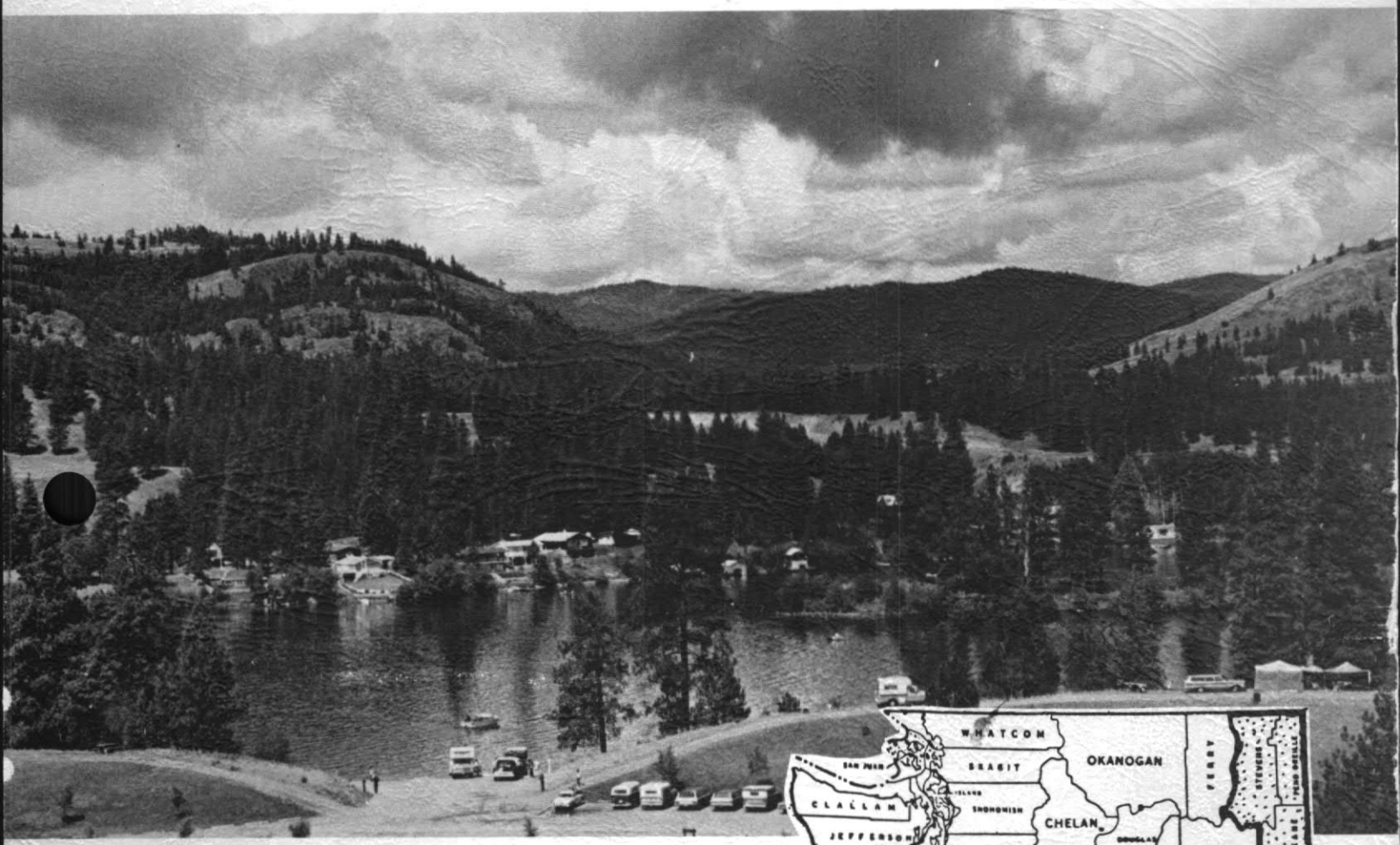
RECONNAISSANCE DATA ON LAKES IN WASHINGTON VOLUME 7

PEND OREILLE, SPOKANE, AND STEVENS COUNTIES



STATE OF WASHINGTON
DANIEL J. EVANS, Governor

DEPARTMENT OF ECOLOGY
JOHN A. BIGGS, Director

Water-Supply Bulletin 43, Vol. 7

Prepared in Cooperation with
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Geological Survey • 1976

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VOLUME 7

PEND OREILLE, SPOKANE, AND STEVENS COUNTIES

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

Prepared in cooperation with

UNITED STATES GEOLOGICAL SURVEY

1976

CONTENTS

ILLUSTRATION

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)

RECONNAISSANCE DATA ON LAKES IN WASHINGTON
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ABSTRACT

A total of 90 lakes in three counties of northeastern 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 seventh of a seven-volume series of reports on Washington lakes and contains data from 90 lakes in Pend Oreille, Spokane, and Stevens Counties in the northeastern part of the State (fig. 1).

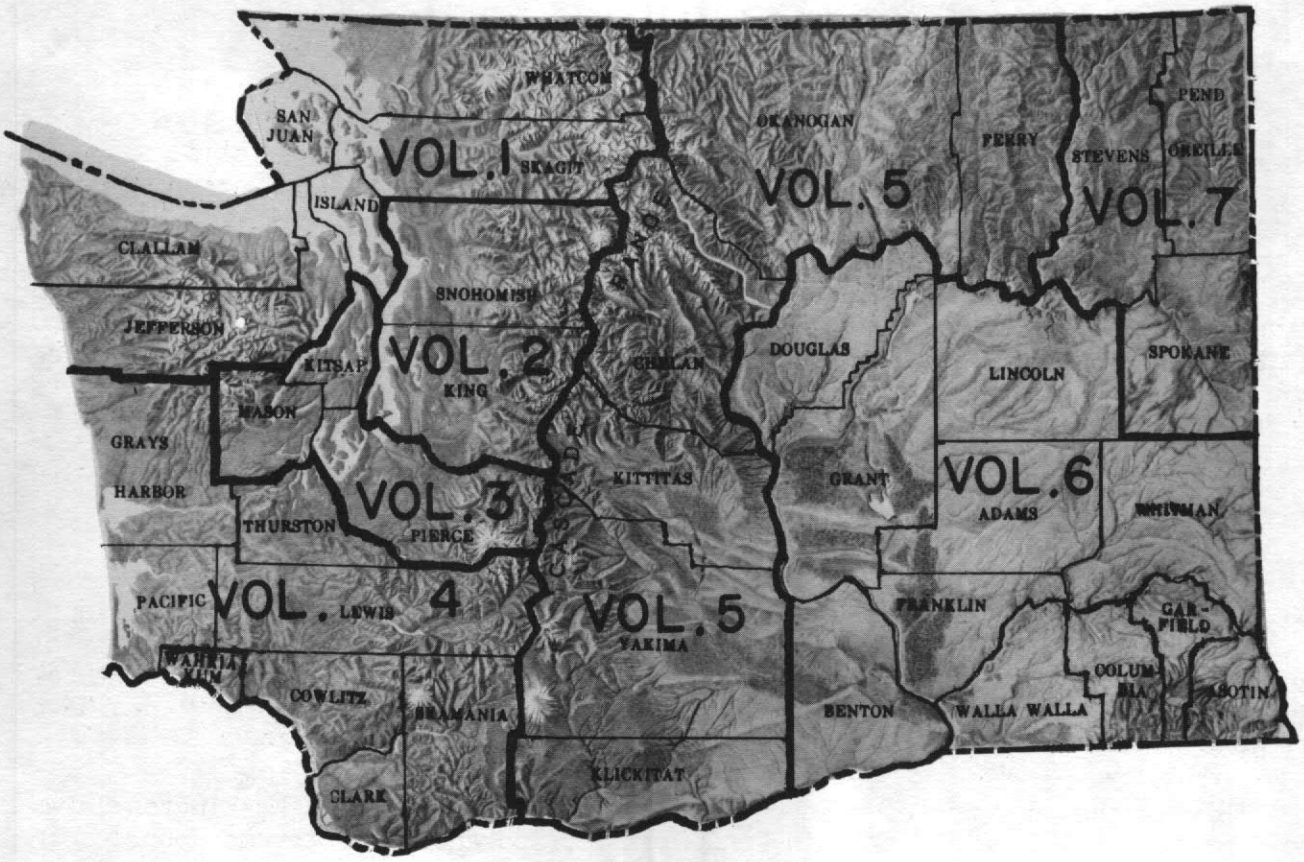

FIGURE 1.--Location of counties covered in each of seven-volume report series.

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. 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. Prior to 1973, some of the lakes were sampled four times during a year by Bortleson, Higgins, and Hill (1974). For those lakes sampled more than once during a year, 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. For those lakes sampled during previous studies (Bortleson and others, 1974), the samples for orthophosphate, nitrite, and nitrate were filtered through a 0.45-μm (micrometre) millipore filter. The concentrations of these particular samples are indicated as "dissolved."

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.

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.

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.

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.

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BASIC DATA

BOUNDARY LAKE PEND OREILLE COUNTY

LATITUDE 48°59'14" LONGITUDE 117°20'49" T40N-R43E-10
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	25200. SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1990. FT		
LAKE AREA	1600. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	-- ACRE-FT		
MEAN DEPTH	-- FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	-- FT		
SHORELINE LENGTH	-- MI	NOT DETERMINED	
SHORELINE CONFIGURATION	--		
DEVELOPMENT OF VOLUME	--		
BOTTOM SLOPE	-- %		
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		2	
DATE	7/12/74		7/12/74	
TIME	1000	1005	1105	1110
DEPTH (FT)	3.	190.	3.	148.
TOTAL NITRATE (N)	0.01	0.00	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00	0.00	0.00
TOTAL AMMONIA (N)	0.05	0.07	0.06	0.06
TOTAL ORGANIC NITROGEN (N)	0.11	0.10	0.13	0.09
TOTAL PHOSPHORUS (P)	0.020	0.021	0.023	0.022
TOTAL ORTHOPHOSPHATE (P)	0.006	0.006	0.005	0.007
SPECIFIC CONDUCTANCE (MICROMHOS)	138	138	138	138
WATER TEMPERATURE (DEG C)	16.3	16.7	16.1	16.2
COLOR (PLATINUM-COBALT UNITS)	10	10	10	10
SECCHI-DISC VISIBILITY (FT)	4		4	
DISSOLVED OXYGEN	10.0	9.9	10.1	10.0

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

DATE	7/12/74
TIME	1024
NUMBER OF FECAL COLIFORM SAMPLES	6
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	6
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

AN ARTIFICIAL HYDROPOWER RESERVOIR CREATED BY A DAM ON THE PEND OREILLE RIVER. VERY FEW AQUATIC MACROPHYTES WERE OBSERVED. THE U.S. GEOLOGICAL SURVEY HAS MONITORED THE LAKE STAGE SINCE 1967. BATHYMETRIC DATA ARE NOT AVAILABLE. LAND USE WAS NOT DETERMINED BECAUSE OF THE SIZE OF THE DRAINAGE AREA.

BROWNS LAKE PEND OREILLE COUNTY

LATITUDE 48°26'12" LONGITUDE 117°11'25" T34N-R44E-24
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	5.10 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3411. FT		
LAKE AREA	84. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	1100. ACRE-FT		
MEAN DEPTH	13. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	23. FT		
SHORELINE LENGTH	2.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.56	AGRICULTURAL	0 %
BOTTOM SLOPE	1.1 %	FOREST OR UNPRODUCTIVE	97 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	3 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

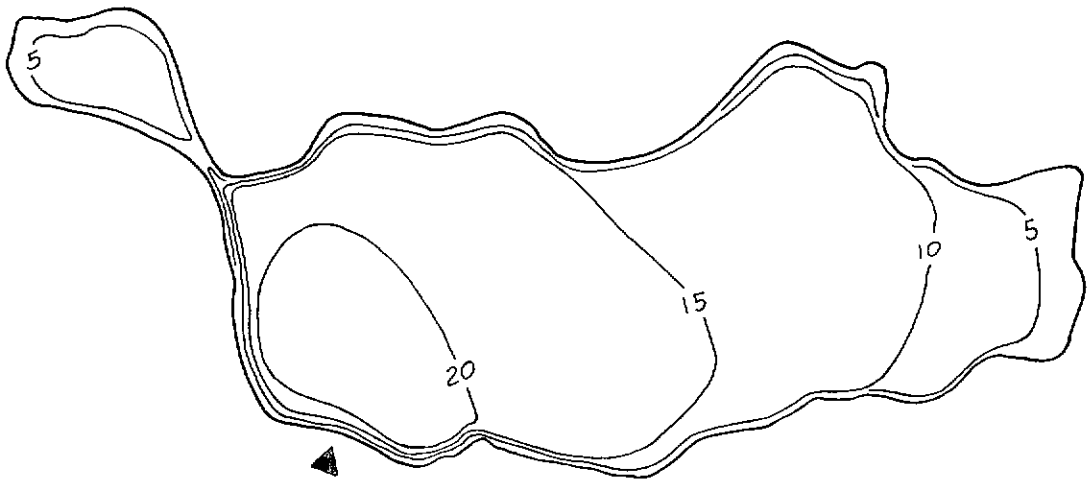
SAMPLE SITE	1	
DATE	7/10/74	
TIME	1515	1520
DEPTH (FT)	3.	30.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.02	0.02
TOTAL ORGANIC NITROGEN (N)	0.05	0.11
TOTAL PHOSPHORUS (P)	0.006	0.041
TOTAL ORTHOPHOSPHATE (P)	0.003	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	25	25
WATER TEMPERATURE (DEG C)	16.0	7.6
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	23	
DISSOLVED OXYGEN	8.6	9.5

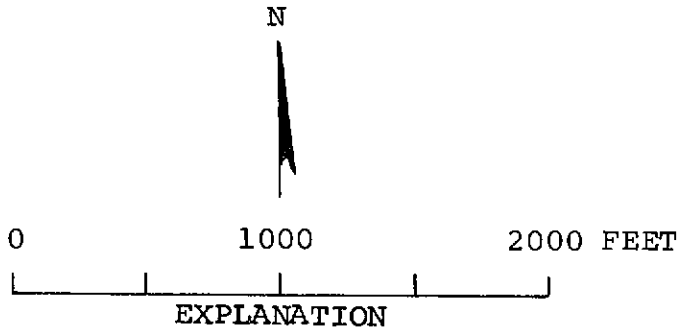
LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE	7/10/74
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

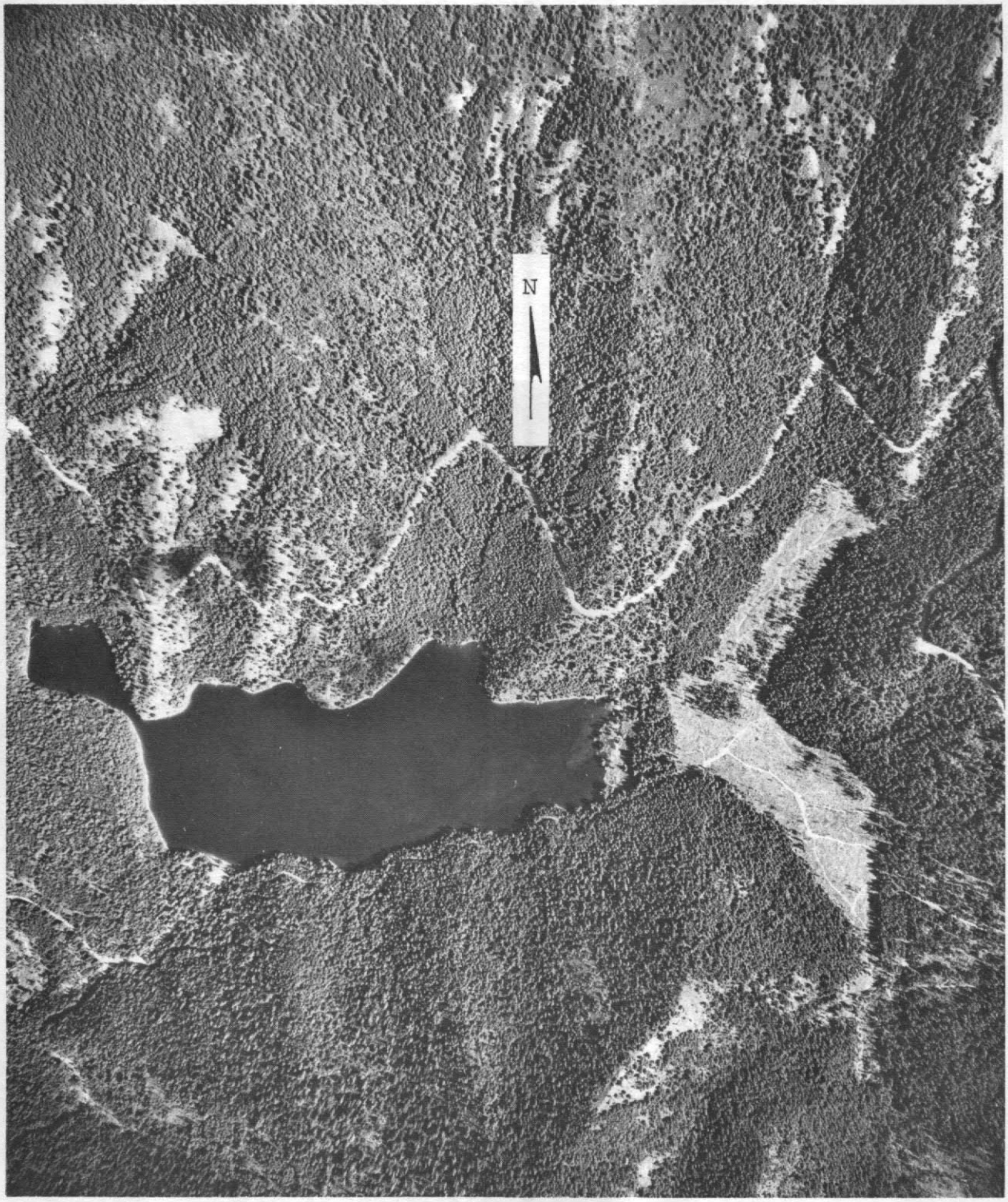
REMARKS

LARGE WATER-LEVEL FLUCTUATIONS ARE COMMON IN THIS LAKE. FLOATING LOGS AND DEBRIS WERE OBSERVED LOCALLY ALONG THE SHORELINE. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. VERY FEW AQUATIC MACROPHYTES WERE OBSERVED.





Browns Lake, Pend Oreille County. From
Washington Department of Game, September 6, 1949.



Browns Lake, Pend Oreille County. July 3, 1967. Approx. scale 1:12,000.

CALISPELL LAKE PEND OREILLE COUNTY

LATITUDE 48*17'25" LONGITUDE 117*19'12" T32N-R43E-12
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	99.0 SQ MI	RESIDENTIAL DEVELOPMENT	8 %
ALTITUDE	2028. FT		
LAKE AREA	1900. ACRES	NUMBER OF NEARSHORE HOMES	10
LAKE VOLUME	3400. ACRE-FT		
MEAN DEPTH	2. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	5. FT		
SHORELINE LENGTH	8.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.36	AGRICULTURAL	2 %
BOTTOM SLOPE	0.05 %	FOREST OR UNPRODUCTIVE	95 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	3 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

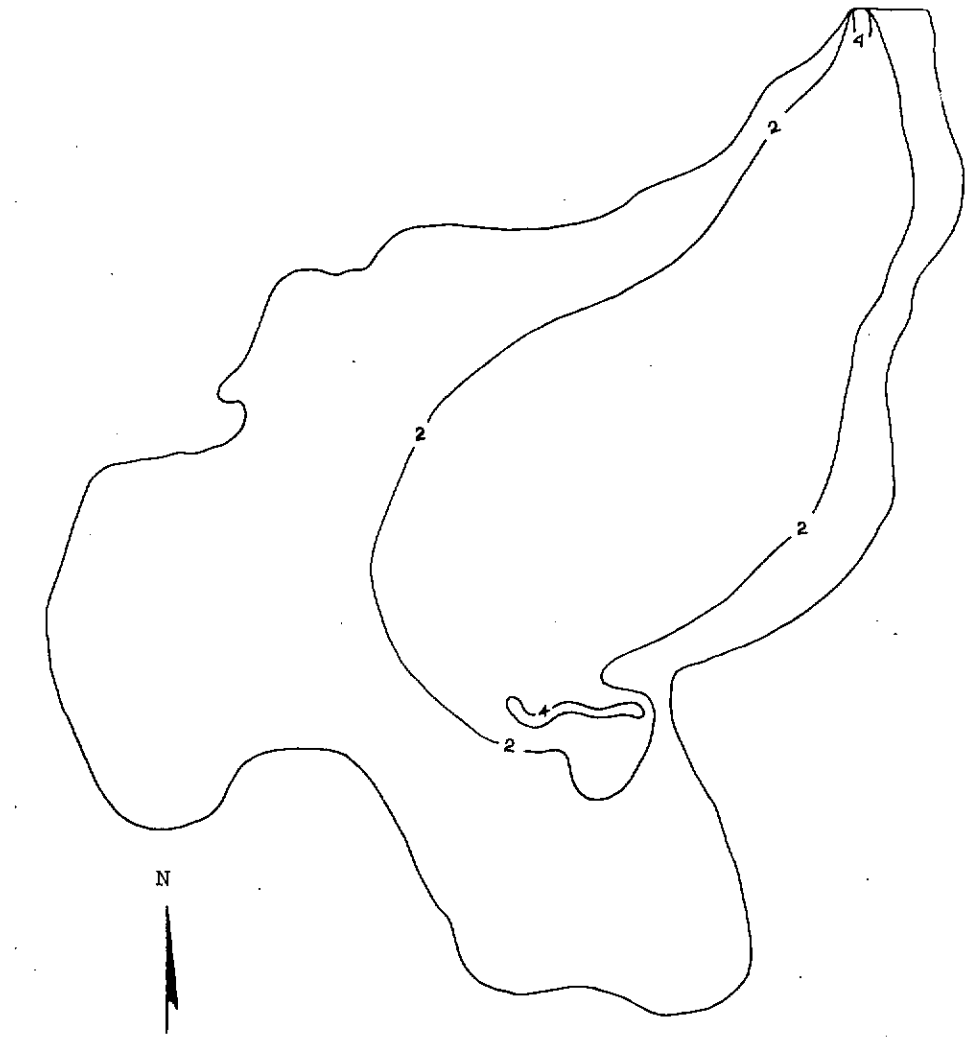
SAMPLE SITE	1		2	
DATE	7/10/74		7/10/74	
TIME	1325	1330	1405	1410
DEPTH (FT)	3.	7.	3.	8.
TOTAL NITRATE (N)	0.01	0.01	0.00	0.01
TOTAL NITRITE (N)	0.00	0.00	0.00	0.00
TOTAL AMMONIA (N)	0.05	0.06	0.06	0.05
TOTAL ORGANIC NITROGEN (N)	0.29	0.28	0.18	0.19
TOTAL PHOSPHORUS (P)	0.35	0.37	0.029	0.026
TOTAL ORTHOPHOSPHATE (P)	0.007	0.007	0.004	0.004
SPECIFIC CONDUCTANCE (MICROMHOS)	48	48	46	46
WATER TEMPERATURE (DEG C)	19.8	19.1	19.9	19.8
COLOR (PLATINUM-COBALT UNITS)	20	20	20	20
SECCHI-DISC VISIBILITY (FT)	6		7	
DISSOLVED OXYGEN	7.8	8.0	7.6	8.3

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

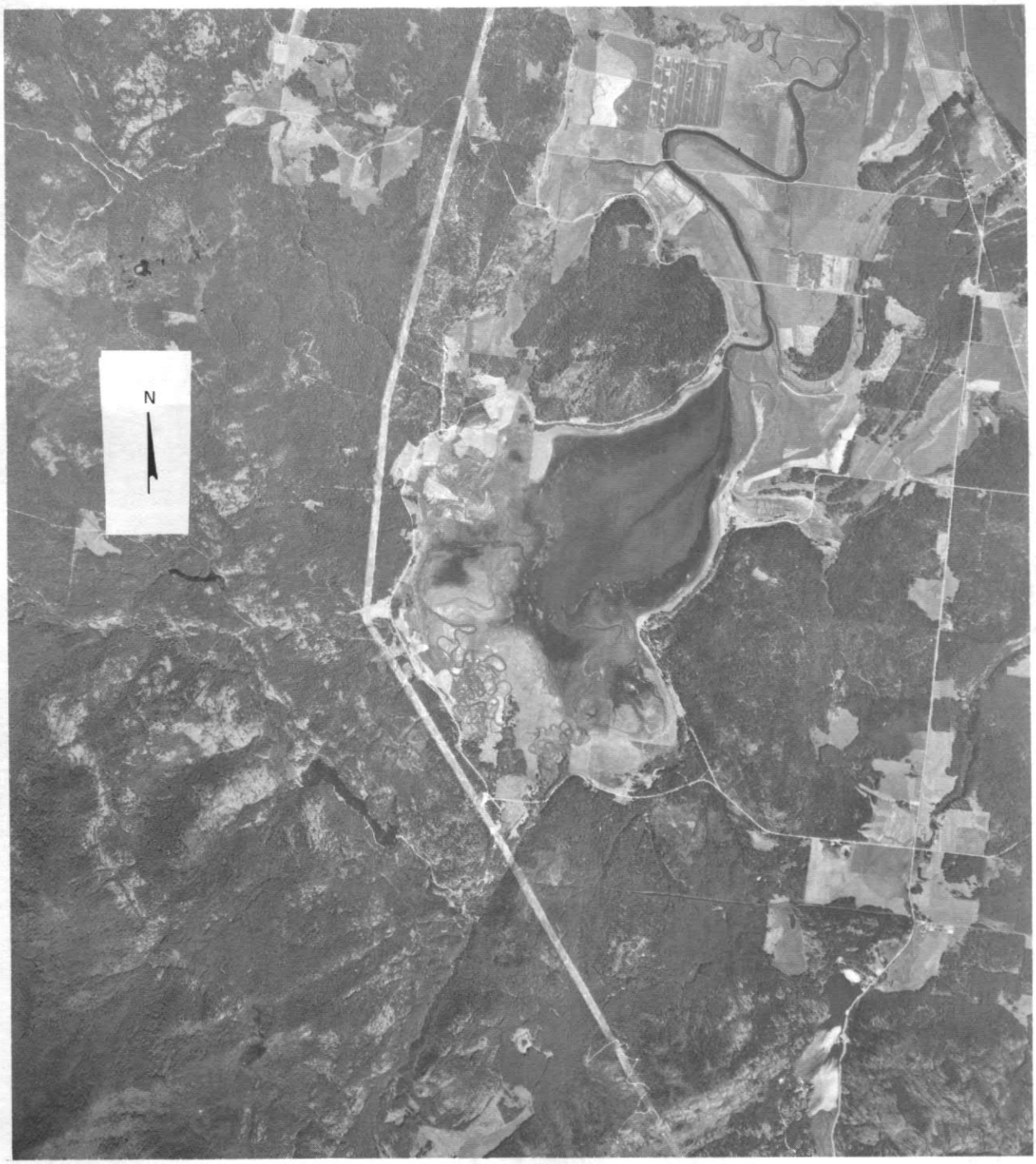
DATE	7/10/74
TIME	1349
NUMBER OF FECAL COLIFORM SAMPLES	5
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS AN ENLARGEMENT OF CALISPELL CREEK AND IS STABILIZED BY A SMALL DAM. MARSH SURROUNDS THE LAKE AND THE LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION.



