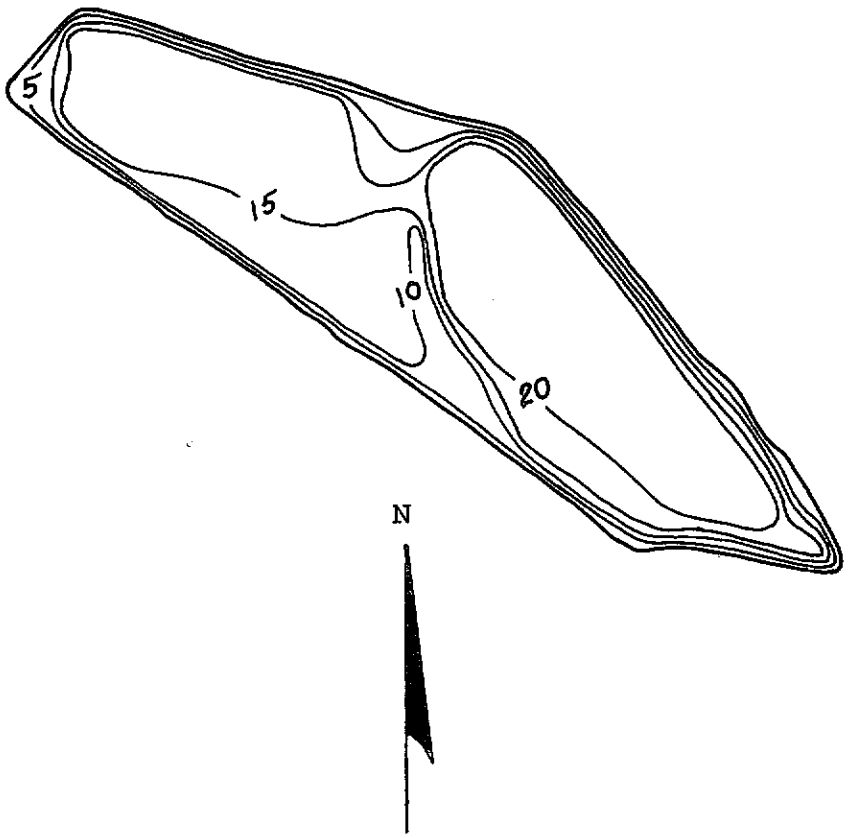
SAMPLE SITE	1	
DATE	5/15/74	
TIME	1800	1805
DEPTH (FT)	3.	13.
TOTAL NITRATE (N)	0.0'	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.06
TOTAL ORGANIC NITROGEN (N)	0.60	0.53
TOTAL PHOSPHORUS (P)	0.065	0.085
TOTAL ORTHOPHOSPHATE (P)	0.007	0.005
SPECIFIC CONDUCTANCE (MICROMHOS)	140	140
WATER TEMPERATURE (DEG C)	12.0	11.3
COLOR (PLATINUM-COBALT UNITS)	5	5
SECCHI-DISC VISIBILITY (FT)	4	
DISSOLVED OXYGEN	12.0	10.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