Calispell Lake, Pend Oreille County. From U.S. Geological Survey, July 26, 1974.



Calispell Lake, Pend Oreille County. July 3, 1968. Approx. scale 1:60,000.

CHAIN LAKE PEND OREILLE COUNTY

LATITUDE 48* 3' 5" LONGITUDE 117*13'36" T30N-R44E-34
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	75.4 SQ MI	RESIDENTIAL DEVELOPMENT	7 %
ALTITUDE	1927. FT		
LAKE AREA	88. ACRES	NUMBER OF NEARSHORE HOMES	7
LAKE VOLUME	2900. ACRE-FT		
MEAN DEPTH	33. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	130. FT		
SHORELINE LENGTH	3.2 MI	RESIDENTIAL URBAN	<1 %
SHORELINE CONFIGURATION	2.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.26	AGRICULTURAL	6 %
BOTTOM SLOPE	5.7 %	FOREST OR UNPRODUCTIVE	94 %
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)

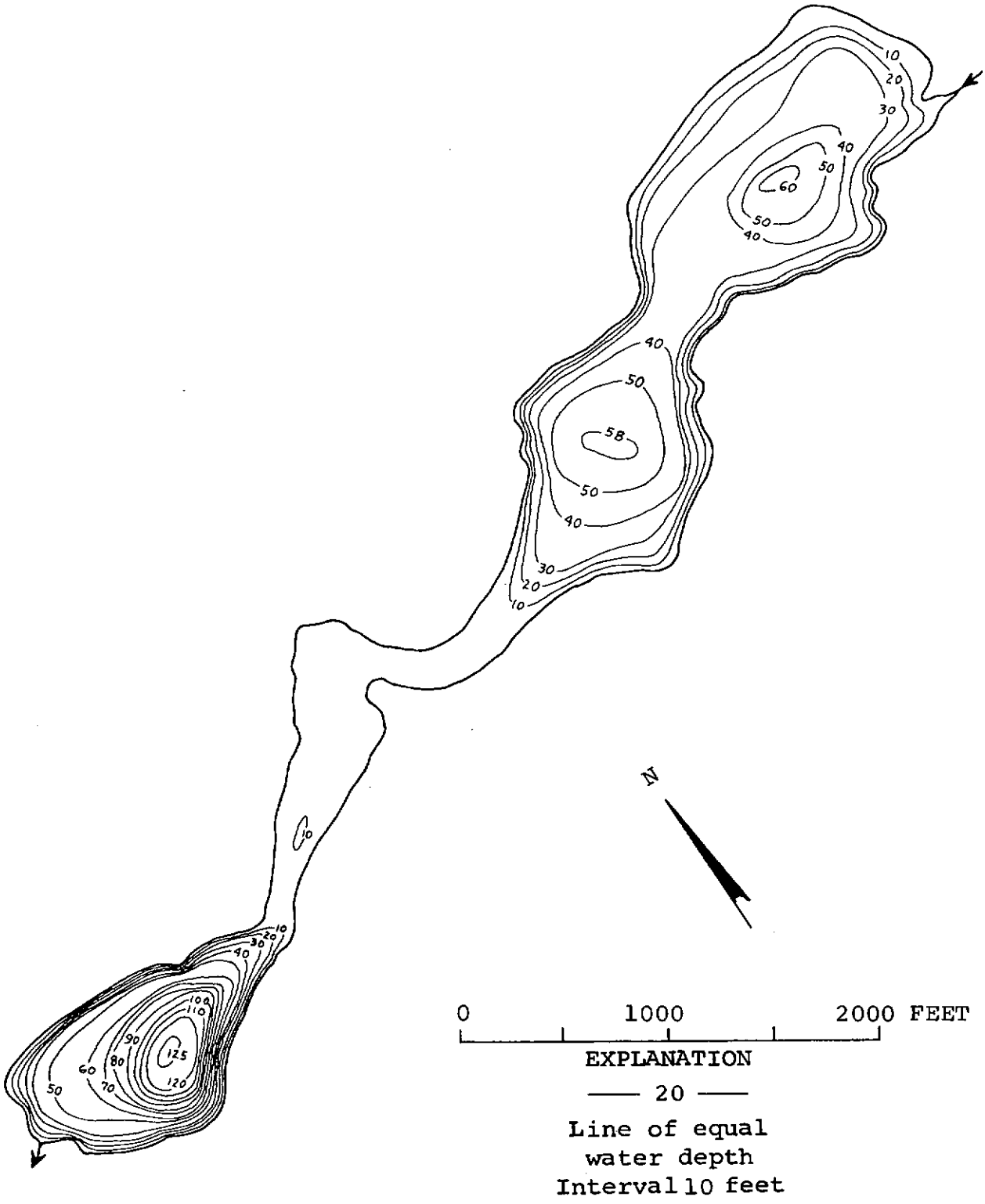
SAMPLE SITE	1		2	
DATE	7/ 1/74		7/ 3/74	
TIME	1130	1135	1330	1335
DEPTH (FT)	3.	115.	3.	33.
TOTAL NITRATE (N)	0.00	0.11	0.01	0.21
TOTAL NITRITE (N)	0.01	0.01	0.01	0.02
TOTAL AMMONIA (N)	0.12	85.	0.06	0.09
TOTAL ORGANIC NITROGEN (N)	0.06	0.00	0.18	0.22
TOTAL PHOSPHORUS (P)	0.012	1.1	0.018	0.048
TOTAL ORTHOPHOSPHATE (P)	0.002	1.1	0.004	0.020
SPECIFIC CONDUCTANCE (MICROMHOS)	190	1500	200	200
WATER TEMPERATURE (DEG C)	19.5	5.5	18.5	8.0
COLOR (PLATINUM-COBALT UNITS)	10	--	10	10
SECCHI-DISC VISIBILITY (FT)	18		14	
DISSOLVED OXYGEN	10.1	0.4	9.9	1.6

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

DATE	7/ 1/74
TIME	1200
NUMBER OF FECAL COLIFORM SAMPLES	5
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE LAKE IS AN ENLARGEMENT OF THE LITTLE SPOKANE RIVER AND IS COMPOSED OF TWO SEGMENTS CONNECTED BY A NARROW CHANNEL. FLOATING LOGS AND DEBRIS WERE OBSERVED ALONG THE SHORELINE. THE VERY DARK COLOR OF THE DEEP WATER FROM SITE 1 PRECLUDED A DETERMINATION OF COLOR.



Chain Lake, Pend Oreille County. From Washington Department of Game, date unknown.

Chain Lake, Pend Oreille County. July 29, 1967. Approx. scale 1:12,000.

DAVIS LAKE PEND OREILLE COUNTY

LATITUDE 48°13'52" LONGITUDE 117°17'15" T32N-R44E-31
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	17.8 SQ MI	RESIDENTIAL DEVELOPMENT	17 %
ALTITUDE	2178. FT		
LAKE AREA	150. ACRES	NUMBER OF NEARSHORE HOMES	45
LAKE VOLUME	13000. ACRE-FT		
MEAN DEPTH	83. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	150. FT		
SHORELINE LENGTH	2.7 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.57	AGRICULTURAL	4 %
BOTTOM SLOPE	5.0 %	FOREST OR UNPRODUCTIVE	95 %
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)

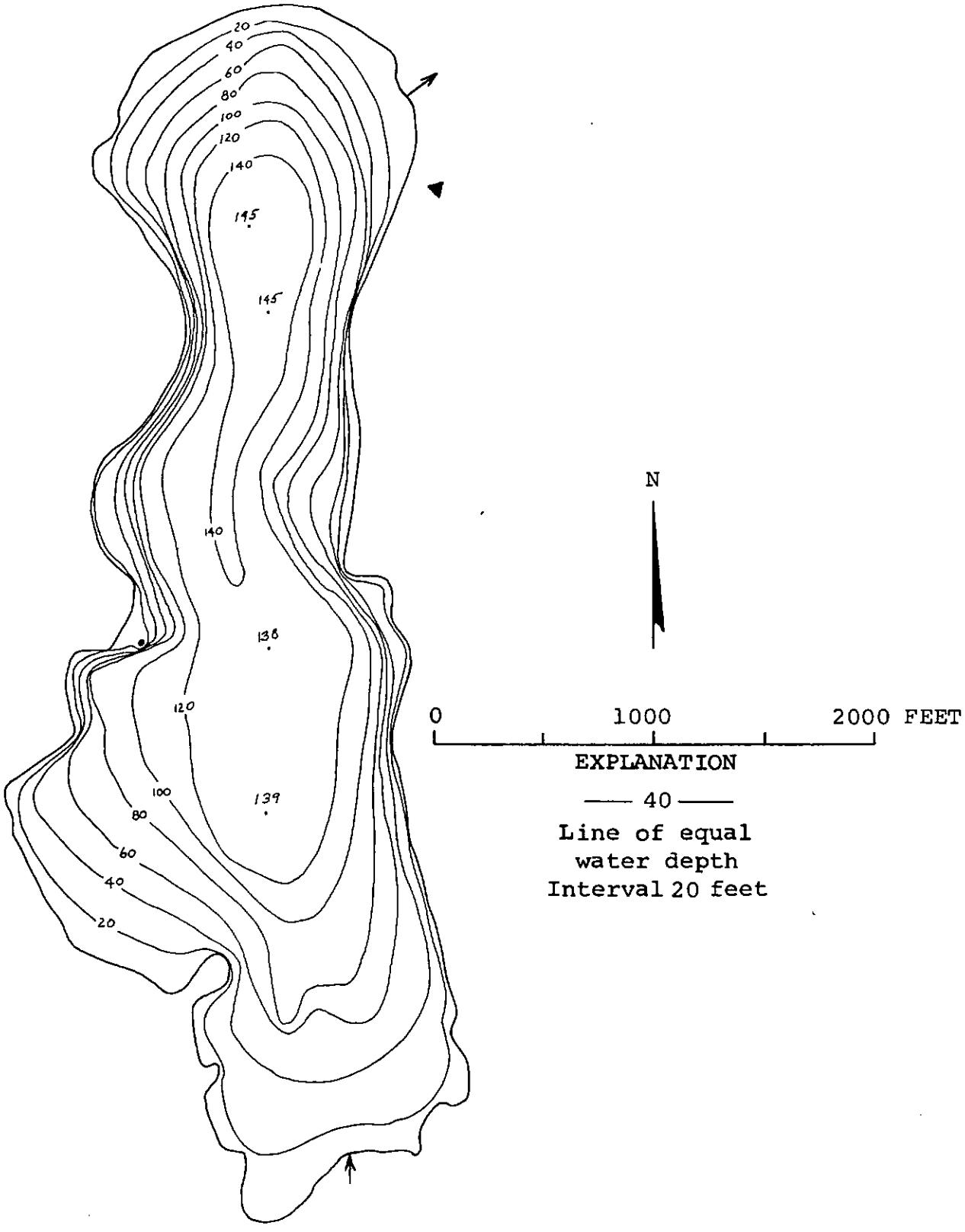
SAMPLE SITE	1	
DATE	7/ 3/74	
TIME	1310	1315
DEPTH (FT)	3.	131.
TOTAL NITRATE (N)	0.00	0.13
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.03	0.03
TOTAL ORGANIC NITROGEN (N)	0.29	0.15
TOTAL PHOSPHORUS (P)	0.017	0.016
TOTAL ORTHOPHOSPHATE (P)	0.003	0.005
SPECIFIC CONDUCTANCE (MICROMHOS)	80	90
WATER TEMPERATURE (DEG C)	19.4	4.3
COLOR (PLATINUM-COBALT UNITS)	20	20
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	8.1	6.6

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

DATE	7/ 3/74
TIME	1320
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 STABILIZED BY A SMALL DAM. THE ENTIRE EASTERN SHORELINE IS SAND AND GRAVEL ROAD FILL. EMERSED AQUATIC PLANTS WERE FOUND AT THE SOUTH END OF THE LAKE BUT VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN.



Davis Lake, Pend Oreille County. From
Washington Department of Game, January 1949.

Davis Lake, Pend Oreille County. July 2, 1967. Approx. scale 1:12,000.

DIAMOND LAKE PEND OREILLE COUNTY

LATITUDE 48* 7' 8" LONGITUDE 117*13' 5" T30N-R44E-3
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	17.4 SQ MI	RESIDENTIAL DEVELOPMENT	78 %
ALTITUDE	2340. FT		
LAKE AREA	800. ACRES	NUMBER OF NEARSHORE HOMES	355
LAKE VOLUME	22000. ACRE-FT		
MEAN DEPTH	27. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	58. FT		
SHORELINE LENGTH	7.0 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	2 %
DEVELOPMENT OF VOLUME	0.47	AGRICULTURAL	13 %
BOTTOM SLOPE	0.87 %	FOREST OR UNPRODUCTIVE	78 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	7 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

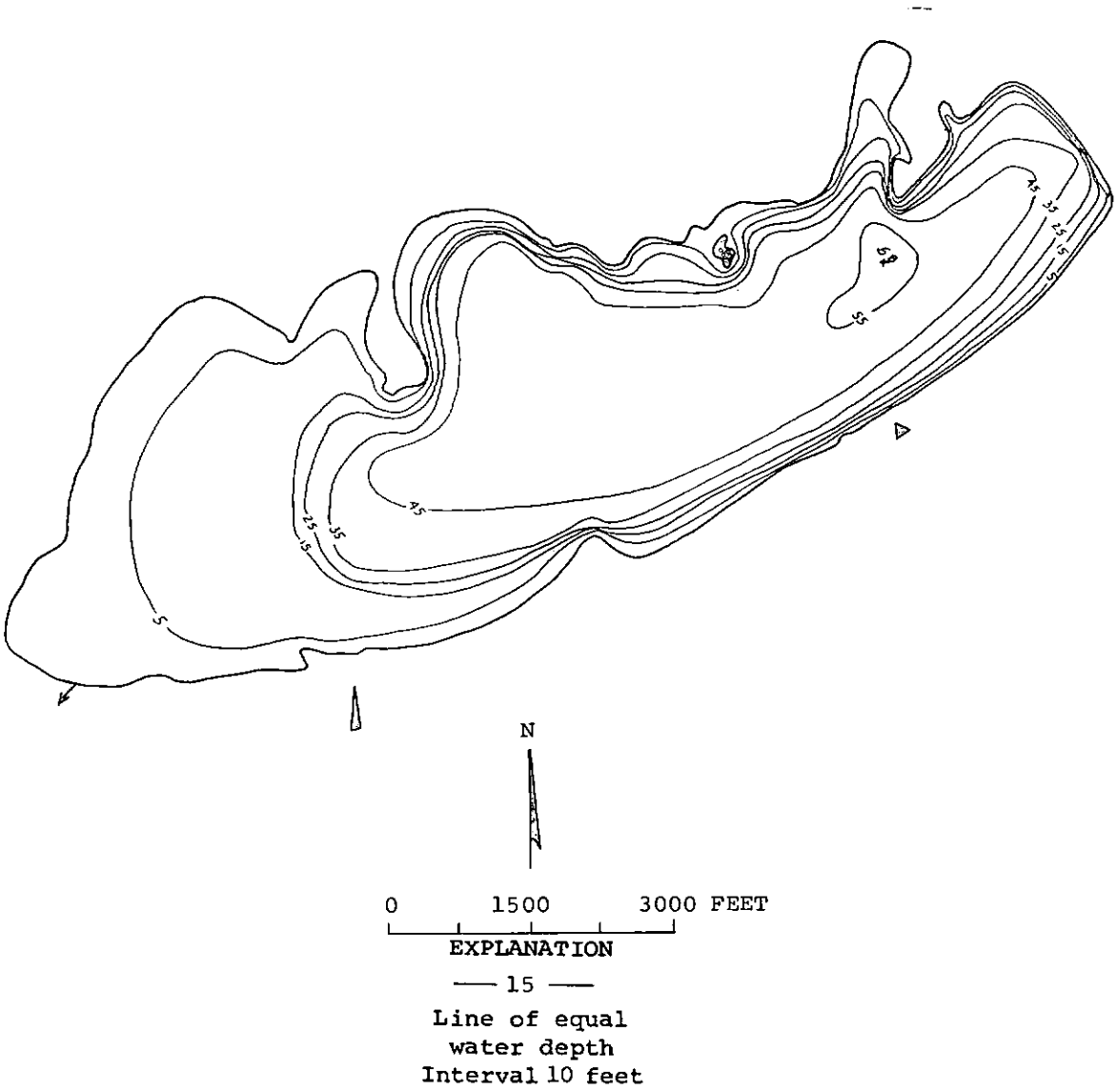
SAMPLE SITE	1	
DATE	8/14/72	
TIME	1600	1605
DEPTH (FT)	3.	49.
DISSOLVED NITRATE (N)	0.04	0.06
DISSOLVED NITRITE (N)	0.01	0.00
TOTAL AMMONIA (N)	0.14	0.04
TOTAL ORGANIC NITROGEN (N)	0.61	0.56
TOTAL PHOSPHORUS (P)	0.010	0.006
DISSOLVED ORTHOPHOSPHATE (P)	0.003	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	66	71
WATER TEMPERATURE (DEG C)	23.5	10.2
COLOR (PLATINUM-COBALT UNITS)	10	25
SECCHI-DISC VISIBILITY (FT)	19	
DISSOLVED OXYGEN	8.5	0.2

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

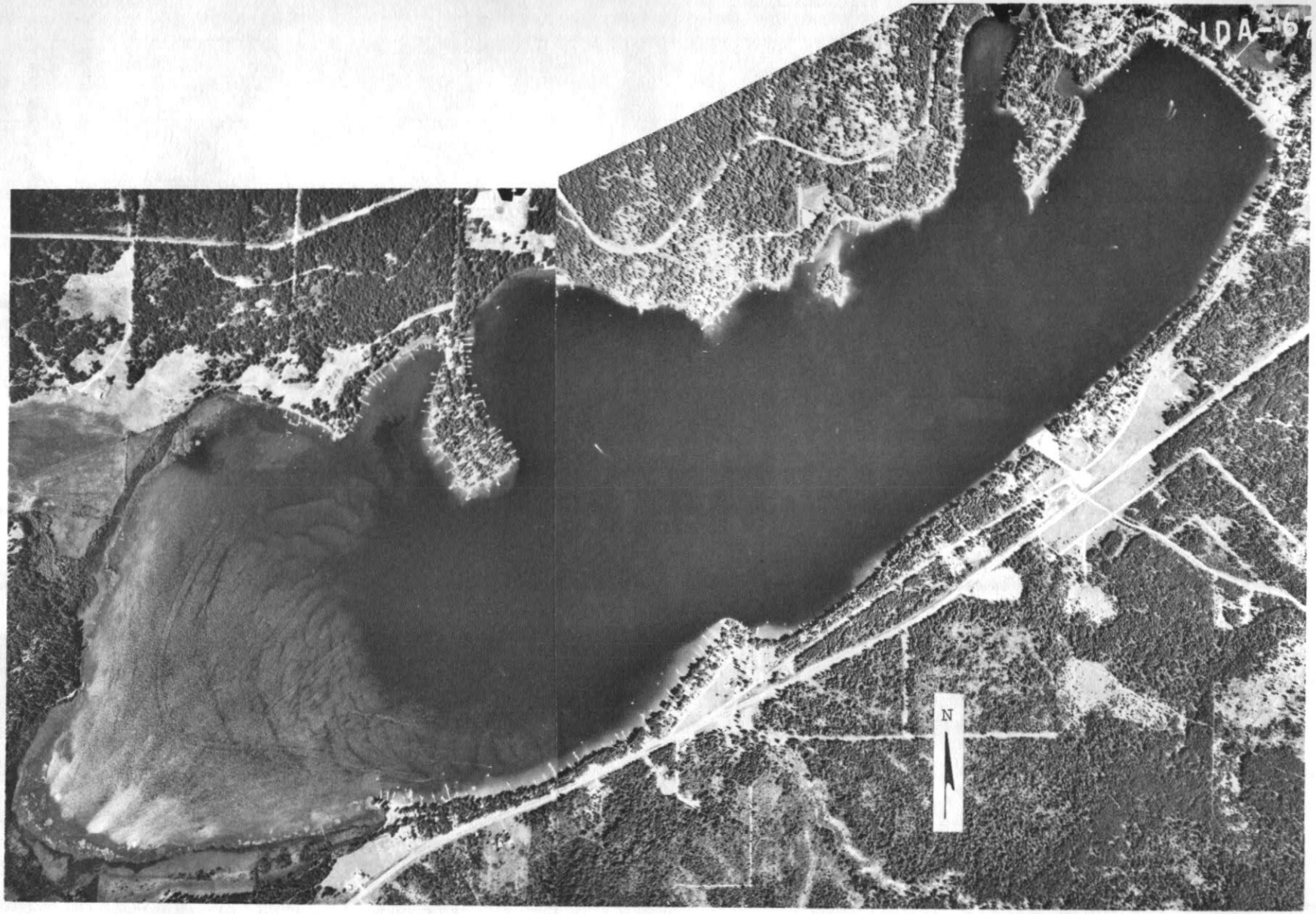
DATE	8/14/72
TIME	830
NUMBER OF FECAL COLIFORM SAMPLES	5
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

RECREATIONAL USE OF THE LAKE IS HEAVY. MOST OF THE AQUATIC MACROPHYTES WERE AT THE SOUTHWEST END OF THE LAKE. IN 1972 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE AUGUST 14, 1972. THE U.S. GEOLOGICAL SURVEY HAS MONITORED THE LAKE STAGE SINCE 1953. THE WATER QUALITY OF THE LAKE WAS DESCRIBED BY BISHOP (1973).