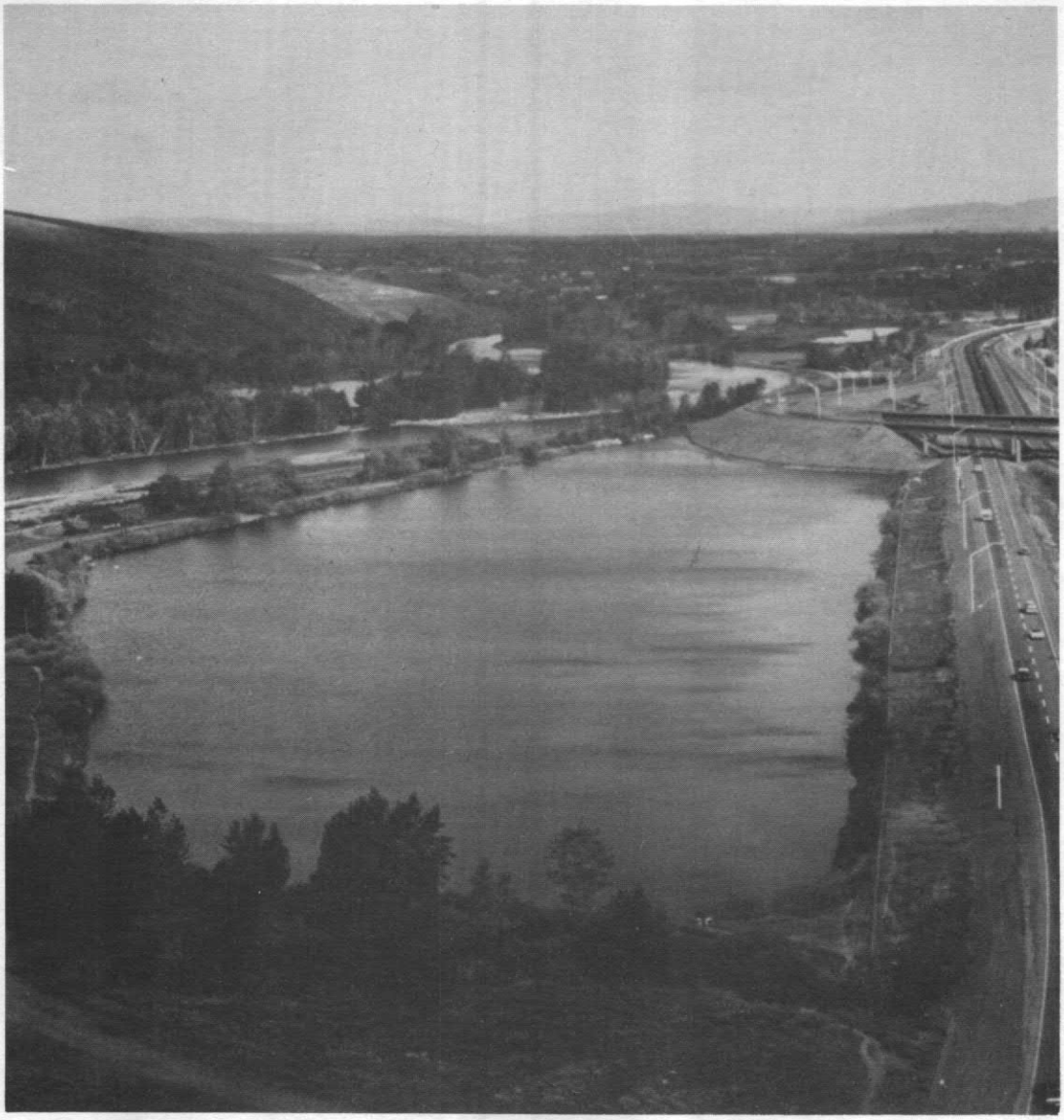
DATE	5/15/74
TIME	1800
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

A RELATIVELY NEW LAKE THAT IS IN A DEPRESSION FORMED BY THE REMOVAL OF GRAVEL FOR HIGHWAY CONSTRUCTION. THE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (PONDWEED). THE DRAINAGE AREA WAS NOT MEASURED BECAUSE THE LAKE PERIODICALLY RECEIVES INFLOW FROM OUTSIDE THE NATURAL DRAINAGE AREA (YAKIMA RIVER).



Freeway Lake, Yakima County. From
U.S. Geological Survey, April 8, 1974.



Freeway Lake, Yakima County. From
U.S. Geological Survey, April 8, 1974.

GIFFIN LAKE YAKIMA COUNTY

LATITUDE 46°14'39" LONGITUDE 121° 1'48" T9N-R22E-23
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	1 %
ALTITUDE	650. FT		
LAKE AREA	110. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	380. ACRE-FT		
MEAN DEPTH	4. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	7. FT		
SHORELINE LENGTH	4.1 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	2.8		
DEVELOPMENT OF VOLUME	0.50		
BOTTOM SLOPE	0.29 %		
BASIN GEOLOGY	SED./META.		
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

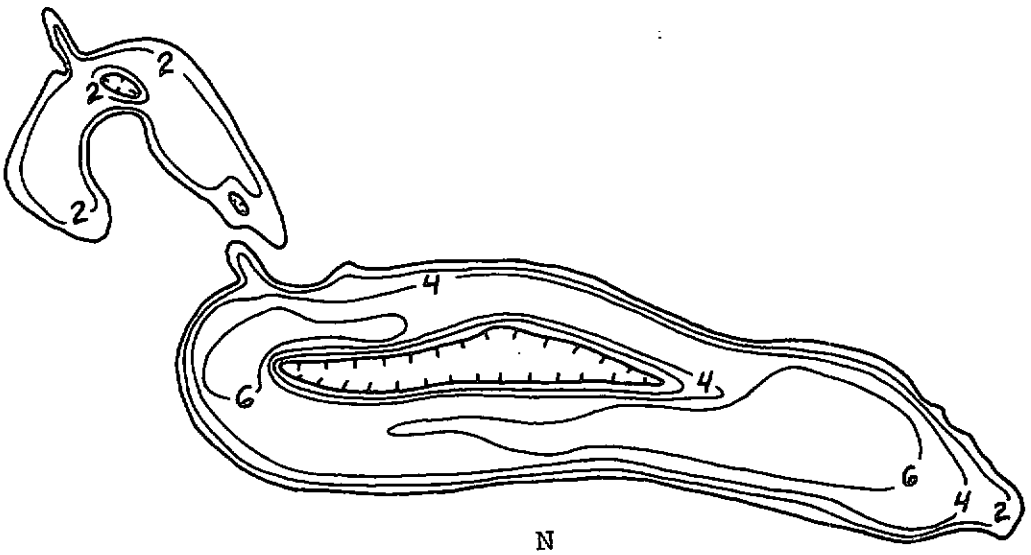
SAMPLE SITE	1	
DATE	5/16/74	
TIME	1145	1150
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.02	0.02
TOTAL AMMONIA (N)	0.15	0.16
TOTAL ORGANIC NITROGEN (N)	1.0	1.0
TOTAL PHOSPHORUS (P)	0.29	0.28
TOTAL ORTHOPHOSPHATE (P)	0.093	0.088
SPECIFIC CONDUCTANCE (MICROMHOS)	390	400
WATER TEMPERATURE (DEG C)	14.0	14.0
COLOR (PLATINUM-COBALT UNITS)	55	45
SECCHI-DISC VISIBILITY (FT)	1	
DISSOLVED OXYGEN	10.0	10.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	5/16/74
TIME	1200
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	48
FECAL COLIFORM, MEAN (COL./100ML)	23

REMARKS

THE LITTORAL BOTTOM IS MUCK AND SILT. NO SUBMERSED AQUATIC PLANTS WERE OBSERVED. THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION. THE DRAINAGE AREA WAS NOT MEASURED BECAUSE THE LAKE IS PERIODICALLY INUNDATED BY FLOOD WATERS OF THE YAKIMA RIVER.



N

0 1000 2000 FEET

EXPLANATION

—— 4 ——

Line of equal
water depth
Interval 2 feet

Giffin Lake, Yakima County. From
U.S. Geological Survey, April 9, 1974.

Giffin Lake, Yakima County. From
U.S. Geological Survey, April 9, 1974.

HORSESHOE (9N-22E-22) LAKE YAKIMA COUNTY

LATITUDE 46°14'58" LONGITUDE 120° 3'36" T9N-R22E-22
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.47 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	650. FT		
LAKE AREA	29. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	19. ACRE-FT		
MEAN DEPTH	1. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	2. FT		
SHORELINE LENGTH	1.7 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.31	AGRICULTURAL	87 %
BOTTOM SLOPE	0.16 %	FOREST OR UNPRODUCTIVE	3 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	10 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

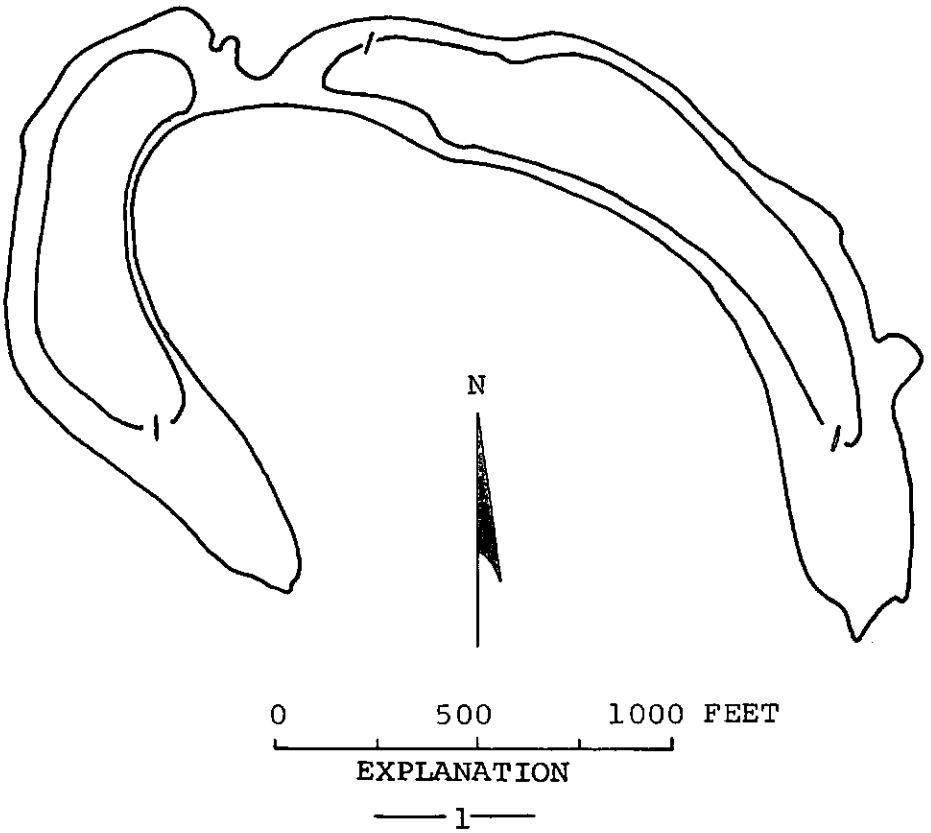
SAMPLE SITE	1	
DATE	5/16/74	
TIME	1030	1035
DEPTH (FT)	0.	1.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.02	0.02
TOTAL AMMONIA (N)	0.15	0.20
TOTAL ORGANIC NITROGEN (N)	1.4	1.0
TOTAL PHOSPHORUS (P)	0.54	0.42
TOTAL ORTHOPHOSPHATE (P)	0.086	0.13
SPECIFIC CONDUCTANCE (MICROMHOS)	280	280
WATER TEMPERATURE (DEG C)	11.5	11.5
COLOR (PLATINUM-COBALT UNITS)	55	50
SECCHI-DISC VISIBILITY (FT)	1	
DISSOLVED OXYGEN	10.5	10.5