Diamond Lake, Pend Oreille County. From
Washington Department of Game, January 27, 1955.



Diamond Lake, Pend Oreille County. July 29, 1967. Approx. scale 1:15,000.

FAN LAKE PEND OREILLE COUNTY

LATITUDE 48* 3'23" LONGITUDE 117*24'12" T30N-R43E-32
SPOKANE RIVER BASIN

PHYSICAL DATA

DRAINAGE AREA	6.03 SQ MI
ALTITUDE	1921. FT
LAKE AREA	79. ACRES
LAKE VOLUME	2000. ACRE-FT
MEAN DEPTH	25. FT
MAXIMUM DEPTH	74. FT
SHORELINE LENGTH	2.1 MI
SHORELINE CONFIGURATION	1.7
DEVELOPMENT OF VOLUME	0.34
BOTTOM SLOPE	3.5 %
BASIN GEOLOGY	SED./META.
INFLOW	PERENNIAL
OUTFLOW CHANNEL	PRESENT

CULTURAL DATA

RESIDENTIAL DEVELOPMENT	0 %
NUMBER OF NEARSHORE HOMES	0

LAND USE IN DRAINAGE BASIN

RESIDENTIAL URBAN	0 %
RESIDENTIAL SUBURBAN	0 %
AGRICULTURAL	13 %
FOREST OR UNPRODUCTIVE	85 %
LAKE SURFACE	2 %

PUBLIC BOAT ACCESS TO LAKE YES

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

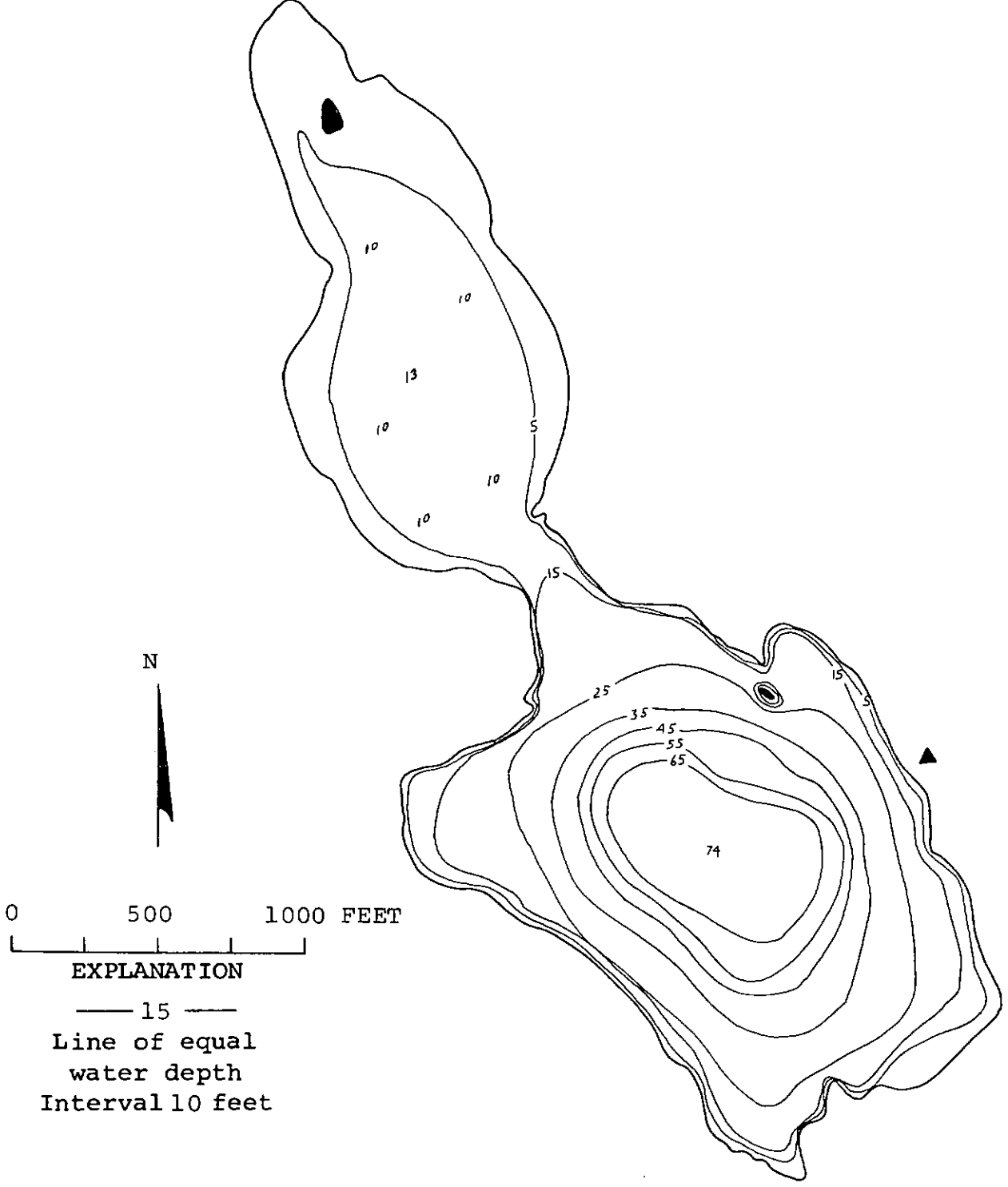
SAMPLE SITE	1	
DATE	7/ 1/74	
TIME	1405	1410
DEPTH (FT)	3.	66.
TOTAL NITRATE (N)	0.00	0.06
TOTAL NITRITE (N)	0.01	0.02
TOTAL AMMONIA (N)	0.07	46.
TOTAL ORGANIC NITROGEN (N)	0.40	4.0
TOTAL PHOSPHORUS (P)	0.028	5.2
TOTAL ORTHOPHOSPHATE (P)	0.004	5.2
SPECIFIC CONDUCTANCE (MICROMHOS)	230	1250
WATER TEMPERATURE (DEG C)	22.0	5.0
COLOR (PLATINUM-COBALT UNITS)	10	50
SECCHI-DISC VISIBILITY (FT)	12	
DISSOLVED OXYGEN	9.2	0.2

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

DATE	7/ 1/74
TIME	1420
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

RECREATIONAL USE OF THE LAKE IS HEAVY; THERE IS A YMCA CAMP ON THE SOUTHWEST SHORE. THE NORTHWEST BAY IS SHALLOW AND WEEDY. A MODERATELY LARGE AMOUNT OF FILAMENTOUS GREEN ALGAE WAS OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.



Fan Lake, Pend Oreille County. From
Washington Department of Game, January 1949.

Fan Lake, Pend Oreille County. July 2, 1967. Approx. scale 1:12,000.

FRATER LAKE PEND OREILLE COUNTY

LATITUDE 48*39'18" LONGITUDE 117*29'11" T36N-R42E-3
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.68 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3205. FT		
LAKE AREA	17. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	93. ACRE-FT		
MEAN DEPTH	6. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	15. FT		
SHORELINE LENGTH	0.77 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.37	AGRICULTURAL	0 %
BOTTOM SLOPE	1.6 %	FOREST OR UNPRODUCTIVE	96 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	4 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

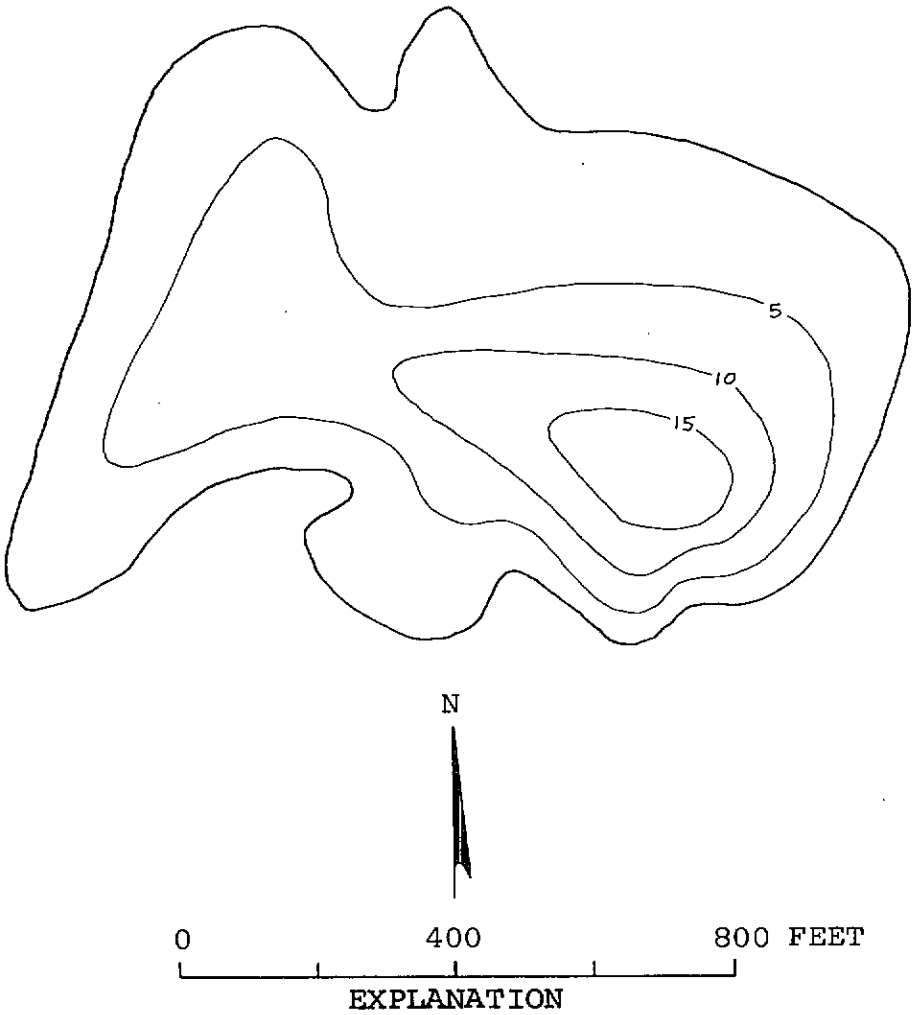
SAMPLE SITE	1	
DATE	8/15/72	
TIME	1940	1950
DEPTH (FT)	3.	13.
DISSOLVED NITRATE (N)	0.05	0.06
DISSOLVED NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.07	0.46
TOTAL ORGANIC NITROGEN (N)	0.80	0.94
TOTAL PHOSPHORUS (P)	0.018	0.056
DISSOLVED ORTHOPHOSPHATE (P)	0.002	0.003
SPECIFIC CONDUCTANCE (MICROMHOS)	42	49
WATER TEMPERATURE (DEG C)	21.3	14.4
COLOR (PLATINUM-COBALT UNITS)	15	25
SECCHI-DISC VISIBILITY (FT)	5	
DISSOLVED OXYGEN	8.6	0.4

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

DATE	8/15/72
TIME	1955
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	6
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

THE LITTORAL BOTTOM IS MUCK. MOST OF THE LAKE BOTTOM WAS COVERED WITH SUBMERSED AQUATIC PLANTS (PONDWEED AND CHARA) AND MOST OF THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (SEDGE AND YELLOW LILY).



Frater Lake, Pend Oreille County. From
Washington Department of Game, February 11, 1951.

Frater Lake, Pend Oreille County. August 10, 1972. Approx. scale 1:7200.

HORSESHOE LAKE PEND OREILLE COUNTY

LATITUDE 48* 6'19" LONGITUDE 117*24'28" T30N-R43E-8
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	80.4 SQ MI	RESIDENTIAL DEVELOPMENT	14 %
ALTITUDE	1970. FT		
LAKE AREA	140. ACRES	NUMBER OF NEARSHORE HOMES	22
LAKE VOLUME	9000. ACRE-FT		
MEAN DEPTH	64. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	150. FT		
SHORELINE LENGTH	3.8 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.3	RESIDENTIAL SUBURBAN	1 %
DEVELOPMENT OF VOLUME	0.43	AGRICULTURAL	7 %
BOTTOM SLOPE	5.4 %	FOREST OR UNPRODUCTIVE	89 %
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/ 2/74	
TIME	1050	1055
DEPTH (FT)	3.	138.
TOTAL NITRATE (N)	0.00	0.25
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.05	0.12
TOTAL ORGANIC NITROGEN (N)	0.45	0.04
TOTAL PHOSPHORUS (P)	0.030	0.043
TOTAL ORTHOPHOSPHATE (P)	0.007	0.029
SPECIFIC CONDUCTANCE (MICROMHOS)	55	70
WATER TEMPERATURE (DEG C)	20.1	3.7
COLOR (PLATINUM-COBALT UNITS)	15	15
SECCHI-DISC VISIBILITY (FT)	9	
DISSOLVED OXYGEN	10.2	3.3

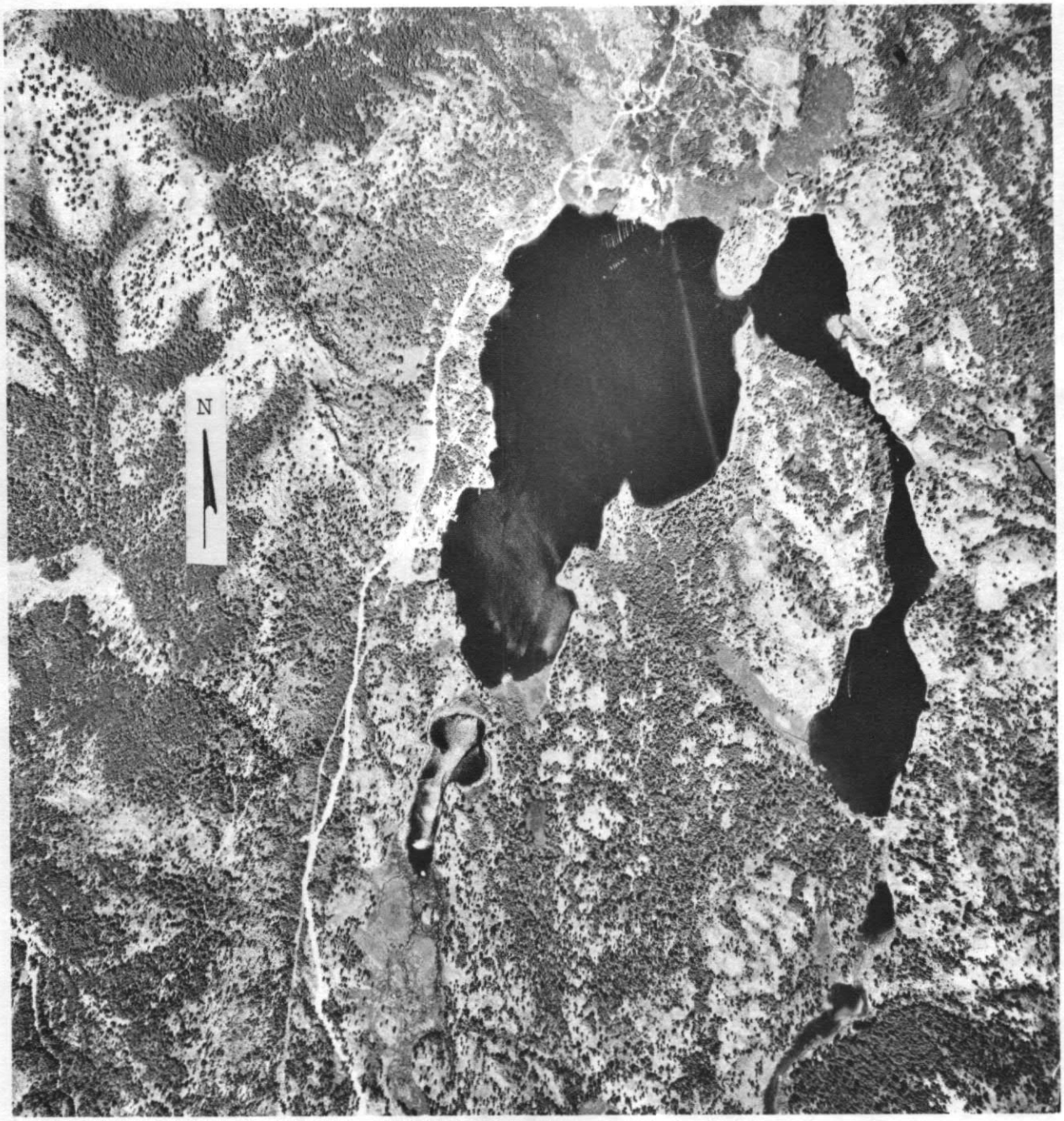
LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	7/ 2/74
TIME	1110
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 HAS STEEP ROCKY SHORES AND WAS ORIGINALLY USED AS A LOGGING AND POWER RESERVOIR. AN ALGAL BLOOM WAS OBSERVED.

Horseshoe Lake, Pend Oreille County. From Washington Department of Game, February 11, 1959.



Horseshoe Lake, Pend Oreille County. July 2, 1967. Approx. scale 1:12,000.

KENT MEADOWS LAKE PEND OREILLE COUNTY

LATITUDE 48*11'57" LONGITUDE 117*13'28" T31N-R44E-10
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.20 SQ MI	RESIDENTIAL DEVELOPMENT	10 %
ALTITUDE	2581. FT		
LAKE AREA	170. ACRES	NUMBER OF NEARSHORE HOMES	2
LAKE VOLUME	800. ACRE-FT		
MEAN DEPTH	5. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	10. FT		
SHORELINE LENGTH	2.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.47	AGRICULTURAL	2 %
BOTTOM SLOPE	0.33 %	FOREST OR UNPRODUCTIVE	76 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	22 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

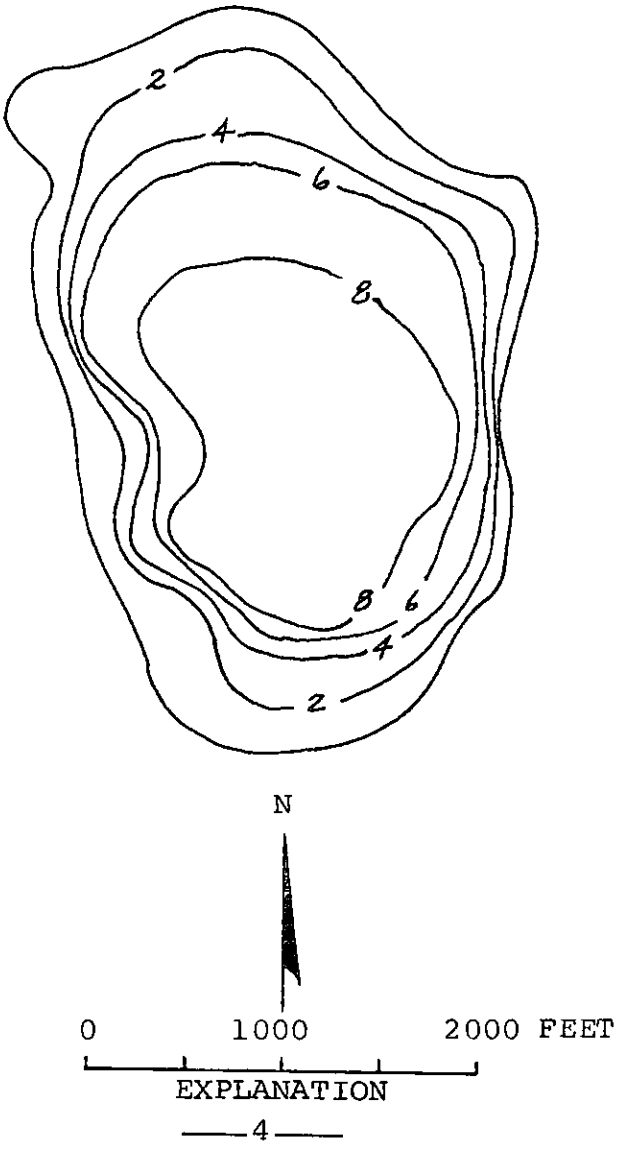
SAMPLE SITE	1	
DATE	7/ 3/74	
TIME	1125	1130
DEPTH (FT)	3.	10.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.01	0.04
TOTAL ORGANIC NITROGEN (N)	0.58	0.69
TOTAL PHOSPHORUS (P)	0.024	0.044
TOTAL ORTHOPHOSPHATE (P)	0.005	0.005
SPECIFIC CONDUCTANCE (MICROMHOS)	125	140
WATER TEMPERATURE (DEG C)	20.5	20.5
COLOR (PLATINUM-COBALT UNITS)	10	25
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	10.6	3.1

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	10- 25 %

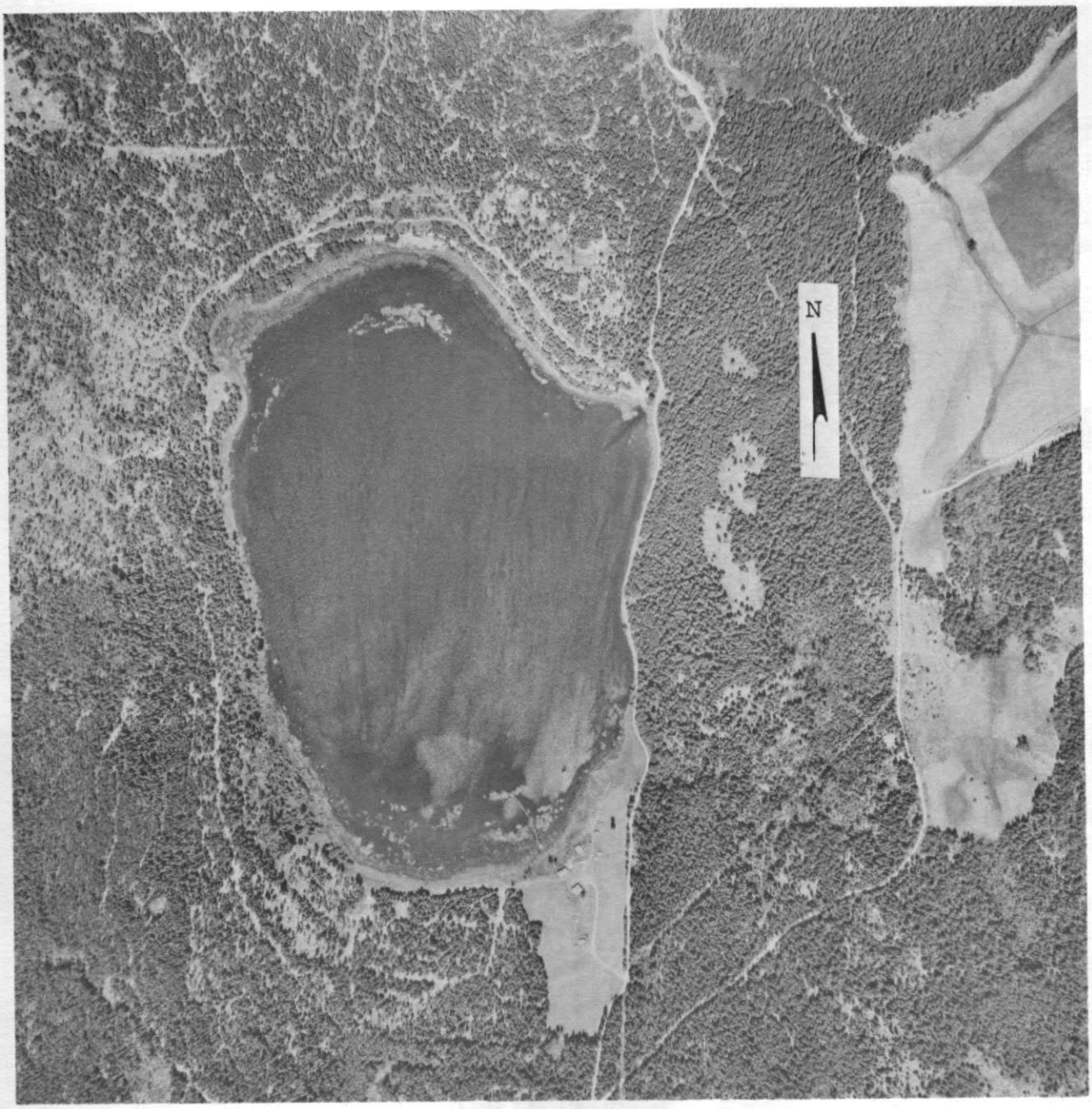
DATE	7/ 3/74
TIME	1140
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	5
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE LAKE WAS ORIGINALLY A MARSH BUT WAS INCREASED IN SIZE BY A DAM ABOUT 1959. FLOATING LOGS WERE OBSERVED ALONG THE WEST SHORELINE. THE LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (COONTAIL, PONDWEED, AND ELODEA). THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (CATTAIL AND SEDGE).