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	5/16/74
TIME	1100
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	8
FECAL COLIFORM, MAXIMUM (COL./100ML)	24
FECAL COLIFORM, MEAN (COL./100ML)	16

REMARKS

AN OXBOW LAKE ADJACENT TO THE YAKIMA RIVER. THE LITTORAL BOTTOM IS CLAY, SILT, AND MUCK. THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION.



Horseshoe (9N-22E-22) Lake, Yakima County. From U.S. Geological Survey, April 9, 1974.

Horseshoe (9N-22E-22) Lake, Yakima County. From U.S. Geological Survey, April 9, 1974.

HORSESHOE (9N-22E-25) LAKE YAKIMA COUNTY

LATITUDE 46°13'59" LONGITUDE 120° 0'43" T9N-R22E-25
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	650. FT		
LAKE AREA	73. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	180. ACRE-FT		
MEAN DEPTH	2. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	6. FT		
SHORELINE LENGTH	3.1 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	2.6		
DEVELOPMENT OF VOLUME	0.41		
BOTTOM SLOPE	0.30 %		
BASIN GEOLOGY	SED./META.		
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

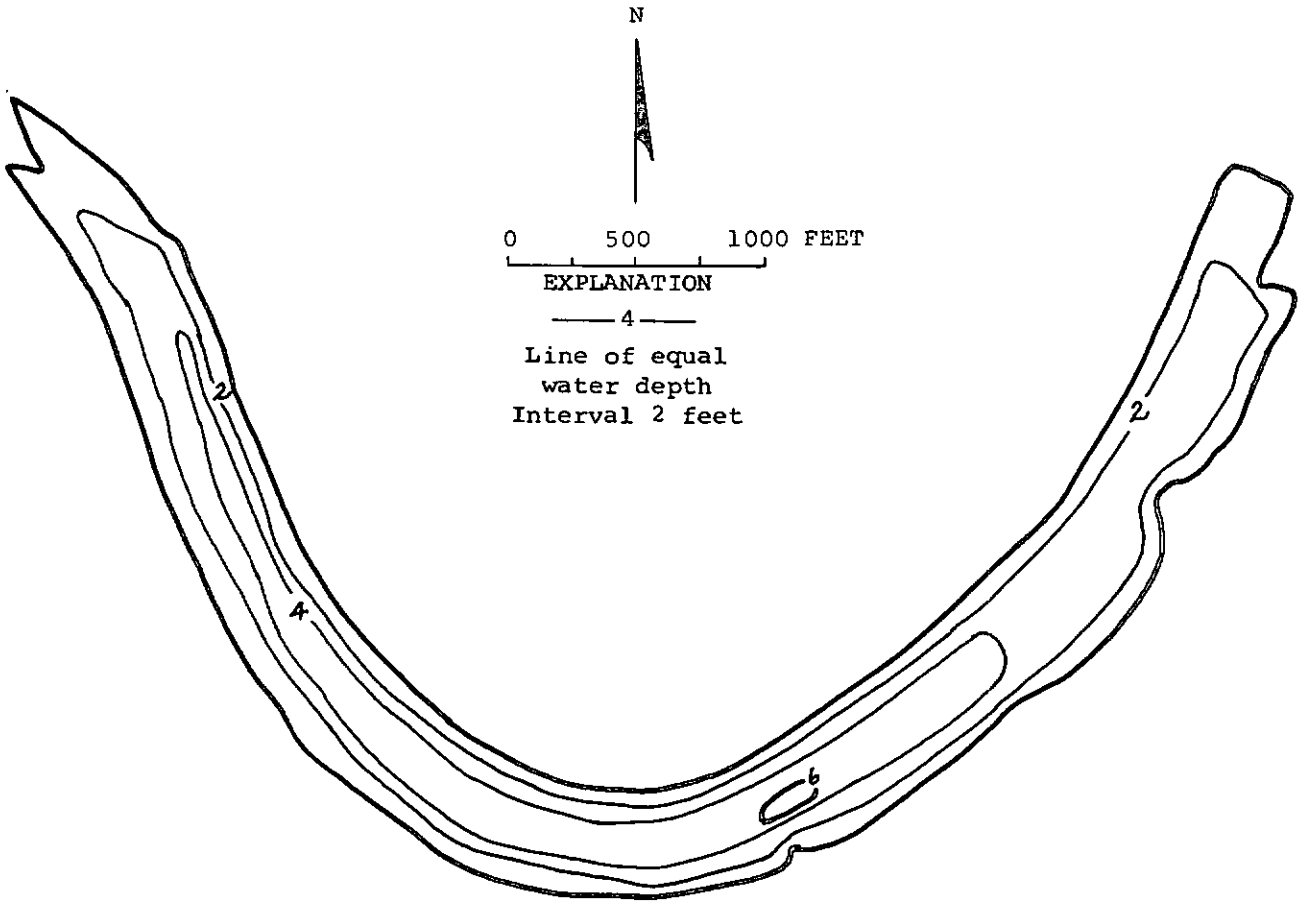
SAMPLE SITE	1	
DATE	5/16/74	
TIME	1300	1305
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.12	0.15
TOTAL ORGANIC NITROGEN (N)	1.2	1.4
TOTAL PHOSPHORUS (P)	0.28	0.28
TOTAL ORTHOPHOSPHATE (P)	0.049	0.005
SPECIFIC CONDUCTANCE (MICROMHOS)	390	500
WATER TEMPERATURE (DEG C)	16.0	14.0
COLOR (PLATINUM-COBALT UNITS)	60	65
SECCHI-DISC VISIBILITY (FT)	1	
DISSOLVED OXYGEN	9.7	10.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	5/16/74
TIME	1300
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	4
FECAL COLIFORM, MAXIMUM (COL./100ML)	8
FECAL COLIFORM, MEAN (COL./100ML)	6

REMARKS

AN OXBOW LAKE THAT IS ADJACENT TO, AND PERIODICALLY RECEIVES INFLOW FROM, THE YAKIMA RIVER. THE LITTORAL BOTTOM IS BLACK SILTY CLAY. NO SUBMERSED AQUATIC PLANTS WERE OBSERVED. THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION. THE DRAINAGE AREA WAS NOT MEASURED BECAUSE OF THE INFLOW FROM OUTSIDE THE NATURAL DRAINAGE AREA.



Horseshoe (9N-22E-25) Lake, Yakima County. From U.S. Geological Survey, April 9, 1974.

MORGAN LAKE YAKIMA COUNTY

LATITUDE 46°14'16" LONGITUDE 120° 0'31" T9N-R22E-25
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.28 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	650. FT		
LAKE AREA	39. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	91. ACRE-FT		
MEAN DEPTH	2. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	4. FT		
SHORELINE LENGTH	1.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.58	AGRICULTURAL	94 %
BOTTOM SLOPE	0.27 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	6 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

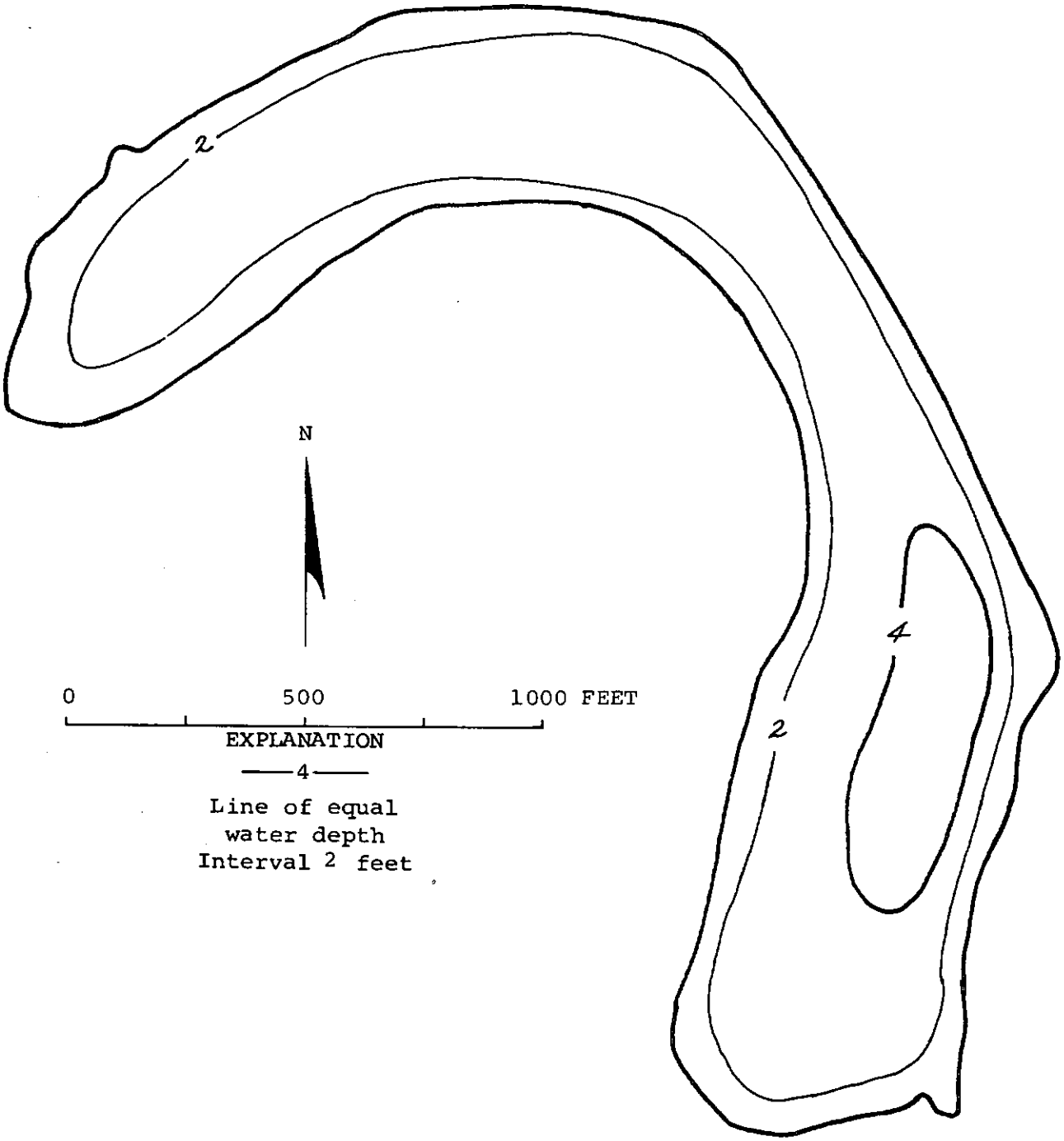
SAMPLE SITE	1	
DATE	5/16/74	
TIME	1400	1405
DEPTH (FT)	1.	3.
TOTAL NITRATE (N)	0.00	0.01
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.19	0.18
TOTAL ORGANIC NITROGEN (N)	1.7	2.3
TOTAL PHOSPHORUS (P)	0.17	0.18
TOTAL ORTHOPHOSPHATE (P)	0.018	0.011
SPECIFIC CONDUCTANCE (MICROMHOS)	260	260
WATER TEMPERATURE (DEG C)	15.0	14.0
COLOR (PLATINUM-COBALT UNITS)	50	50
SECCHI-DISC VISIBILITY (FT)	1	
DISSOLVED OXYGEN	9.8	10.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	5/16/74
TIME	1400
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