Kent Meadows Lake, Pend Oreille County. From U.S. Geological Survey, September 16, 1974.



Kent Meadows Lake, Pend Oreille County. July 27, 1967. Approx. scale 1:12,000.

KINGS LAKE PEND OREILLE COUNTY

LATITUDE 48*23'27" LONGITUDE 117*11'56" T33N-R44E-2
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.05 SQ MI	RESIDENTIAL DEVELOPMENT	8 %
ALTITUDE	3200. FT		
LAKE AREA	56. ACRES	NUMBER OF NEARSHORE HOMES	4
LAKE VOLUME	1500. ACRE-FT		
MEAN DEPTH	27. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	51. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.52	AGRICULTURAL	0 %
BOTTOM SLOPE	2.9 %	FOREST OR UNPRODUCTIVE	92 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	8 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

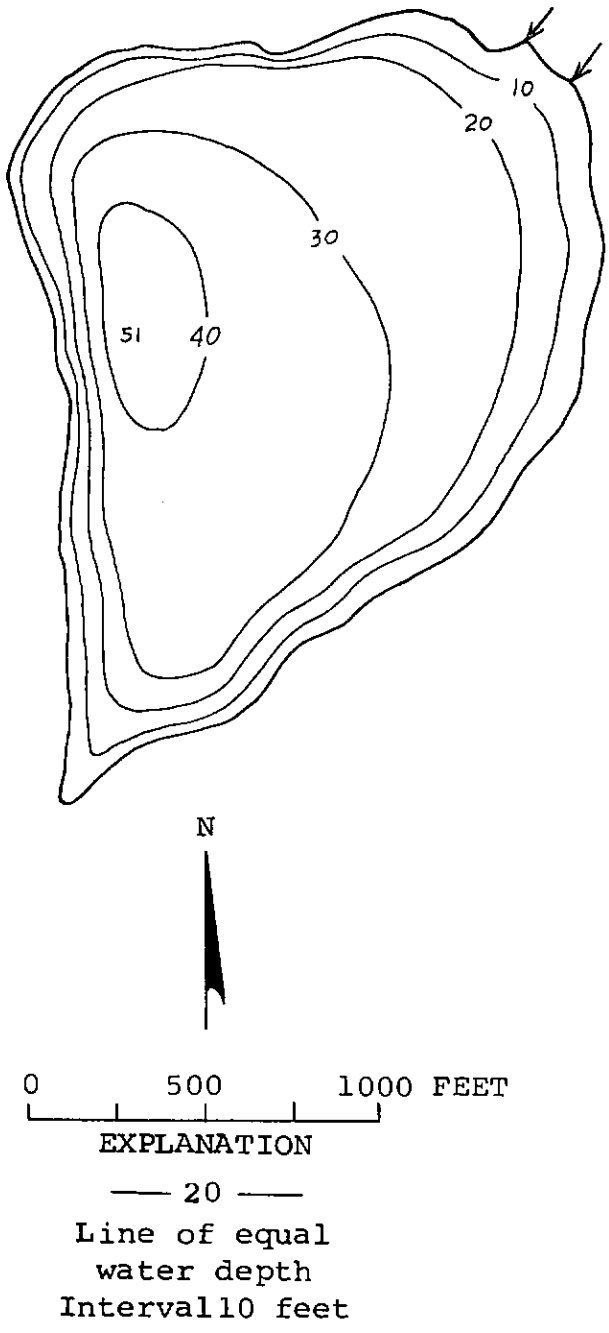
SAMPLE SITE	1	
DATE	7/10/74	
TIME	1610	1615
DEPTH (FT)	3.	39.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.01	0.02
TOTAL ORGANIC NITROGEN (N)	0.08	0.13
TOTAL PHOSPHORUS (P)	0.005	0.014
TOTAL ORTHOPHOSPHATE (P)	0.000	0.004
SPECIFIC CONDUCTANCE (MICROMHOS)	160	160
WATER TEMPERATURE (DEG C)	15.9	10.0
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	38	
DISSOLVED OXYGEN	9.9	12.3

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

DATE	7/10/74
TIME	1622
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

THERE IS A GIRL SCOUT CAMP ON THE WEST SHORE. FLOATING LOGS AND SNAGS WERE OBSERVED ALONG THE SHORELINE. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN.



Kings Lake, Pend Oreille County. From
Washington Department of Game, January 3, 1957.

Kings Lake, Pend Oreille County. July 27, 1967. Approx. scale 1:12,000.

LEDBETTER LAKE PEND OREILLE COUNTY

LATITUDE 48*55' 8" LONGITUDE 117*21' 6" T40N-R43E-34
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.48 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2575. FT		
LAKE AREA	23. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	230. ACRE-FT		
MEAN DEPTH	10. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	17. FT		
SHORELINE LENGTH	0.76 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.59	AGRICULTURAL	4 %
BOTTOM SLOPE	1.5 %	FOREST OR UNPRODUCTIVE	89 %
BASIN GEOLOGY	SED./META.	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	7/11/74	
TIME	1400	1405
DEPTH (FT)	3.	8.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.06	0.06
TOTAL ORGANIC NITROGEN (N)	0.51	0.49
TOTAL PHOSPHORUS (P)	0.009	0.007
TOTAL ORTHOPHOSPHATE (P)	0.003	0.001
SPECIFIC CONDUCTANCE (MICROMHOS)	300	300
WATER TEMPERATURE (DEG C)	19.3	19.3
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	>13	
DISSOLVED OXYGEN	9.0	9.0

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

DATE	7/11/74
TIME	1400
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 LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (CHARA). THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (SEDGE) IN A THIN MARGIN CLOSE TO SHORE.

Ledbetter Lake, Pend Oreille County. Bathymetric map
from U.S. Geological Survey, June 18, 1974.
Aerial photo, June 14, 1974.

LOST LAKE PEND OREILLE COUNTY

LATITUDE 48* 7'15" LONGITUDE 117*24'13" T30N-R43E-5
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	7.81 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2111. FT		
LAKE AREA	25. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	870. ACRE-FT		
MEAN DEPTH	35. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	94. FT		
SHORELINE LENGTH	1.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.37	AGRICULTURAL	1 %
BOTTOM SLOPE	8.0 %	FOREST OR UNPRODUCTIVE	98 %
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)

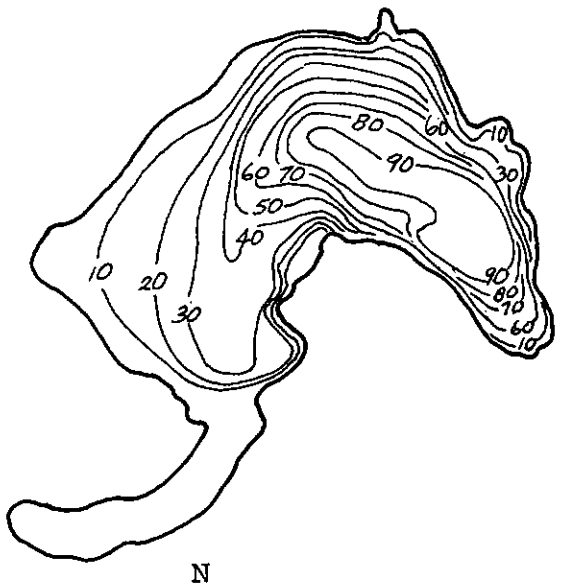
SAMPLE SITE	1	
DATE	7/ 3/74	
TIME	1005	1010
DEPTH (FT)	3.	85.
TOTAL NITRATE (N)	0.00	0.04
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.08	41.
TOTAL ORGANIC NITROGEN (N)	0.86	0.00
TOTAL PHOSPHORUS (P)	0.046	2.4
TOTAL ORTHOPHOSPHATE (P)	0.018	0.042
SPECIFIC CONDUCTANCE (MICROMHOS)	50	910
WATER TEMPERATURE (DEG C)	19.9	4.5
COLOR (PLATINUM-COBALT UNITS)	30	--
SECCHI-DISC VISIBILITY (FT)	3	
DISSOLVED OXYGEN	13.0	0.1

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

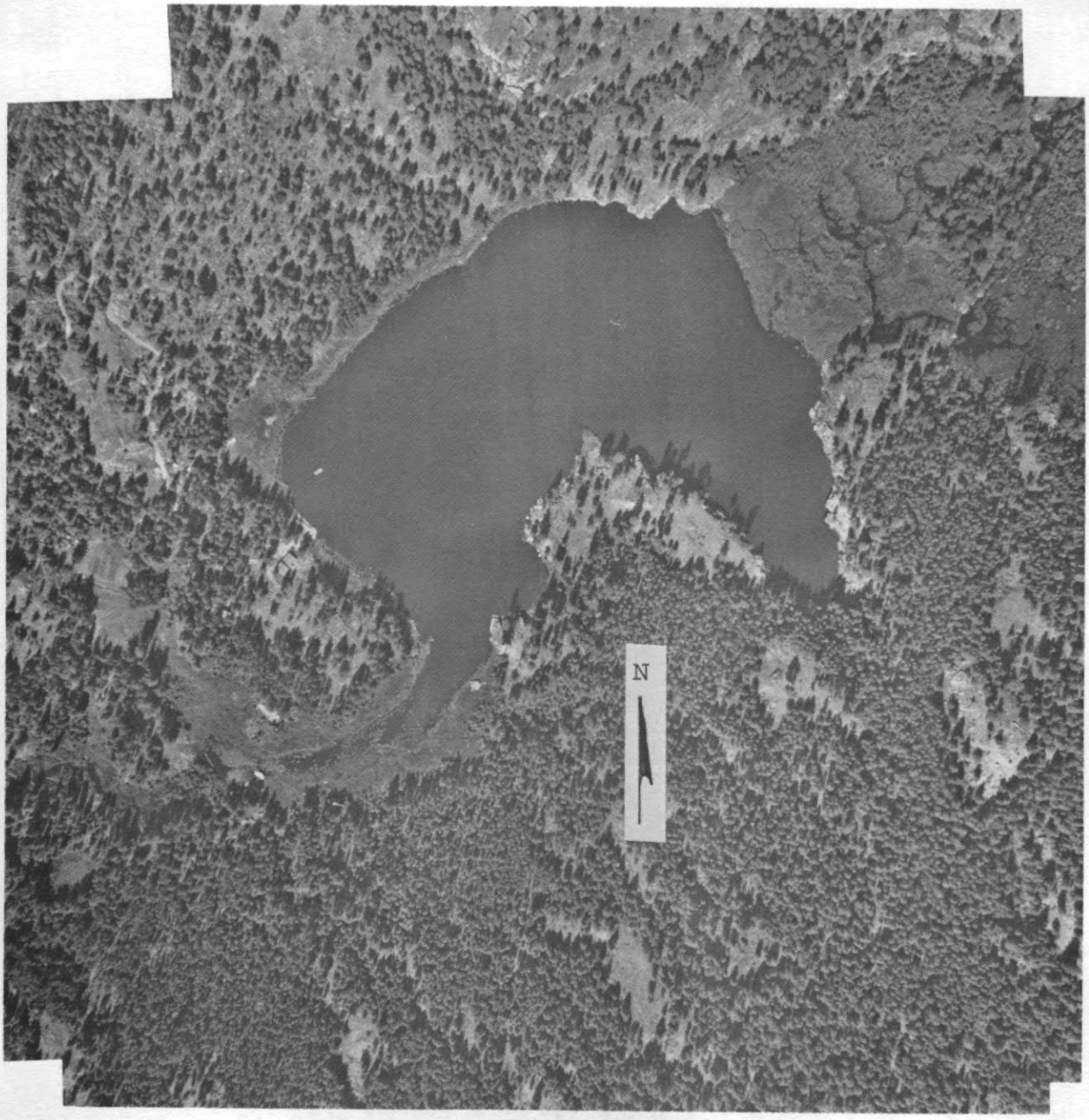
DATE	7/ 3/74
TIME	1030
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	5
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE LAKE IS AN ENLARGEMENT OF SPRING HEEL CREEK AND ADJOINS MARSH ON THE NORTHEAST SIDE. AN ALGAL BLOOM WAS OBSERVED. THE WATER FROM THE HYPOLIMNION EFFERVESCED CARBON DIOXIDE GAS; THE VERY DARK COLOR OF THE WATER PRECLUDED A DETERMINATION OF COLOR. VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED.



Lost Lake, Pend Oreille County. From
U.S. Geological Survey, September 16, 1974.



Lost Lake, Pend Oreille County. September 4, 1973. Approx. scale 1:5100.

MARSHALL LAKE PEND OREILLE COUNTY

LATITUDE 48*15'21" LONGITUDE 117* 4'29" T32N-R45E-23
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	4.82 SQ MI	RESIDENTIAL DEVELOPMENT	15 %
ALTITUDE	2724. FT		
LAKE AREA	190. ACRES	NUMBER OF NEARSHORE HOMES	25
LAKE VOLUME	13000. ACRE-FT		
MEAN DEPTH	67. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	92. FT		
SHORELINE LENGTH	3.4 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.73	AGRICULTURAL	0 %
BOTTOM SLOPE	2.8 %	FOREST OR UNPRODUCTIVE	94 %
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)

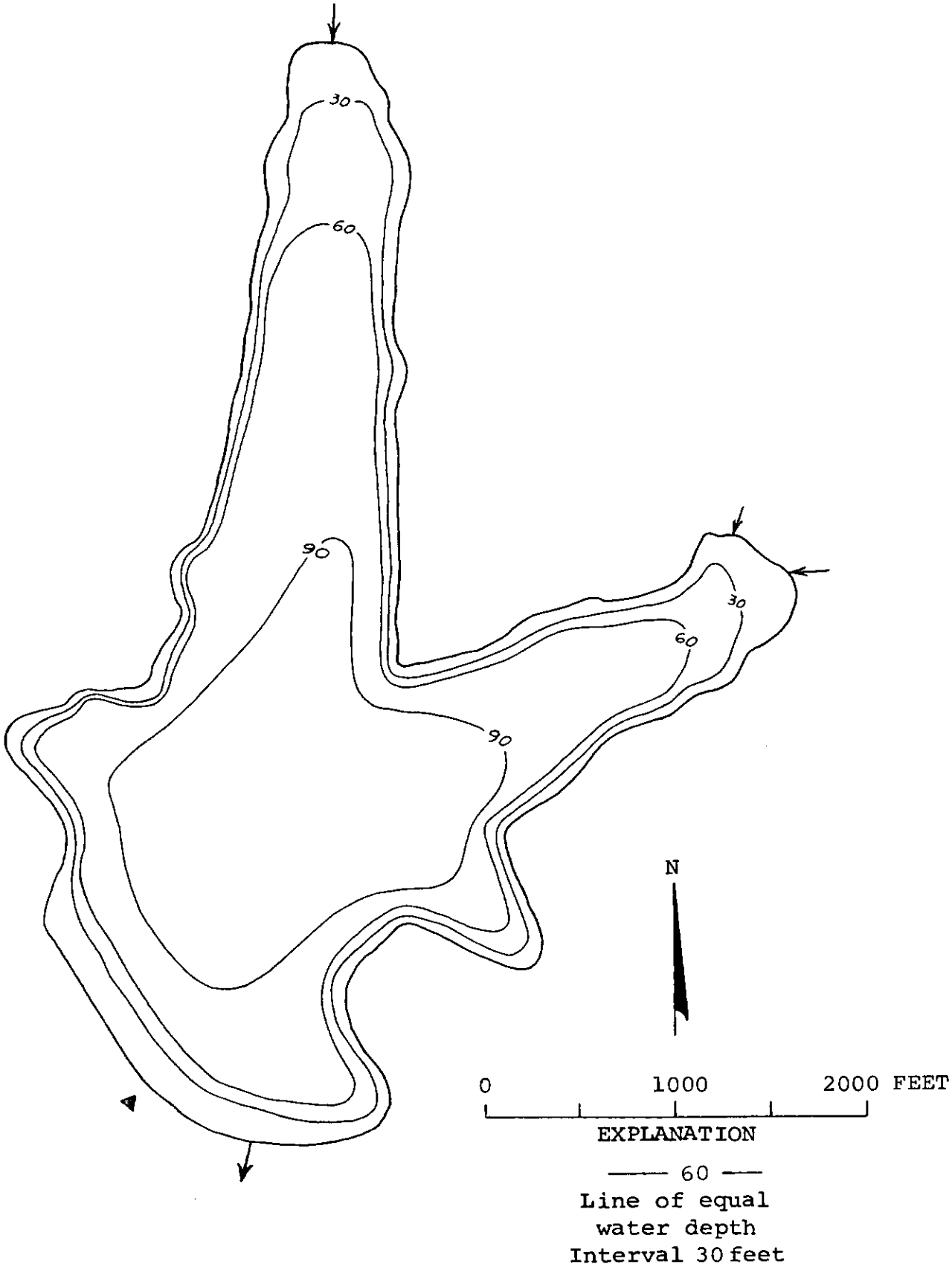
SAMPLE SITE	1	
DATE	7/10/74	
TIME	1155	1200
DEPTH (FT)	3.	89.
TOTAL NITRATE (N)	0.00	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.01	0.01
TOTAL ORGANIC NITROGEN (N)	0.15	0.14
TOTAL PHOSPHORUS (P)	0.004	0.009
TOTAL ORTHOPHOSPHATE (P)	0.001	0.000
SPECIFIC CONDUCTANCE (MICROMHOS)	46	55
WATER TEMPERATURE (DEG C)	18.6	4.1
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	33	
DISSOLVED OXYGEN	8.4	7.6

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

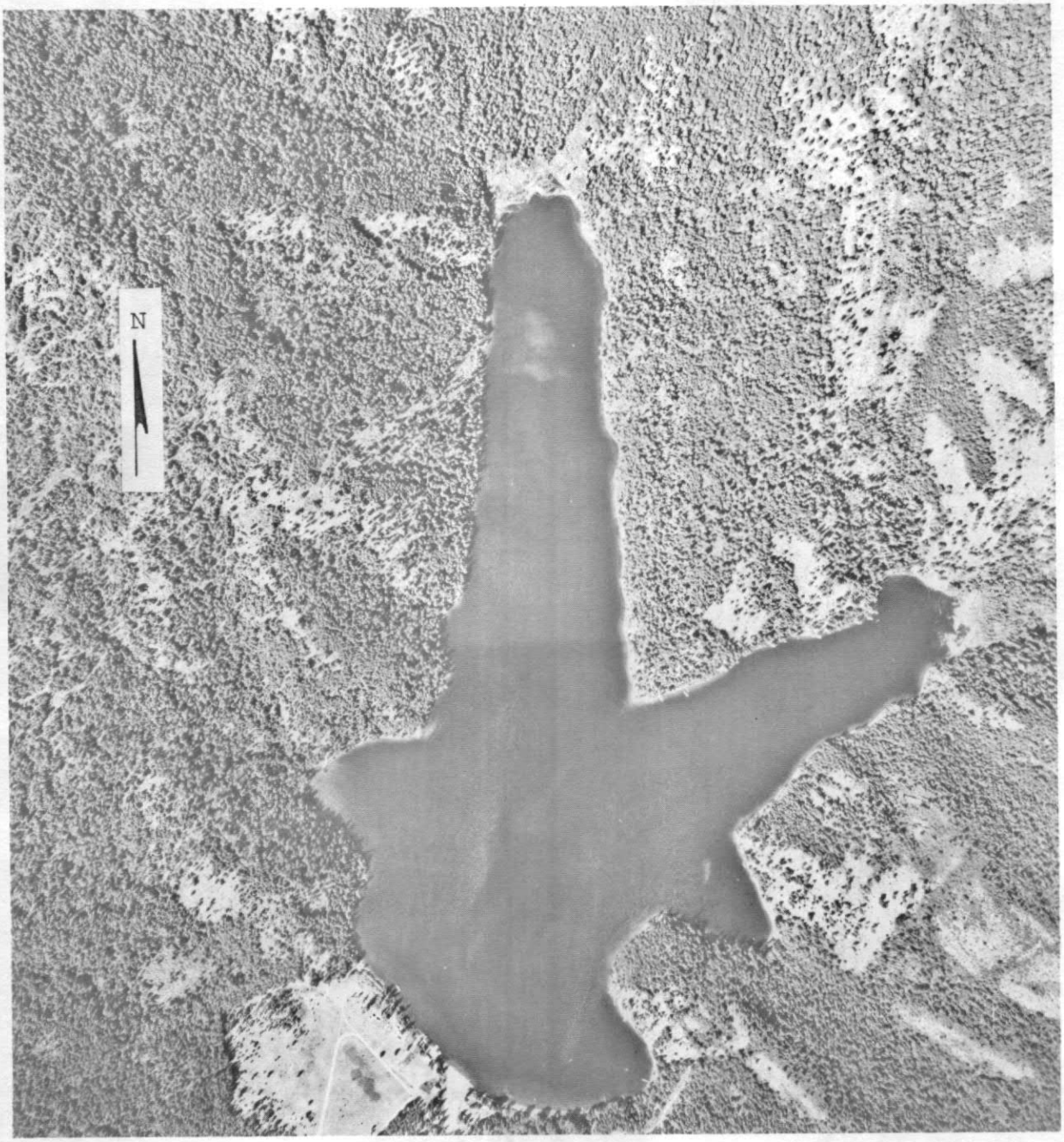
DATE	7/10/74
TIME	1212
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS STABILIZED BY A SMALL DAM. THE WATER IS USED FOR DOMESTIC PURPOSES. FLOATING AND SUBMERGED LOGS WERE OBSERVED ALONG THE SHORELINE. RECREATIONAL USE OF THE LAKE IS HEAVY. VERY FEW AQUATIC MACROPHYTES WERE OBSERVED.



Marshall Lake, Pend Oreille County. From
Washington Department of Game, February 15, 1951.



Marshall Lake, Pend Oreille County. July 27, 1967. Approx. scale 1:12,000.