AN OXBOW LAKE ADJACENT TO THE YAKIMA RIVER. THE LITTORAL BOTTOM IS SILT AND MUCK. NO SUBMERSED AQUATIC PLANTS WERE OBSERVED.



Morgan Lake, Yakima County. From
U.S. Geological Survey, April 9, 1974.

Morgan Lake, Yakima County. From
U.S. Geological Survey, April 9, 1974.

OLEYS (WASHINGTON) LAKE YAKIMA COUNTY

LATITUDE 46°16'34" LONGITUDE 119°59'25" T9N-R23E-7
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	12 %
ALTITUDE	690. FT		
LAKE AREA	13. ACRES	NUMBER OF NEARSHORE HOMES	4
LAKE VOLUME	26. ACRE-FT		
MEAN DEPTH	2. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	2. FT		
SHORELINE LENGTH	0.72 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	1.4		
DEVELOPMENT OF VOLUME	0.89		
BOTTOM SLOPE	0.26 %		
BASIN GEOLOGY	SED./META.		
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

SAMPLE SITE	1	
DATE	5/16/74	
TIME	1445	1450
DEPTH (FT)	1.	1.
TOTAL NITRATE (N)	0.01	--
TOTAL NITRITE (N)	0.01	--
TOTAL AMMONIA (N)	0.10	--
TOTAL ORGANIC NITROGEN (N)	3.4	--
TOTAL PHOSPHORUS (P)	1.3	--
TOTAL ORTHOPHOSPHATE (P)	0.027	--
SPECIFIC CONDUCTANCE (MICROMHOS)	550	--
WATER TEMPERATURE (DEG C)	17.0	16.5
COLOR (PLATINUM-COBALT UNITS)	35	--
SECCHI-DISC VISIBILITY (FT)	1	
DISSOLVED OXYGEN	9.4	9.5

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	5/16/74
TIME	1500
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	68
FECAL COLIFORM, MEAN (COL./100ML)	34

REMARKS

REFERRED TO AS NIGGER LAKE ON TOPOGRAPHIC MAPS. ONLY ONE SAMPLE WAS TAKEN FOR CHEMICAL ANALYSIS. THE LITTORAL BOTTOM IS CLAY AND SILT. AN ALGAL BLOOM WAS OBSERVED. THE DRAINAGE AREA WAS NOT MEASURED BECAUSE THE LAKE IS AFFECTED BY WATER FROM OUTSIDE THE NATURAL DRAINAGE AREA.