MILL LAKE PEND OREILLE COUNTY

LATITUDE 48*51'32" LONGITUDE 117*18' 8" T39N-R43E-25
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	129. SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2514. FT		
LAKE AREA	66. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	1400. ACRE-FT		
MEAN DEPTH	21. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	51. FT		
SHORELINE LENGTH	1.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.42	AGRICULTURAL	0 %
BOTTOM SLOPE	2.7 %	FOREST OR UNPRODUCTIVE	98 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	2 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

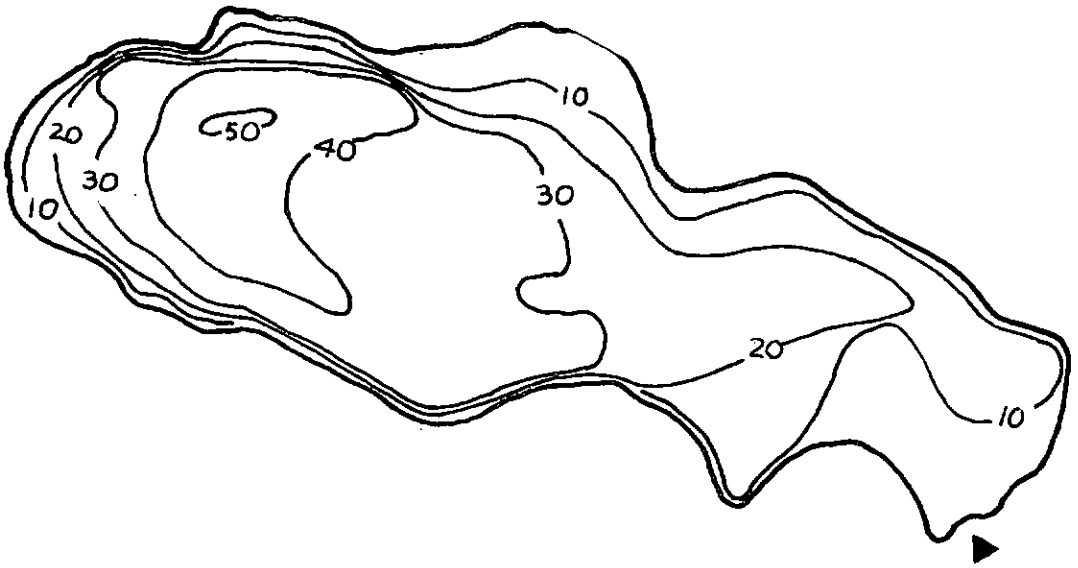
SAMPLE SITE	1	
DATE	7/11/74	
TIME	1230	1235
DEPTH (FT)	3.	13.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.05	0.06
TOTAL ORGANIC NITROGEN (N)	0.08	0.08
TOTAL PHOSPHORUS (P)	0.011	0.011
TOTAL ORTHOPHOSPHATE (P)	0.004	0.003
SPECIFIC CONDUCTANCE (MICROMHOS)	100	100
WATER TEMPERATURE (DEG C)	11.2	10.0
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	4	
DISSOLVED OXYGEN	9.6	9.8

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

DATE	7/11/74
TIME	1300
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE IS AN ARTIFICIAL PUBLIC-SUPPLY RESERVOIR ON SULLIVAN CREEK AND IS OPERATED BY THE PEND OREILLE COUNTY P.U.D. NUMEROUS FLOATING AND SUBMERGED LOGS WERE OBSERVED ALONG THE SHORELINE. THE LITTORAL BOTTOM IS SILT AND MUCK AND THE WATER WAS TURBID. VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED.



N

0 500 1000 FEET

EXPLANATION

—20—

Line of equal
water depth
Interval 10 feet

Mill Lake, Pend Oreille County. From
U.S. Geological Survey, June 18, 1974.

Mill Lake, Pend Oreille County. June 14, 1974. Approx. scale 1:6200.

NILE LAKE PEND OREILLE COUNTY

LATITUDE 48*39'28" LONGITUDE 117*28' 8" T37N-R42E-35
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	9.64 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3190. FT		
LAKE AREA	22. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	380. ACRE-FT		
MEAN DEPTH	17. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	28. FT		
SHORELINE LENGTH	0.79 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.61	AGRICULTURAL	0 %
BOTTOM SLOPE	2.5 %	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)

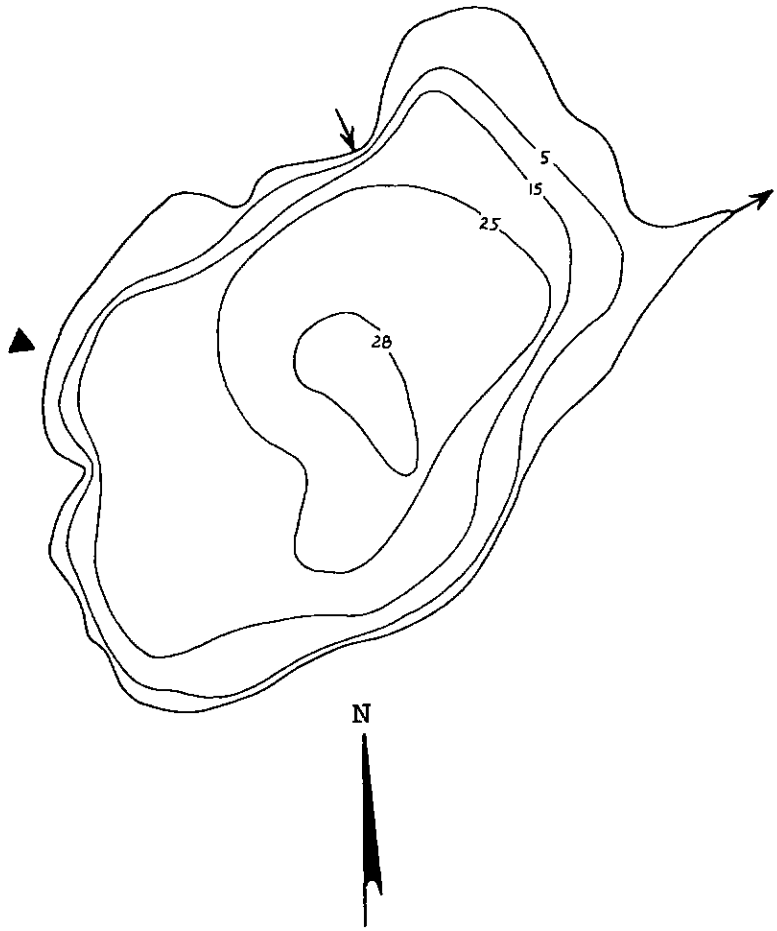
SAMPLE SITE	1	
DATE	7/ 9/74	
TIME	945	950
DEPTH (FT)	3.	23.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.06	0.07
TOTAL ORGANIC NITROGEN (N)	0.14	0.11
TOTAL PHOSPHORUS (P)	0.022	0.018
TOTAL ORTHOPHOSPHATE (P)	0.004	0.008
SPECIFIC CONDUCTANCE (MICROMHOS)	47	47
WATER TEMPERATURE (DEG C)	17.2	8.2
COLOR (PLATINUM-COBALT UNITS)	20	20
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	9.0	4.0

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

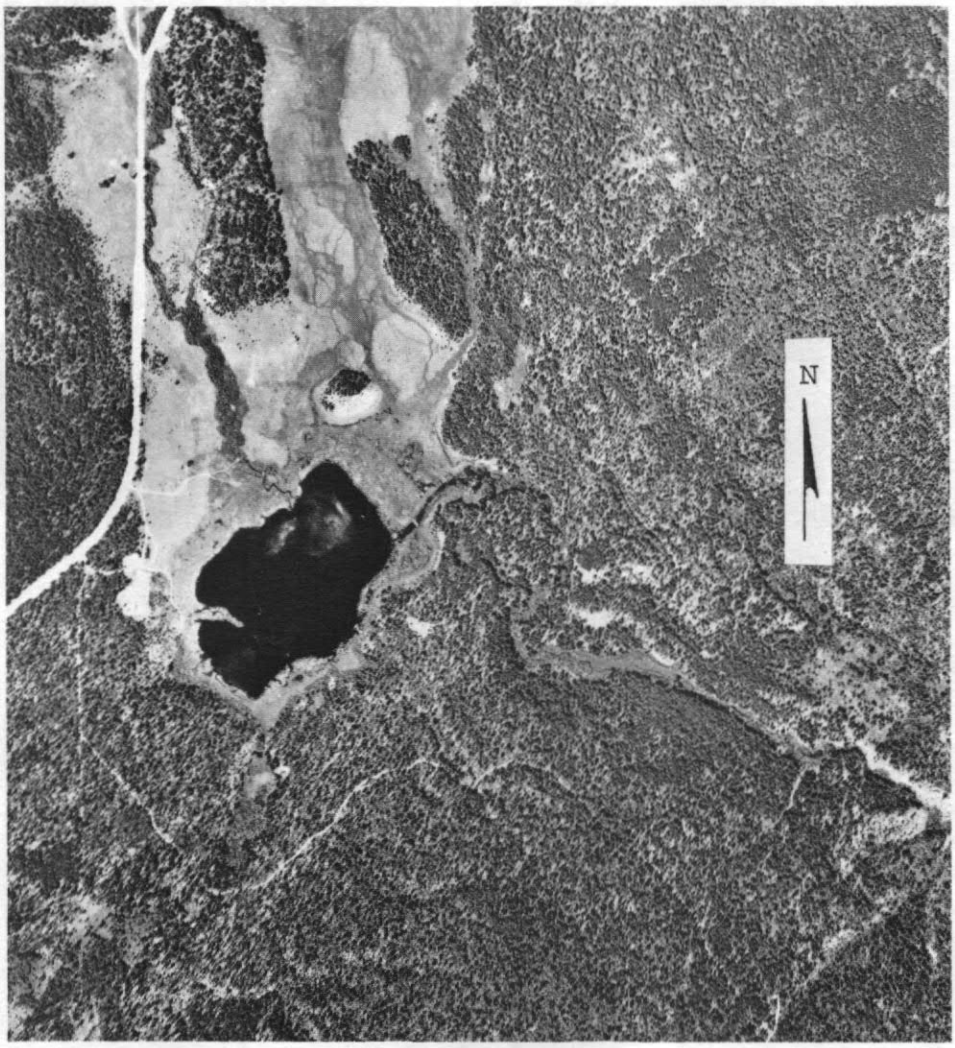
DATE	7/ 9/74
TIME	1000
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	7
FECAL COLIFORM, MAXIMUM (COL./100ML)	27
FECAL COLIFORM, MEAN (COL./100ML)	14

REMARKS

THE LAKE IS AN ENLARGEMENT OF LOST CREEK. THE LITTORAL BOTTOM IS SILT AND MUCK AND THE WATER IS COLORED BROWN. THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (WHITE LILY AND SEDGE) IN A THIN MARGIN CLOSE TO SHORE.



Nile Lake, Pend Oreille County. From
Washington Department of Game, date unknown.



Nile Lake, Pend Oreille County. July 2, 1967. Approx. scale 1:12,000.

PARKER LAKE PEND OREILLE COUNTY

LATITUDE 48°28'38" LONGITUDE 117°21'34" T34N-R43E-3
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	6.31 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2450. FT		
LAKE AREA	32. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	130. ACRE-FT		
MEAN DEPTH	4. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	8. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.50	AGRICULTURAL	0 %
BOTTOM SLOPE	0.60 %	FOREST OR UNPRODUCTIVE	99 %
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)

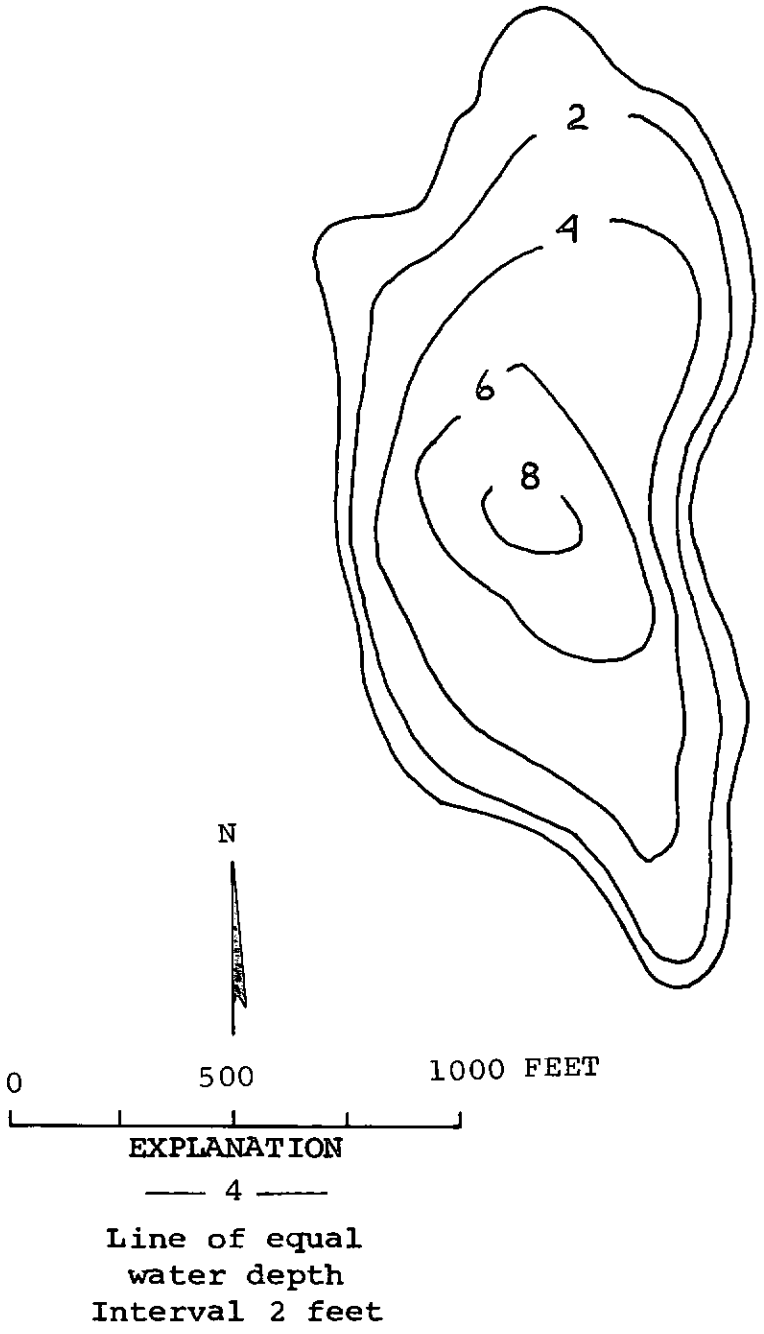
SAMPLE SITE	1	
DATE	7/11/74	
TIME	1515	1520
DEPTH (FT)	3.	5.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.09	0.10
TOTAL ORGANIC NITROGEN (N)	0.24	0.44
TOTAL PHOSPHORUS (P)	0.025	0.044
TOTAL ORTHOPHOSPHATE (P)	0.006	0.007
SPECIFIC CONDUCTANCE (MICROMHOS)	190	190
WATER TEMPERATURE (DEG C)	15.9	15.3
COLOR (PLATINUM-COBALT UNITS)	15	15
SECCHI-DISC VISIBILITY (FT)	6	
DISSOLVED OXYGEN	7.8	9.3

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

DATE	7/11/74
TIME	1527
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	10
FECAL COLIFORM, MEAN (COL./100ML)	6

REMARKS

THE LAKE IS AN ENLARGEMENT OF CUSICK CREEK AND ADJOINS MARSH ON THE NORTH SIDE. THE LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (COONTAIL, WATER MILFOIL, CHARA, AND PONDWEED). THE ENTIRE SHORELINE WAS COVERED WITH DENSE BEDS OF EMERSED AQUATIC PLANTS (CATTAIL, YELLOW LILY, AND SEDGE).



Parker Lake, Pend Oreille County. From
U.S. Geological Survey, October 3, 1974.

Parker Lake, Pend Oreille County. July 2, 1967. Approx. scale 1:12,000.

POWER LAKE PEND OREILLE COUNTY

LATITUDE 48*14'26" LONGITUDE 117*21'41" T32N-R43E-27
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	56.4 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2421. FT		
LAKE AREA	62. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	880. ACRE-FT		
MEAN DEPTH	14. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	36. FT		
SHORELINE LENGTH	2.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.39	AGRICULTURAL	0 %
BOTTOM SLOPE	1.9 %	FOREST OR UNPRODUCTIVE	100 %
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)

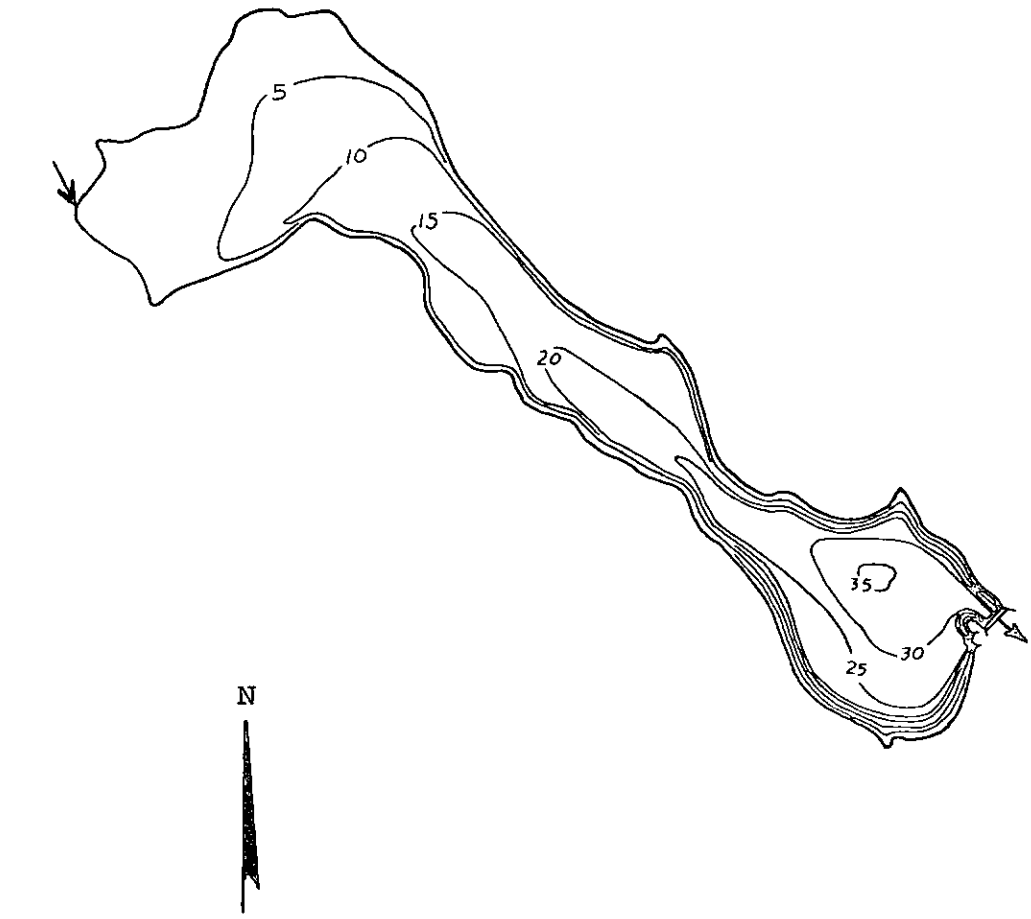
SAMPLE SITE	1	
DATE	7/ 3/74	
TIME	1410	1415
DEPTH (FT)	3.	26.
TOTAL NITRATE (N)	0.00	0.01
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.03	0.03
TOTAL ORGANIC NITROGEN (N)	0.11	0.06
TOTAL PHOSPHORUS (P)	0.017	0.017
TOTAL ORTHOPHOSPHATE (P)	0.005	0.007
SPECIFIC CONDUCTANCE (MICROMHOS)	35	35
WATER TEMPERATURE (DEG C)	16.1	6.0
COLOR (PLATINUM-COBALT UNITS)	15	20
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	8.8	5.4

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

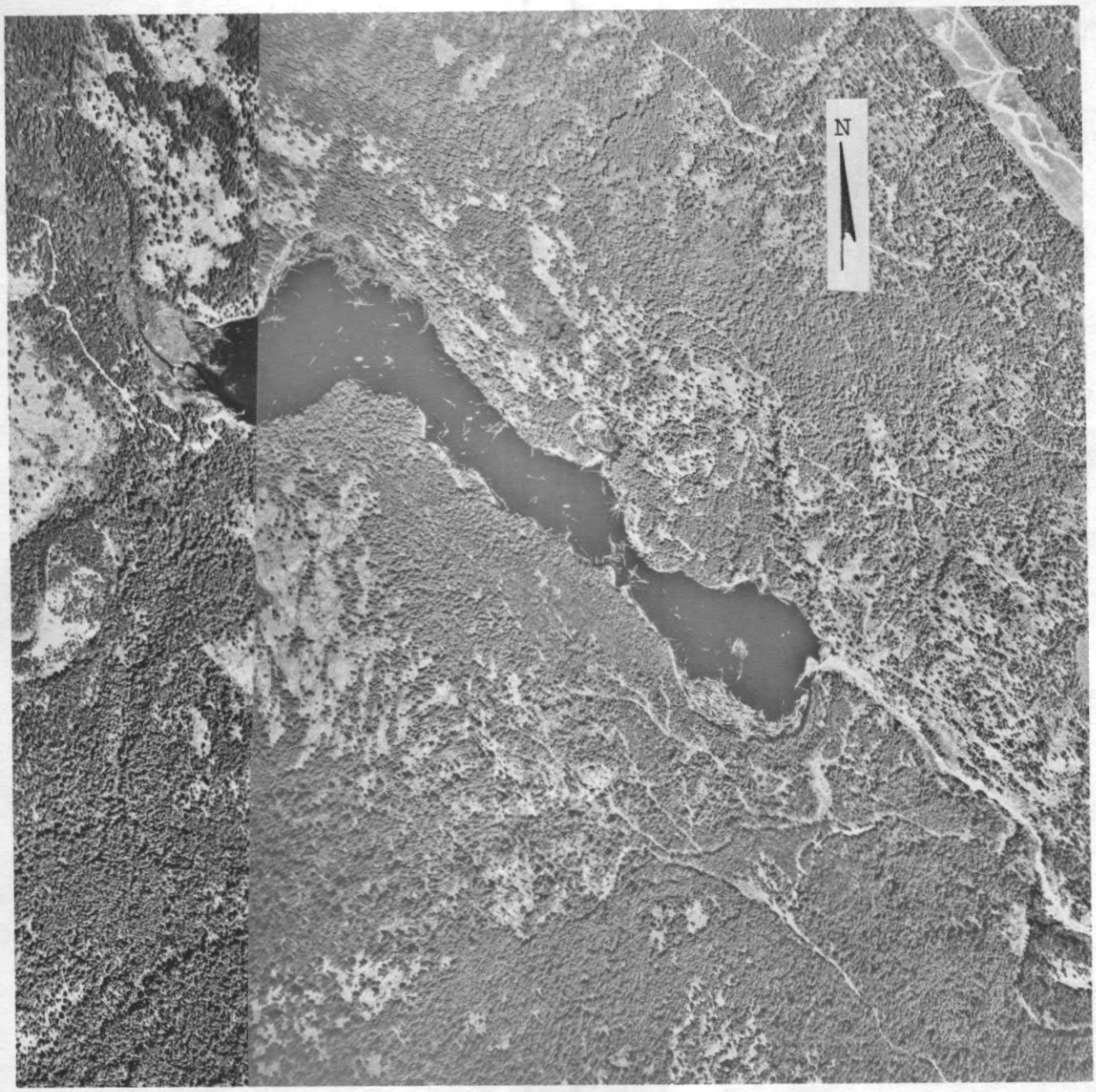
DATE	7/ 3/74
TIME	1430
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	6
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

THE LAKE IS AN ARTIFICIAL HYDROPOWER RESERVOIR ON NORTH FORK CALISPELL CREEK. THE RESERVOIR WAS BUILT ABOUT 1922 AND IS NOW OPERATED BY THE PEND OREILLE COUNTY P.U.D. VERY FEW AQUATIC MACROPHYTES WERE OBSERVED BUT FLOATING LOGS OCCURRED NEAR SHORE AND NUMEROUS DEAD TREES PROJECTED ABOVE THE WATER SURFACE.



Power Lake, Pend Oreille County. From
Washington Department of Game, December 30, 1956.



Power Lake, Pend Oreille County. July 2, 1967. Approx. scale 1:12,000.

SACHEEN LAKE PEND OREILLE COUNTY

LATITUDE 48* 8'47" LONGITUDE 117*20' 5" T31N-R43E-35
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	42.8 SQ MI	RESIDENTIAL DEVELOPMENT	67 %
ALTITUDE	2234. FT		
LAKE AREA	320. ACRES	NUMBER OF NEARSHORE HOMES	204
LAKE VOLUME	7600. ACRE-FT		
MEAN DEPTH	24. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	40. FT		
SHORELINE LENGTH	6.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.5	RESIDENTIAL SUBURBAN	1 %
DEVELOPMENT OF VOLUME	0.60	AGRICULTURAL	13 %
BOTTOM SLOPE	0.95 %	FOREST OR UNPRODUCTIVE	82 %
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)

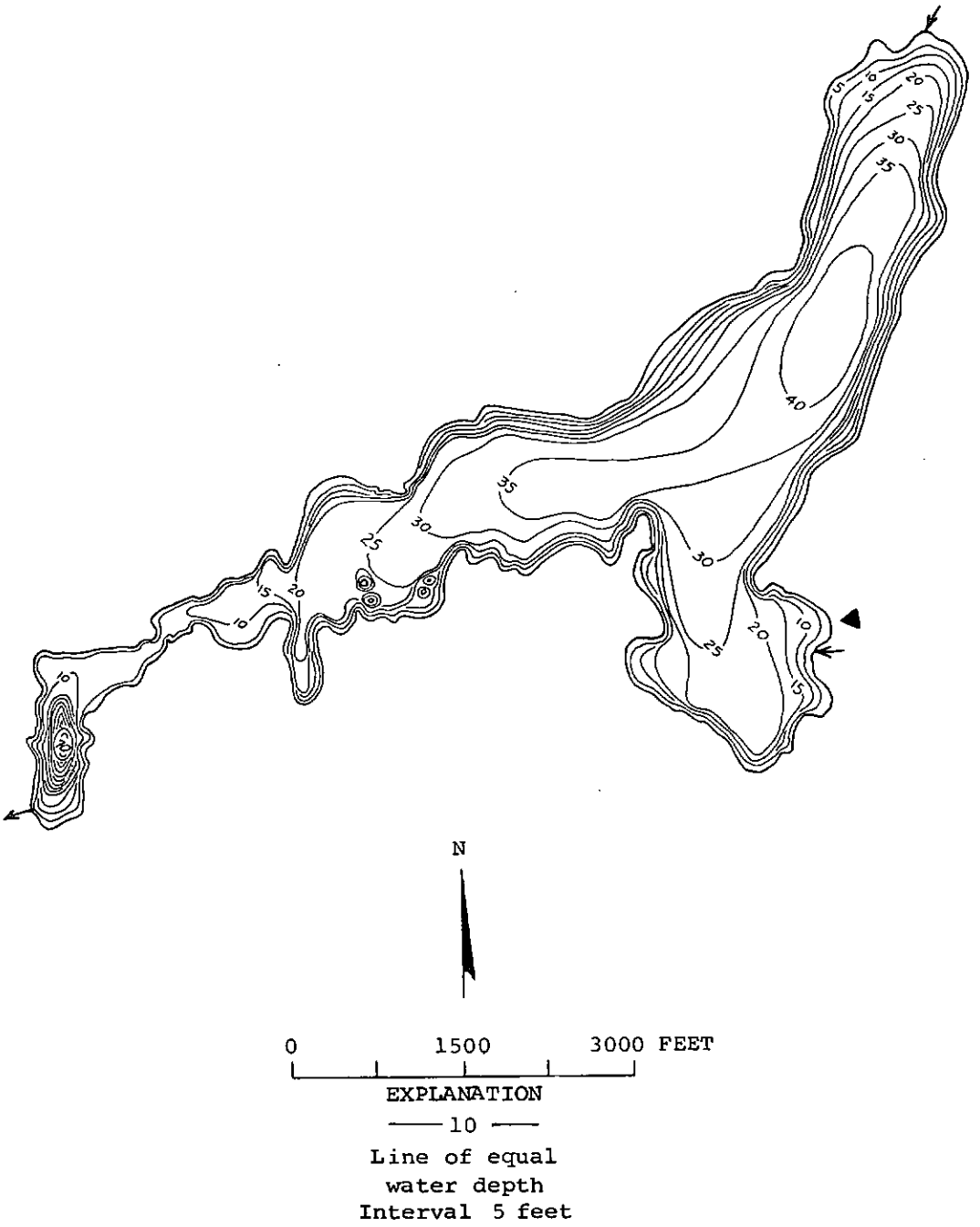
SAMPLE SITE	1		2	
DATE	7/ 2/74		7/ 2/74	
TIME	1220	1225	1345	1350
DEPTH (FT)	3.	39.	3.	56.
TOTAL NITRATE (N)	0.01	0.06	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01	0.01	0.01
TOTAL AMMONIA (N)	0.14	0.33	0.08	2.5
TOTAL ORGANIC NITROGEN (N)	0.30	0.37	0.41	0.30
TOTAL PHOSPHORUS (P)	0.017	0.20	0.018	0.74
TOTAL ORTHOPHOSPHATE (P)	0.005	0.17	0.004	0.73
SPECIFIC CONDUCTANCE (MICROMHOS)	75	80	70	145
WATER TEMPERATURE (DEG C)	20.0	8.0	20.4	4.2
COLOR (PLATINUM-COBALT UNITS)	40	75	35	60
SECCHI-DISC VISIBILITY (FT)	10		10	
DISSOLVED OXYGEN	8.1	0.0	8.1	0.1

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

DATE	7/ 2/74
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

THE LAKE IS STABILZIED BY A LOW DAM BUILT ABOUT 1922 AND RESIDENTIAL DEVELOPMENT IS EXTENSIVE. THERE ARE SEVERAL RESORTS AND RECREATIONAL USE OF THE LAKE IS HEAVY. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION AT SITE 2. THE U.S. GEOLOGICAL SURVEY HAS MONITORED THE LAKE STAGE SINCE 1954.



Sacheen Lake, Pend Oreille County. From
Washington Department of Game, March 4, 1957.

Sacheen Lake, Pend Oreille County. July 2, 1967. Approx. scale 1:15,000.

SCOTCHMAN LAKE PEND OREILLE COUNTY

LATITUDE 48°38' 9" LONGITUDE 117°19'18" T36N-R43E-12
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	19.2 SQ MI	RESIDENTIAL DEVELOPMENT	4 %
ALTITUDE	2475. FT		
LAKE AREA	53. ACRES	NUMBER OF NEARSHORE HOMES	2
LAKE VOLUME	2100. ACRE-FT		
MEAN DEPTH	40. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	110. FT		
SHORELINE LENGTH	1.8 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.35	AGRICULTURAL	0 %
BOTTOM SLOPE	6.5 %	FOREST OR UNPRODUCTIVE	100 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	<1 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

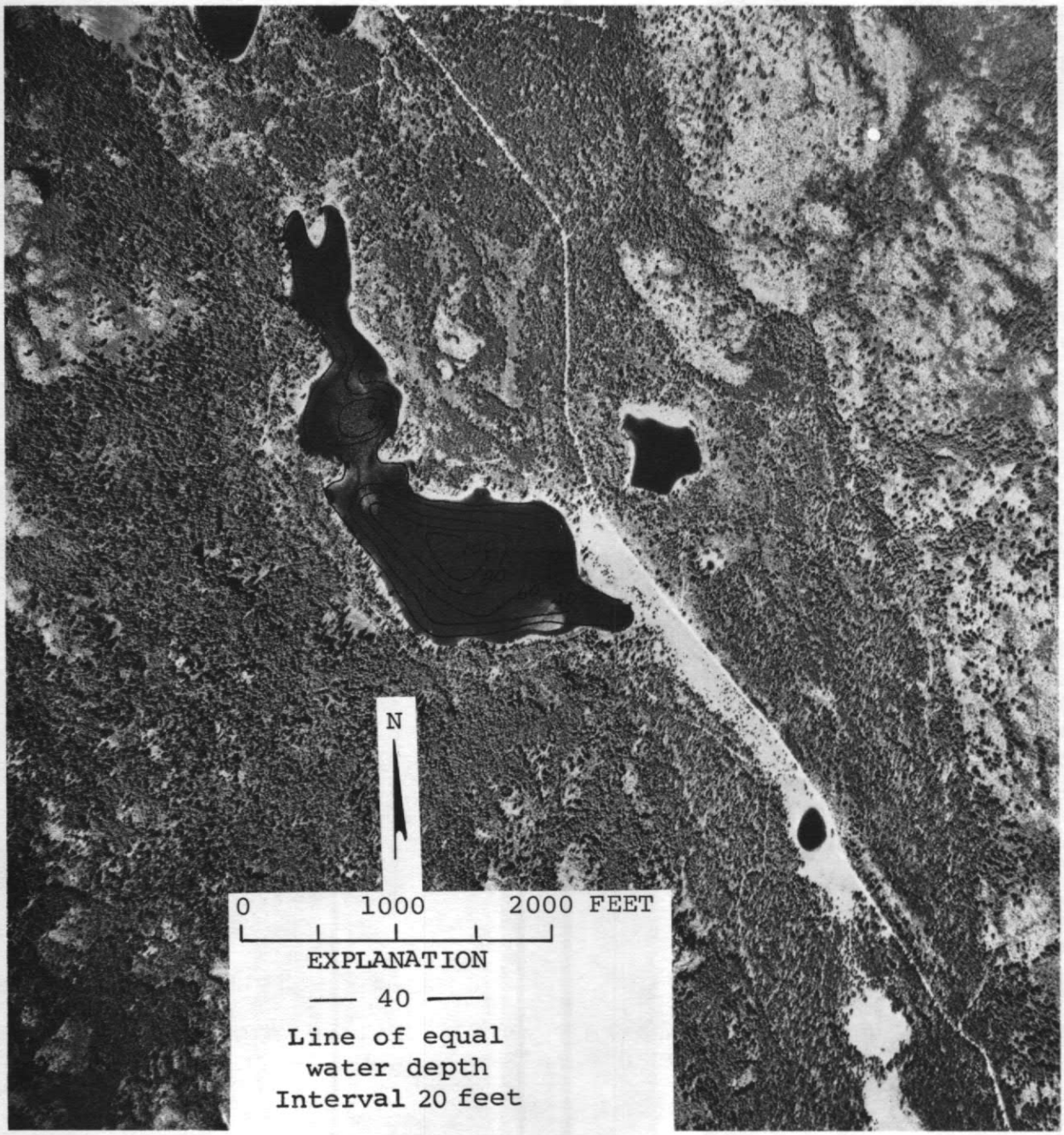
SAMPLE SITE	1	
DATE	7/ 9/74	
TIME	1130	1135
DEPTH (FT)	3.	102.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.02
TOTAL AMMONIA (N)	0.05	0.20
TOTAL ORGANIC NITROGEN (N)	0.06	0.09
TOTAL PHOSPHORUS (P)	0.006	0.007
TOTAL ORTHOPHOSPHATE (P)	0.002	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	85	150
WATER TEMPERATURE (DEG C)	15.1	7.0
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	33	
DISSOLVED OXYGEN	8.2	1.1

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

DATE	7/11/74
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 WATER WAS VERY CLEAR AS EVIDENCED BY THE SECCHI-DISC READING OF 33 FEET. NO AQUATIC MACROPHYTES WERE OBSERVED BUT FLOATING AND SUBMERGED LOGS WERE OBSERVED ALONG THE SHORELINE.



Scotchman Lake, Pend Oreille County. Bathymetric map
from U.S. Geological Survey, July 24, 1974.
Aerial photo, July 2, 1967.

SHEARER LAKE PEND OREILLE COUNTY

LATITUDE 48*13'42" LONGITUDE 117* 2'34" T32N-R46E-31
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.11 SQ MI	RESIDENTIAL DEVELOPMENT	11 %
ALTITUDE	2460. FT		
LAKE AREA	48. ACRES	NUMBER OF NEARSHORE HOMES	2
LAKE VOLUME	390. ACRE-FT		
MEAN DEPTH	8. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	16. FT		
SHORELINE LENGTH	1.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.51	AGRICULTURAL	2 %
BOTTOM SLOPE	0.98 %	FOREST OR UNPRODUCTIVE	94 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	4 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

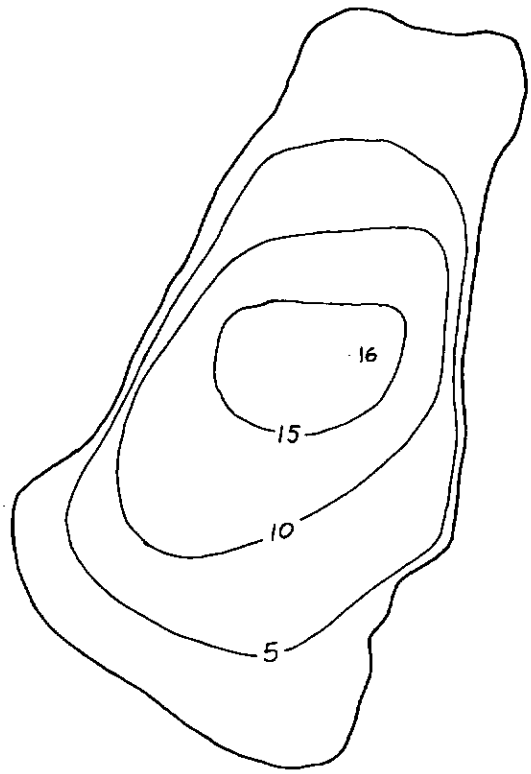
SAMPLE SITE	1	
DATE	7/ 3/74	
TIME	1400	1405
DEPTH (FT)	3.	13.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.08	0.04
TOTAL ORGANIC NITROGEN (N)	0.21	0.24
TOTAL PHOSPHORUS (P)	0.020	0.014
TOTAL ORTHOPHOSPHATE (P)	0.003	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	55	55
WATER TEMPERATURE (DEG C)	21.8	21.5
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	>16	
DISSOLVED OXYGEN	8.6	9.0

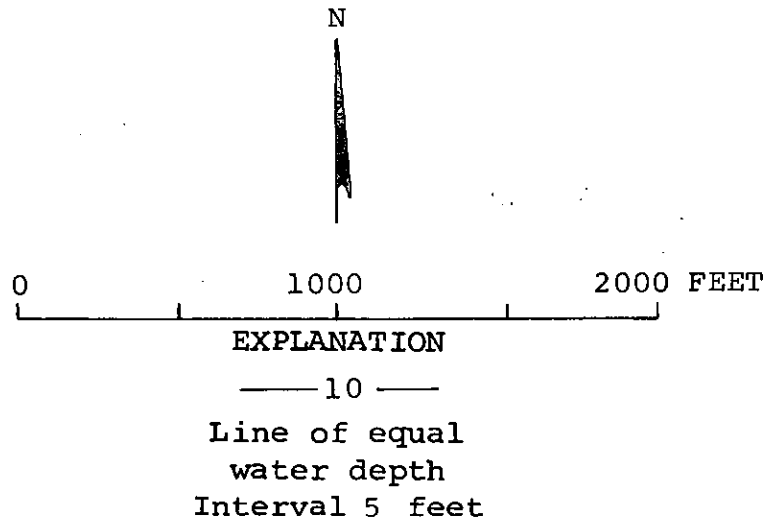
LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	7/ 3/74
TIME	1600
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 NEAR THE WASHINGTON-IDAHO STATE BOUNDARY. THE LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (PONDWEED).





Shearer Lake, Pend Oreille County. From Washington Department of Game, February 2, 1947.

Shearer Lake, Pend Oreille County. June 14, 1974. Approx. scale 1:4600.

SKOOKUM, SOUTH LAKE PEND OREILLE COUNTY

LATITUDE 48*23'24" LONGITUDE 117*10'53" T33N-R44E-1
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	6.04 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3529. FT		
LAKE AREA	33. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	300. ACRE-FT		
MEAN DEPTH	9. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	15. FT		
SHORELINE LENGTH	0.97 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.60	AGRICULTURAL	0 %
BOTTOM SLOPE	1.1 %	FOREST OR UNPRODUCTIVE	98 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	2 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

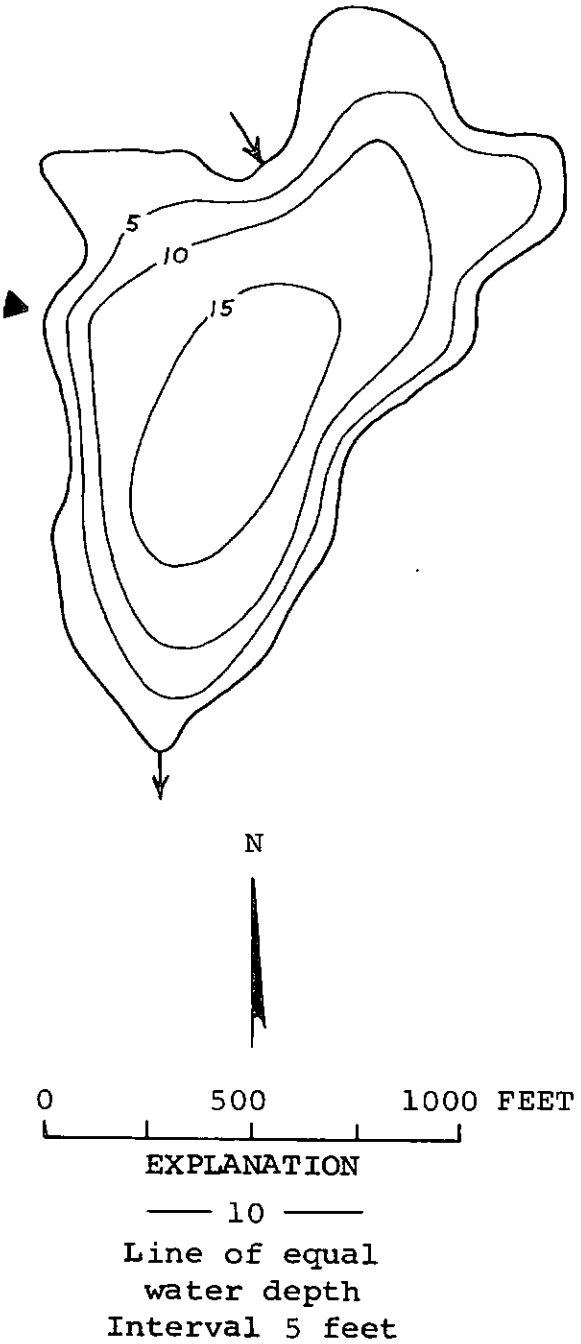
SAMPLE SITE	1	
DATE	7/10/74	
TIME	1650	1655
DEPTH (FT)	3.	13.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.05	0.14
TOTAL ORGANIC NITROGEN (N)	0.17	0.24
TOTAL PHOSPHORUS (P)	0.017	0.022
TOTAL ORTHOPHOSPHATE (P)	0.003	0.006
SPECIFIC CONDUCTANCE (MICROMHOS)	21	21
WATER TEMPERATURE (DEG C)	17.9	12.0
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	13	
DISSOLVED OXYGEN	8.6	11.6

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

DATE	7/10/74
TIME	1707
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

RECREATIONAL USE OF THE LAKE IS HEAVY. THE LITTORAL BOTTOM IS SILT AND MUCK BUT VERY FEW SUBMERSED AQUATIC MACROPHYTES WERE OBSERVED. THE ALGAL DENSITY WAS MODERATELY HIGH. FLOATING AND SUBMERGED LOGS OCCURRED ALONG THE SHORELINE.



Skookum, South Lake, Pend Oreille County. From Washington Department of Game, December 29, 1956.

Skookum, South Lake, Pend Oreille County.
September 4, 1973. Approx. scale 1:4800.

SULLIVAN LAKE PEND OREILLE COUNTY

LATITUDE 48°50'22" LONGITUDE 117°17'17" T39N-R44E-31
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	51.2 SQ MI	RESIDENTIAL DEVELOPMENT	4 %
ALTITUDE	2588. FT		
LAKE AREA	1400. ACRES	NUMBER OF NEARSHORE HOMES	4
LAKE VOLUME	270000. ACRE-FT		
MEAN DEPTH	190. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	330. FT		
SHORELINE LENGTH	8.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.58	AGRICULTURAL	0 %
BOTTOM SLOPE	3.8 %	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)

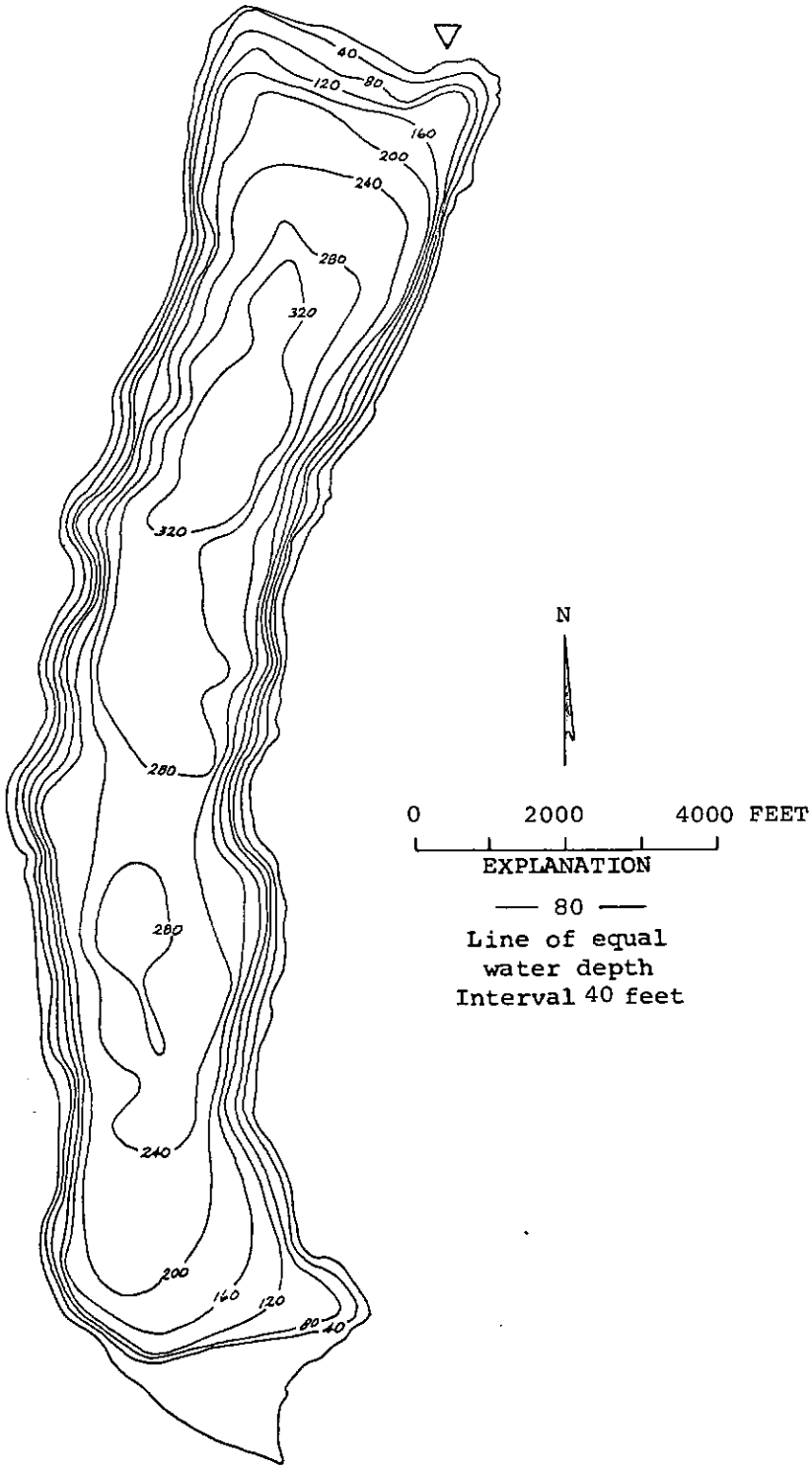
SAMPLE SITE	1		2	
DATE	7/12/74		7/12/74	
TIME	1030	1035	1130	1135
DEPTH (FT)	3.	285.	3.	246.
TOTAL NITRATE (N)	0.01	0.02	0.01	0.02
TOTAL NITRITE (N)	0.00	0.00	0.00	0.00
TOTAL AMMONIA (N)	0.05	0.03	0.05	0.03
TOTAL ORGANIC NITROGEN (N)	0.07	0.07	0.06	0.05
TOTAL PHOSPHORUS (P)	0.007	0.007	0.006	0.021
TOTAL ORTHOPHOSPHATE (P)	0.003	0.000	0.000	0.001
SPECIFIC CONDUCTANCE (MICROMHOS)	75	75	75	75
WATER TEMPERATURE (DEG C)	15.8	4.0	16.0	4.0
COLOR (PLATINUM-COBALT UNITS)	5	5	5	5
SECCHI-DISC VISIBILITY (FT)	16		21	
DISSOLVED OXYGEN	9.2	--	9.0	--