Oleys (Washington) Lake, Yakima County. Bathymetric map
from U.S. Geological Survey, April 1974.
Aerial photo, June 1, 1972.

UNNAMED (14N-19E-31) LAKE YAKIMA COUNTY

LATITUDE 46*39' 8" LONGITUDE 120*30' 4" T14N-R19E-31
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1100. FT		
LAKE AREA	19. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	120. ACRE-FT		
MEAN DEPTH	7. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	11. FT		
SHORELINE LENGTH	0.85 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	1.4		
DEVELOPMENT OF VOLUME	0.60		
BOTTOM SLOPE	1.1 %		
BASIN GEOLOGY	SED./META.		
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

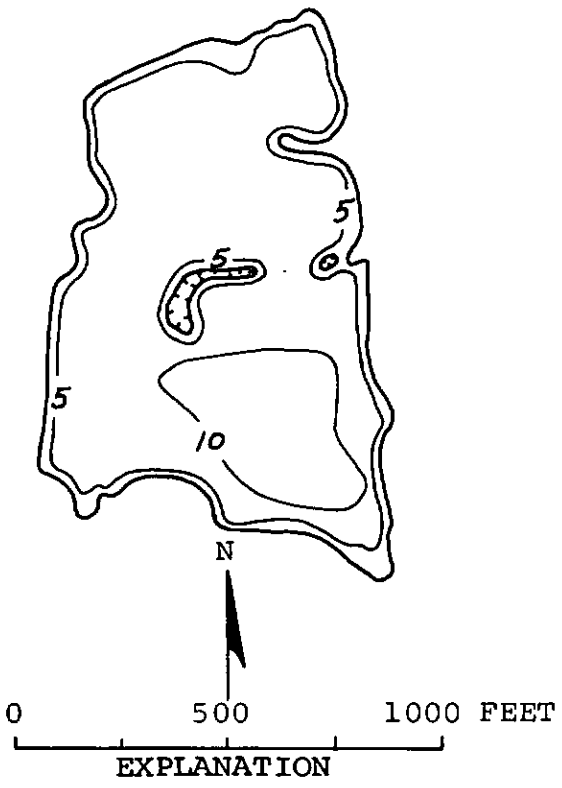
SAMPLE SITE	1	
DATE	5/15/74	
TIME	1700	1705
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.05
TOTAL ORGANIC NITROGEN (N)	0.30	0.35
TOTAL PHOSPHORUS (P)	0.045	0.057
TOTAL ORTHOPHOSPHATE (P)	0.004	0.021
SPECIFIC CONDUCTANCE (MICROMHOS)	160	160
WATER TEMPERATURE (DEG C)	14.5	14.5
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	4	
DISSOLVED OXYGEN	9.8	9.8

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	5/15/74
TIME	1530
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	8
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

THE LAKE IS ON THE YAKIMA RIVER BOTTOMS AND RECEIVES SEEPAGE FROM THE RIVER. FOR THIS REASON THE DRAINAGE AREA AND LAND USE WERE NOT DETERMINED. THE LITTORAL BOTTOM IS GRAVEL.



Unnamed (14N-19E-31) Lake, Yakima County. From U.S. Geological Survey, April 8, 1974.

WENAS LAKE YAKIMA COUNTY

LATITUDE 46*48'53" LONGITUDE 120*40'17" T15N-R17E-2
YAKIMA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	114. SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1861. FT		
LAKE AREA	65. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	990. ACRE-FT		
MEAN DEPTH	15. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	36. FT		
SHORELINE LENGTH	1.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.42	AGRICULTURAL	15 %
BOTTOM SLOPE	1.9 %	FOREST OR UNPRODUCTIVE	85 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	<1 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