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

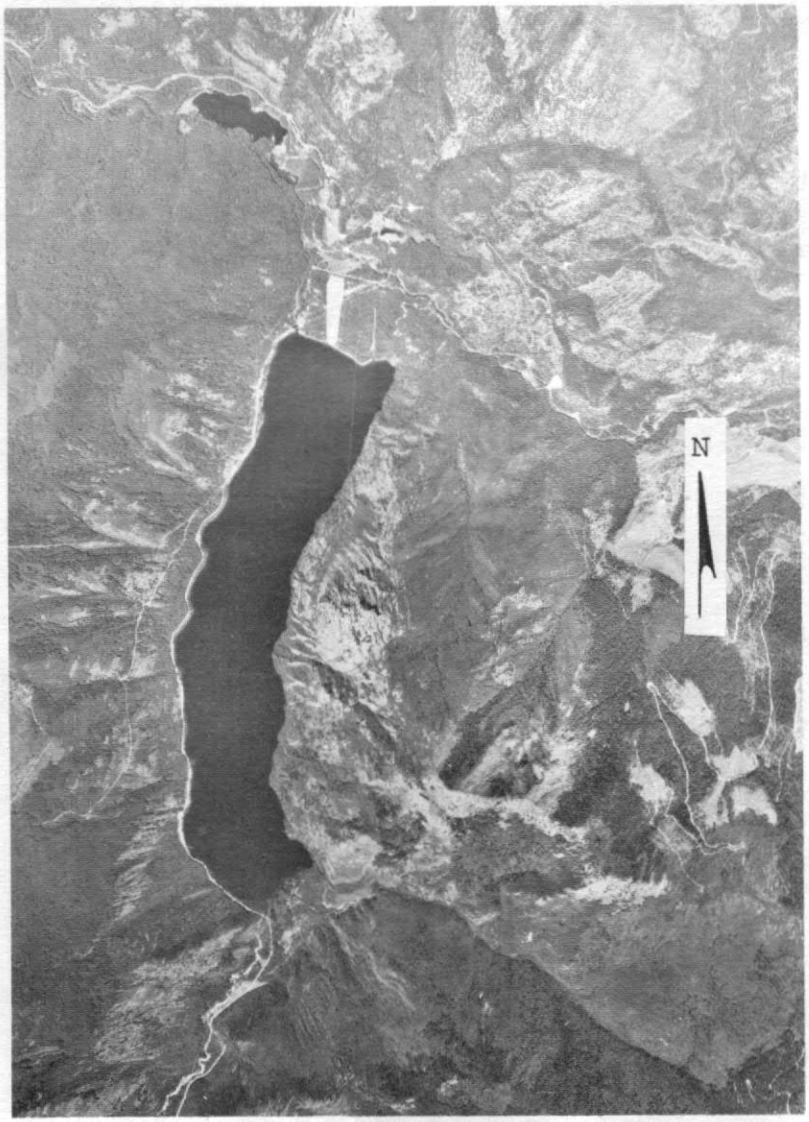
DATE	7/12/74
TIME	1140
NUMBER OF FECAL COLIFORM SAMPLES	5
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

AN ARTIFICIAL PUBLIC-SUPPLY RESERVOIR OPERATED BY THE PEND OREILLE COUNTY P.U.D. THERE ARE CAMPGROUNDS AT BOTH THE NORTH AND SOUTH ENDS OF THE LAKE. NO AQUATIC MACROPHYTES WERE OBSERVED. THE DEPTH OF THE BOTTOM SAMPLES FROM BOTH STATIONS PRECLUDED DETERMINATIONS OF DO. THE U.S. GEOLOGICAL SURVEY HAS MONITORED LAKE STAGE SINCE 1959.



Sullivan Lake, Pend Oreille County. From
U.S. Geological Survey, July 24, 1974.



Sullivan Lake, Pend Oreille County. July 2, 1968. Approx. scale 1:60,000

TRASK LAKE PEND OREILLE COUNTY

LATITUDE 48* 3'50" LONGITUDE 117* 2'33" T30N-R46E-30
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	25.6 SQ MI	RESIDENTIAL DEVELOPMENT	3 %
ALTITUDE	2250. FT		
LAKE AREA	44. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	140. ACRE-FT		
MEAN DEPTH	3. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	5. FT		
SHORELINE LENGTH	1.4 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.66	AGRICULTURAL	12 %
BOTTOM SLOPE	0.32 %	FOREST OR UNPRODUCTIVE	88 %
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)

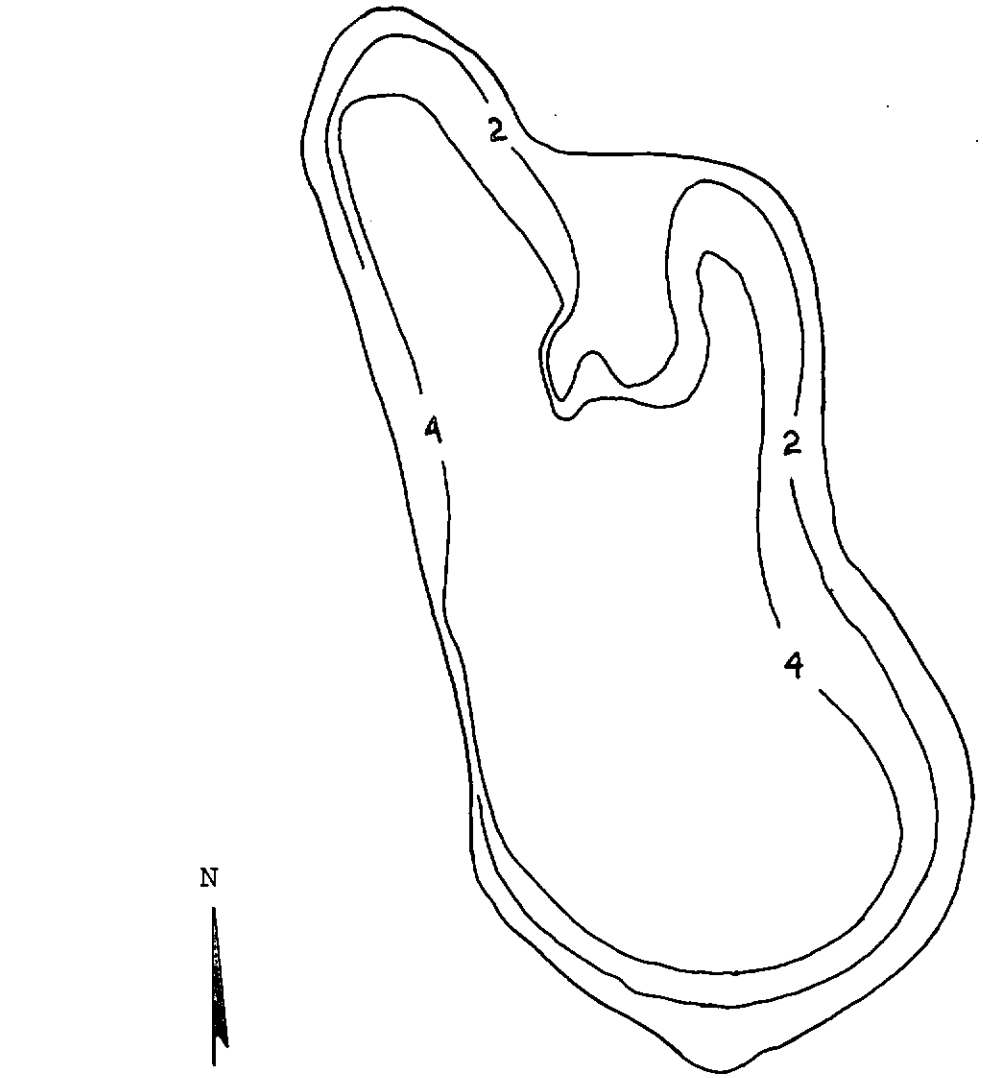
SAMPLE SITE	1	
DATE	7/ 3/74	
TIME	1500	1505
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.04	0.08
TOTAL ORGANIC NITROGEN (N)	0.90	0.74
TOTAL PHOSPHORUS (P)	0.042	0.044
TOTAL ORTHOPHOSPHATE (P)	0.016	0.008
SPECIFIC CONDUCTANCE (MICROMHOS)	75	75
WATER TEMPERATURE (DEG C)	21.5	21.0
COLOR (PLATINUM-COBALT UNITS)	40	40
SECCHI-DISC VISIBILITY (FT)	> 4	
DISSOLVED OXYGEN	5.8	5.4

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

DATE	7/ 3/74
TIME	1510
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	30
FECAL COLIFORM, MEAN (COL./100ML)	13

REMARKS

THE LAKE IS NEAR THE WASHINGTON-IDAHO STATE BOUNDARY AND SUPPORTS A LARGE WATERFOWL POPULATION. THE LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (PONDWEED AND WATER MILFOIL). THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (WATER SHIELD, CATTAIL, AND SEDGE). APPROXIMATELY 80 PERCENT OF THE LAKE SURFACE WAS COVERED WITH WATER SHIELD.



Trask Lake, Pend Oreille County. From
U.S. Geological Survey, June 18, 1974.

Trask Lake, Pend Oreille County. June 14, 1974. Approx. scale 1:4800.

TROUT LAKE PEND OREILLE COUNTY

LATITUDE 48* 7' 2" LONGITUDE 117*22'22" T30N-R43E-9
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	47.3 SQ MI	RESIDENTIAL DEVELOPMENT	5 %
ALTITUDE	2208. FT		
LAKE AREA	96. ACRES	NUMBER OF NEARSHORE HOMES	2
LAKE VOLUME	4200. ACRE-FT		
MEAN DEPTH	43. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	180. FT		
SHORELINE LENGTH	1.8 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	1 %
DEVELOPMENT OF VOLUME	0.25	AGRICULTURAL	12 %
BOTTOM SLOPE	7.6 %	FOREST OR UNPRODUCTIVE	83 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	4 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

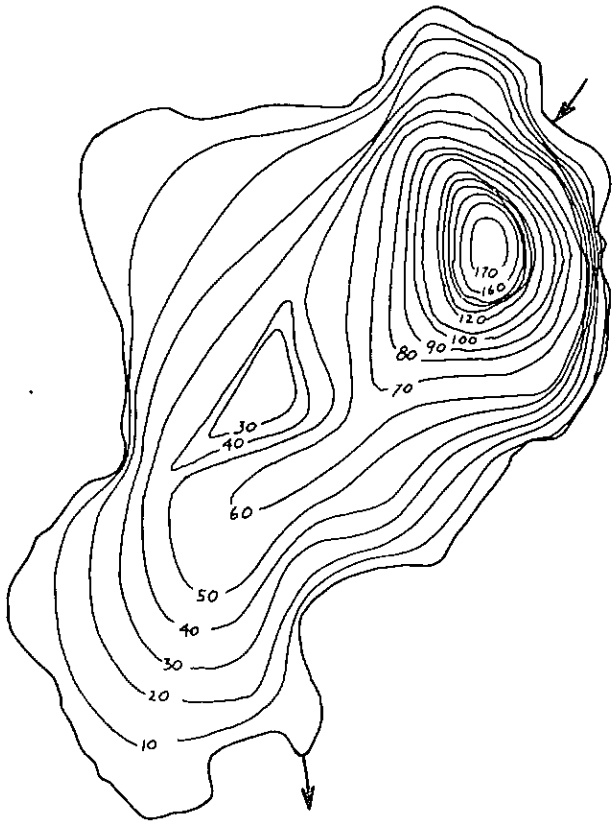
SAMPLE SITE	1	
DATE	7/ 2/74	
TIME	1440	1445
DEPTH (FT)	3.	164.
TOTAL NITRATE (N)	0.00	0.21
TOTAL NITRITE (N)	0.01	0.03
TOTAL AMMONIA (N)	0.03	250.
TOTAL ORGANIC NITROGEN (N)	0.34	20.
TOTAL PHOSPHORUS (P)	0.016	4.6
TOTAL ORTHOPHOSPHATE (P)	0.003	0.025
SPECIFIC CONDUCTANCE (MICROMHOS)	70	3750
WATER TEMPERATURE (DEG C)	21.4	4.9
COLOR (PLATINUM-COBALT UNITS)	30	--
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	7.3	0.1

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

DATE	7/ 2/74
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 ADJOINS MARSHY AREAS ON THE NORTHEAST AND NORTHWEST SIDES. THE WATER FROM THE HYPOLIMNION EFFERVESCED CARBON DIOXIDE GAS; THE VERY DARK COLOR OF THE WATER PRECLUDED A DETERMINATION OF COLOR.



N

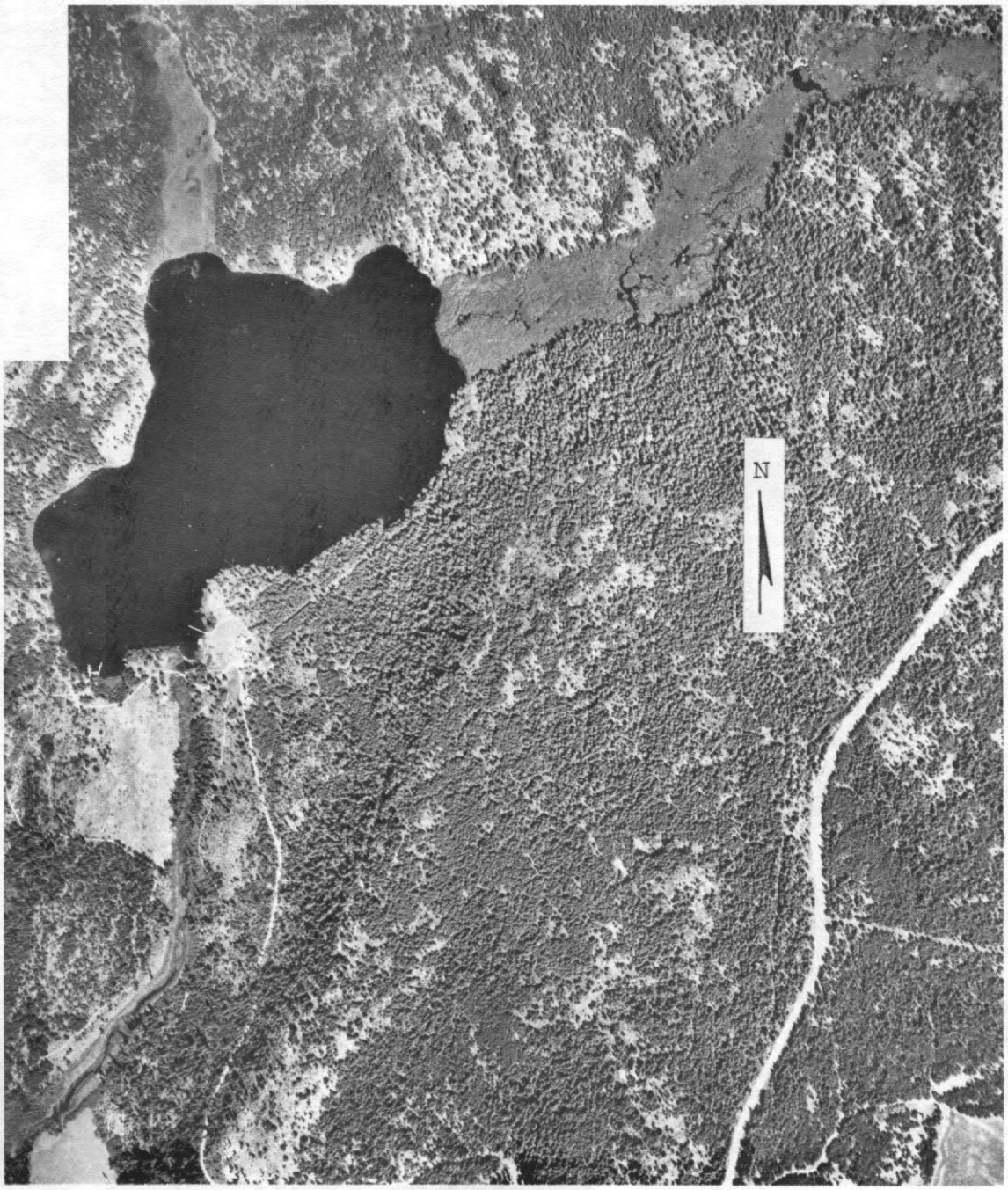
0 1000 2000 FEET

EXPLANATION

— 20 —

Line of equal water depth Interval10 feet

Trout Lake, Pend Oreille County. From Washington Department of Game, February 24, 1959.



Trout Lake, Pend Oreille County. July 2, 1967. Approx. scale 1:12,000.

YOCUM LAKE PEND OREILLE COUNTY

LATITUDE 48°36'30" LONGITUDE 117°19'42" T36N-R43E-23
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.66 SQ MI	RESIDENTIAL DEVELOPMENT	1 %
ALTITUDE	2940. FT		
LAKE AREA	47. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	1400. ACRE-FT		
MEAN DEPTH	29. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	60. FT		
SHORELINE LENGTH	1.7 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.49	AGRICULTURAL	0 %
BOTTOM SLOPE	3.7 %	FOREST OR UNPRODUCTIVE	89 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	11 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

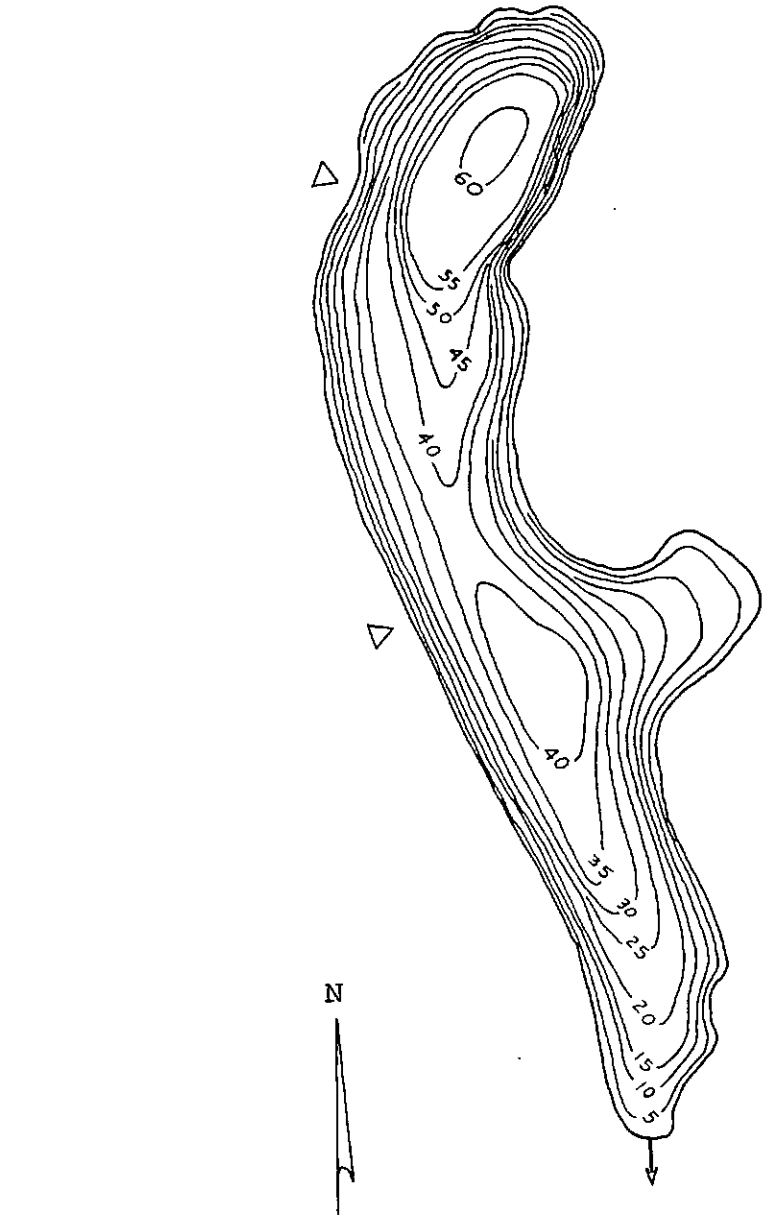
SAMPLE SITE	1	
DATE	7/11/74	
TIME	1350	1355
DEPTH (FT)	3.	36.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.06	0.16
TOTAL ORGANIC NITROGEN (N)	0.27	0.35
TOTAL PHOSPHORUS (P)	0.007	0.031
TOTAL ORTHOPHOSPHATE (P)	0.002	0.003
SPECIFIC CONDUCTANCE (MICROMHOS)	130	160
WATER TEMPERATURE (DEG C)	18.4	6.8
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	21	
DISSOLVED OXYGEN	8.5	0.4

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

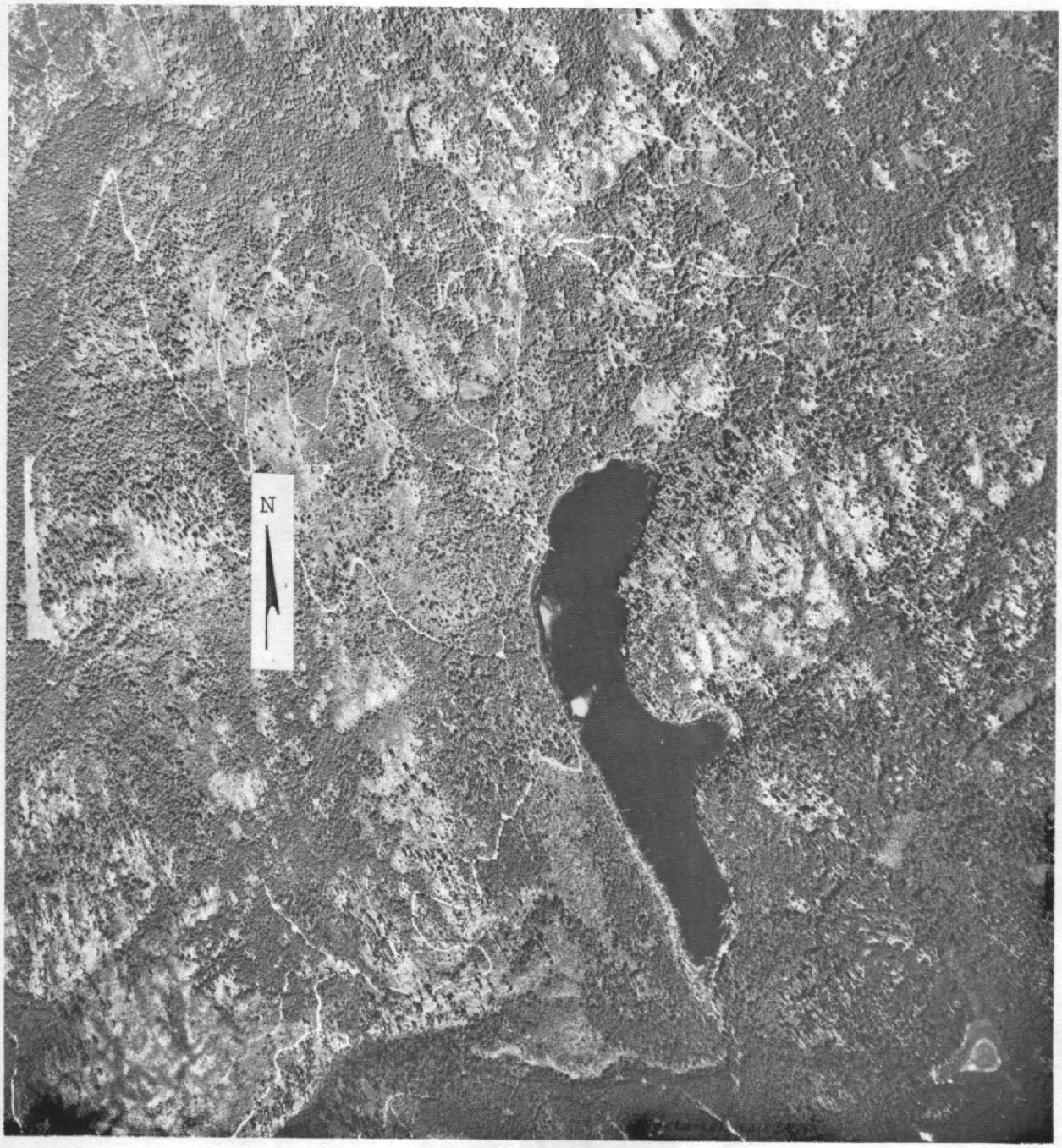
DATE	7/11/74
TIME	1407
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	5
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

FLOATING AND SUBMERGED LOGS WERE OBSERVED ALONG THE SHORELINE. THE LITTORAL BOTTOM IS SILT AND MUCK BUT VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED.