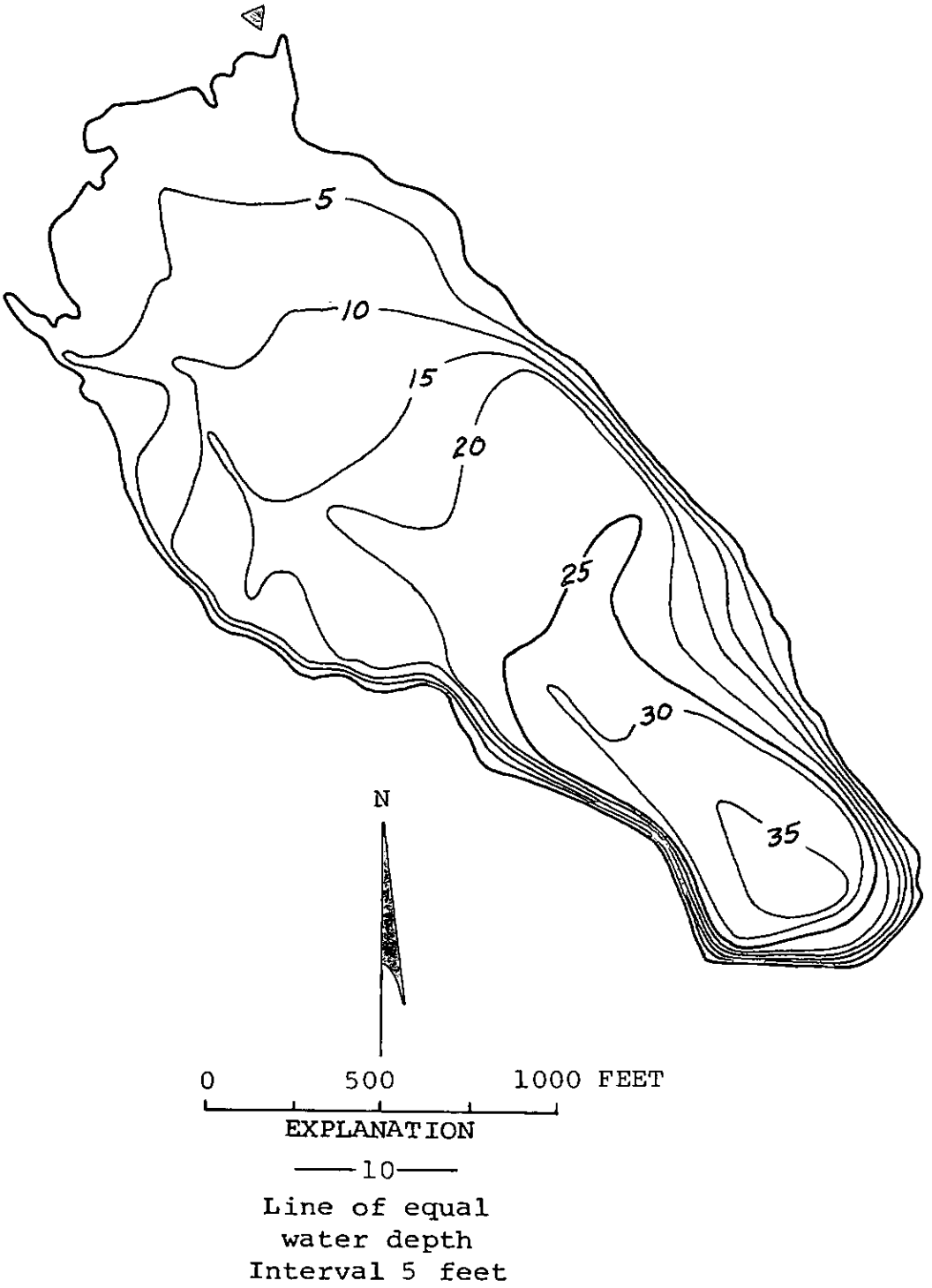
SAMPLE SITE	1	
DATE	5/15/74	
TIME	1515	1520
DEPTH (FT)	3.	26.
TOTAL NITRATE (N)	0.02	0.03
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.07	0.06
TOTAL ORGANIC NITROGEN (N)	0.16	0.17
TOTAL PHOSPHORUS (P)	0.076	0.081
TOTAL ORTHOPHOSPHATE (P)	0.058	0.058
SPECIFIC CONDUCTANCE (MICROMHOS)	105	107
WATER TEMPERATURE (DEG C)	9.8	8.8
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	4	
DISSOLVED OXYGEN	11.0	10.4

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	5/15/74
TIME	1600
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	8
FECAL COLIFORM, MAXIMUM (COL./100ML)	18
FECAL COLIFORM, MEAN (COL./100ML)	12

REMARKS

AN ARTIFICIAL RESERVOIR CREATED BY A DAM ON WENAS CREEK IN 1946. THE WATER IS USED FOR IRRIGATION PURPOSES. NO AQUATIC MACROPHYTES WERE OBSERVED. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. THE LITTORAL BOTTOM IS SILTY GRAVEL.



Wenas Lake, Yakima County. From
U.S. Geological Survey, April 7, 1974.

Wenas Lake, Yakima County. August 5, 1967. Approx. scale 1:60,000.

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