Yocum Lake, Pend Oreille County. From Washington Department of Game, December 31, 1956.



Yocum Lake, Pend Oreille County. July 2, 1967. Approx. scale 1:12,000.

ALKALI LAKE SPOKANE COUNTY

LATITUDE 47*22'20" LONGITUDE 117*42'25" T22N-R40E-25
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.36 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2275. FT		
LAKE AREA	99. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	590. ACRE-FT		
MEAN DEPTH	6. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	9. FT		
SHORELINE LENGTH	2.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.65	AGRICULTURAL	89 %
BOTTOM SLOPE	0.38 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	11 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

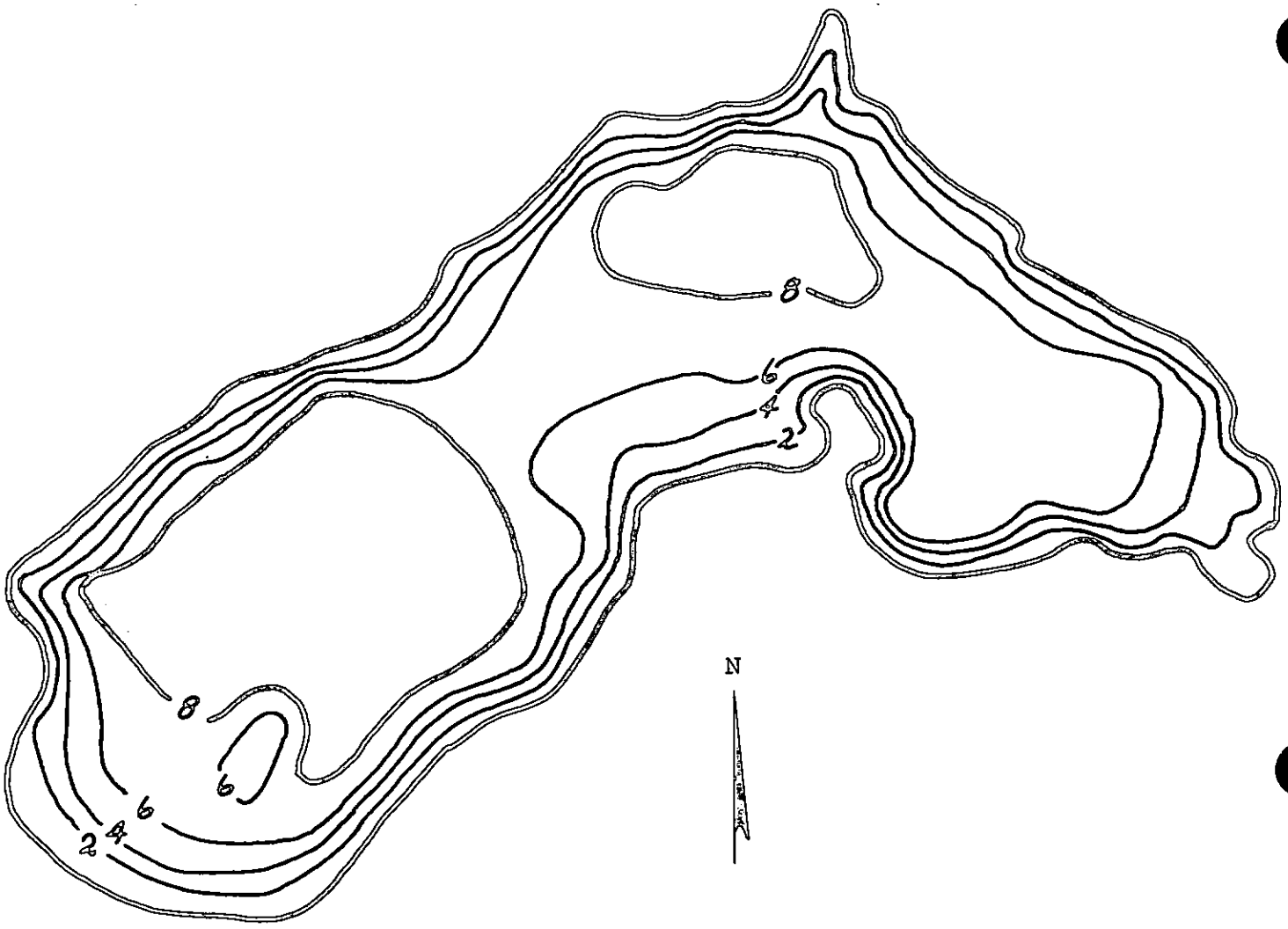
SAMPLE SITE	1	
DATE	6/26/74	
TIME	1245	1250
DEPTH (FT)	3.	5.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.17	0.17
TOTAL ORGANIC NITROGEN (N)	3.1	3.2
TOTAL PHOSPHORUS (P)	0.087	0.086
TOTAL ORTHOPHOSPHATE (P)	0.023	0.021
SPECIFIC CONDUCTANCE (MICROMHOS)	1200	1200
WATER TEMPERATURE (DEG C)	20.0	20.0
COLOR (PLATINUM-COBALT UNITS)	80	80
SECCHI-DISC VISIBILITY (FT)	2	
DISSOLVED OXYGEN	9.8	9.5

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

DATE	6/26/74
TIME	1302
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	26
FECAL COLIFORM, MEAN (COL./100ML)	11

REMARKS

AN ALGAL BLOOM WAS OBSERVED. THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (RUSHES AND SEDGE) BUT VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED.



Alkali Lake, Spokane County. From
U.S. Geological Survey, May 14, 1974.

Alkali Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

AMBER LAKE SPOKANE COUNTY

LATITUDE 47°20'35" LONGITUDE 117°43'15" T21N-R40E-2
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.56 SQ MI	RESIDENTIAL DEVELOPMENT	5 %
ALTITUDE	2160. FT		
LAKE AREA	120. ACRES	NUMBER OF NEARSHORE HOMES	4
LAKE VOLUME	200. ACRE-FT		
MEAN DEPTH	17. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	40. FT		
SHORELINE LENGTH	4.4 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.9	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.42	AGRICULTURAL	93 %
BOTTOM SLOPE	1.6 %	FOREST OR UNPRODUCTIVE	<1 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	7 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

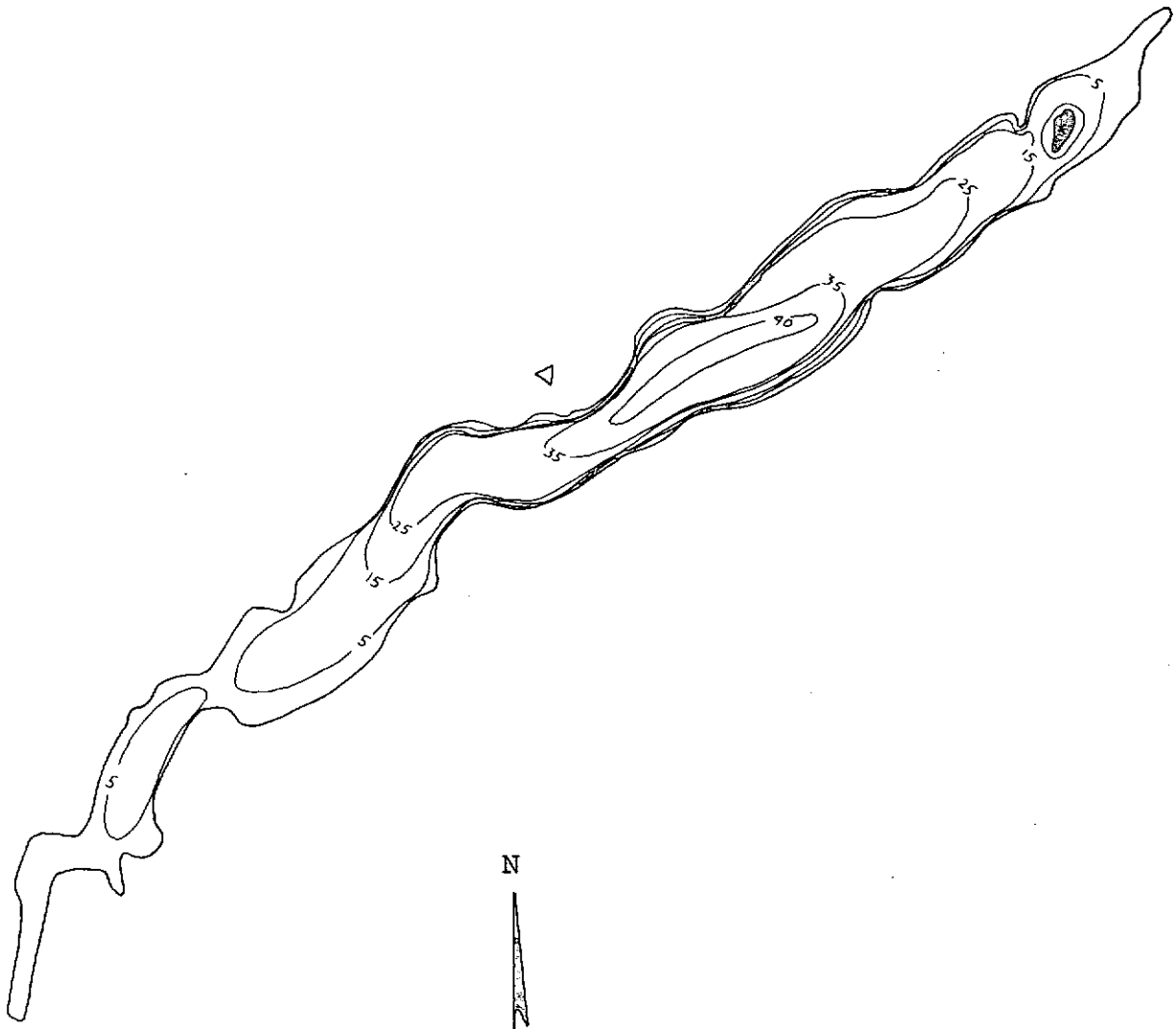
SAMPLE SITE	1	
DATE	7/10/73	
TIME	1010	1020
DEPTH (FT)	3.	33.
TOTAL NITRATE (N)	0.02	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.10	0.11
TOTAL ORGANIC NITROGEN (N)	3.9	0.10
TOTAL PHOSPHORUS (P)	0.030	0.054
DISSOLVED ORTHOPHOSPHATE (P)	0.002	0.018
SPECIFIC CONDUCTANCE (MICROMHOS)	260	272
WATER TEMPERATURE (DEG C)	21.0	14.7
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	18	
DISSOLVED OXYGEN	9.0	0.1

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

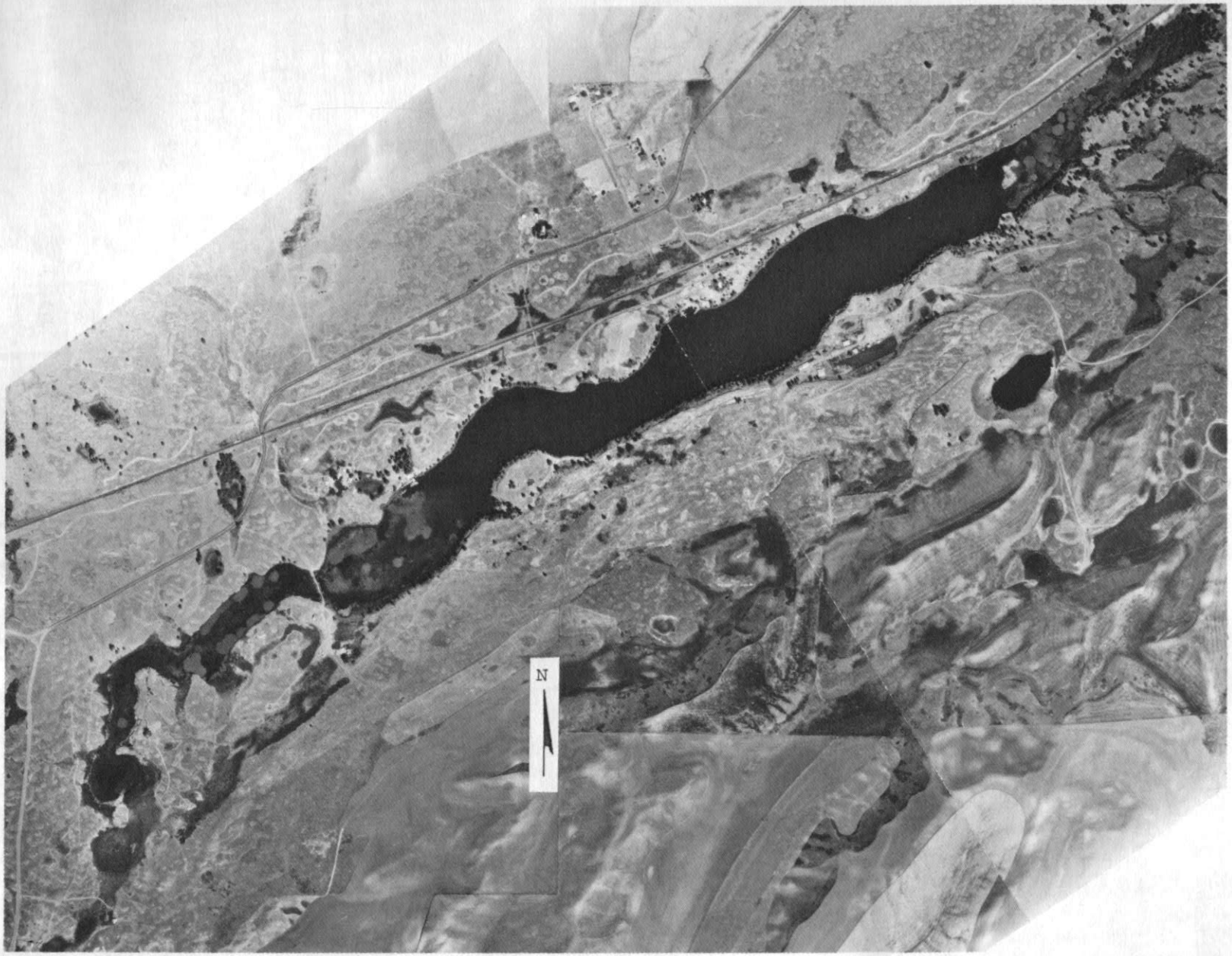
DATE	7/10/73
TIME	1035
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE SHORELINE IS STEEP AND ROCKY BUT SUPPORTS SOME AQUATIC MACROPHYTES. THE OUTLET WAS HEAVILY COVERED WITH SUBMERSED AQUATIC PLANTS (PONDWEED). THE ALGAL DENSITY WAS MODERATELY HIGH. IN 1973 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE OCTOBER 4, 1973.



Amber Lake, Spokane County. From Washington Department of Game. February 7, 1947.



Amber Lake, Spokane County. July 25, 1974. Approx. scale 1:15,000.

BADGER LAKE SPOKANE COUNTY

LATITUDE 47°20'19" LONGITUDE 117°38'47" T21N-R41E-4
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	10.8 SQ MI	RESIDENTIAL DEVELOPMENT	15 %
ALTITUDE	2170. FT		
LAKE AREA	250. ACRES	NUMBER OF NEARSHORE HOMES	54
LAKE VOLUME	11000. ACRE-FT		
MEAN DEPTH	46. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	110. FT		
SHORELINE LENGTH	7.0 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	3.2	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.44	AGRICULTURAL	59 %
BOTTOM SLOPE	2.8 %	FOREST OR UNPRODUCTIVE	37 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	4 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

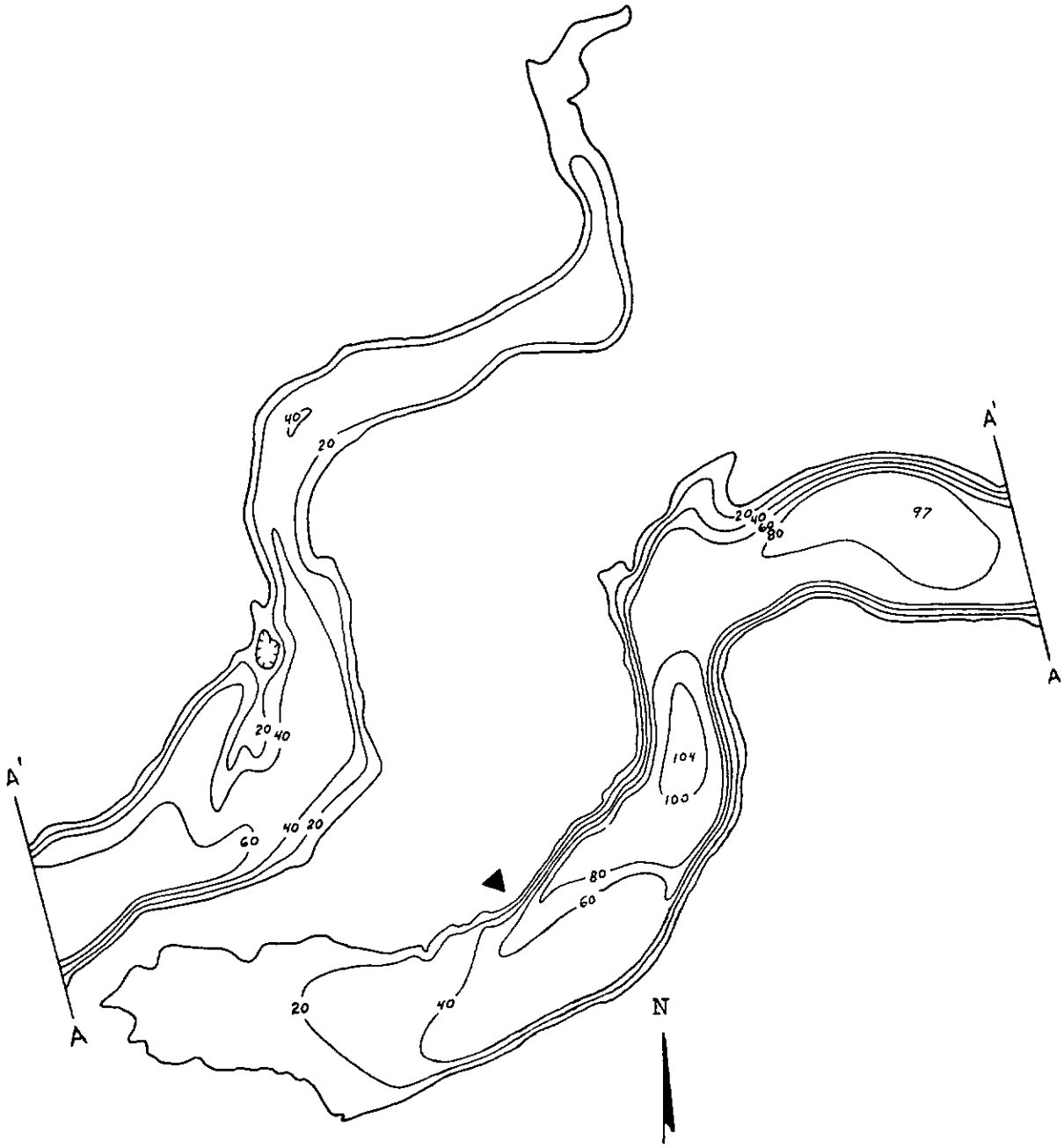
SAMPLE SITE	1	
DATE	6/26/74	
TIME	1110	1115
DEPTH (FT)	3.	82.
TOTAL NITRATE (N)	0.01	0.10
TOTAL NITRITE (N)	0.00	0.04
TOTAL AMMONIA (N)	0.05	0.16
TOTAL ORGANIC NITROGEN (N)	0.45	1.1
TOTAL PHOSPHORUS (P)	0.019	0.24
TOTAL ORTHOPHOSPHATE (P)	0.004	0.025
SPECIFIC CONDUCTANCE (MICROMHOS)	180	195
WATER TEMPERATURE (DEG C)	20.0	6.8
COLOR (PLATINUM-COBALT UNITS)	5	15
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	9.3	3.8

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

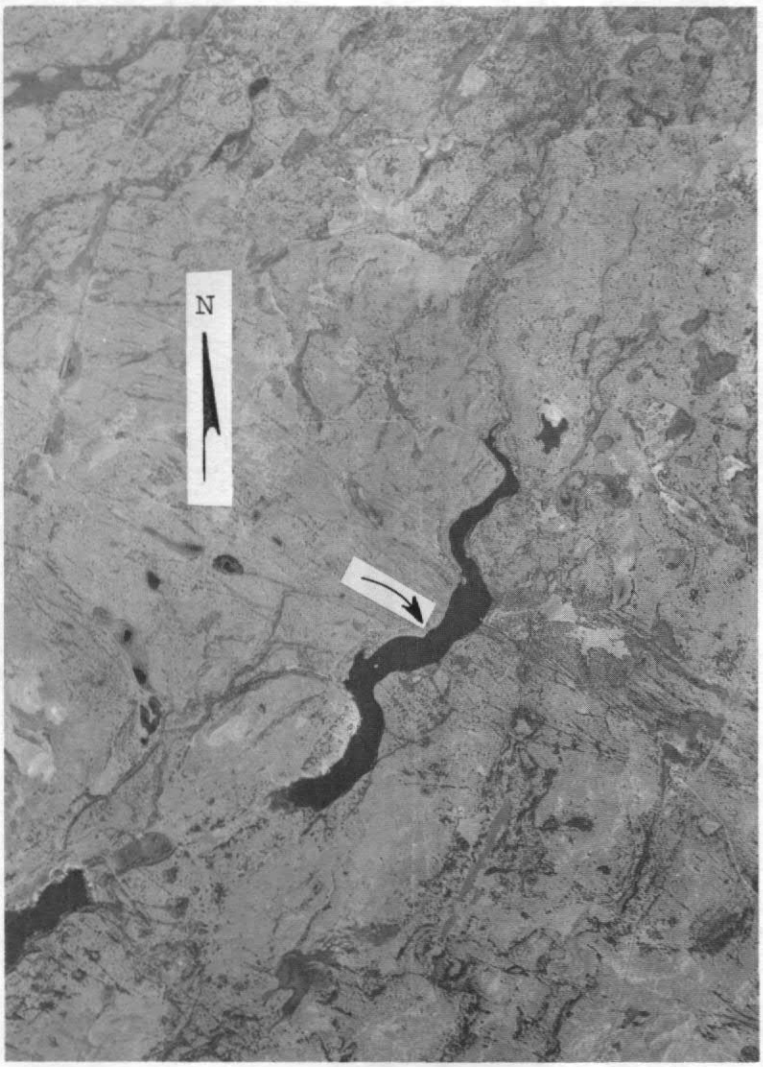
DATE	6/26/74
TIME	1115
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	8
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

THE NORTHERN HALF OF THE LAKE HAS A STEEP AND ROCKY SHORELINE. THE ALGAL DENSITY WAS MODERATELY HIGH. THE FEW EMERSED AQUATIC PLANTS OBSERVED WERE AT THE SOUTH END OF THE LAKE. IN 1975 THE U.S. GEOLOGICAL SURVEY WILL SAMPLE THE LAKE FOUR TIMES.



Badger Lake, Spokane County. From Washington Department of Game, February 10, 1948.



Badger Lake, Spokane County. July 3, 1968. Approx. scale 1:60,000.

BEAR (KUESTER) LAKE SPOKANE COUNTY

LATITUDE 47*55'25" LONGITUDE 117*21'20" T28N-R43E-15
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.33 SQ MI	RESIDENTIAL DEVELOPMENT	5 %
ALTITUDE	1869. FT		
LAKE AREA	34. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	690. ACRE-FT		
MEAN DEPTH	20. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	50. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.40	AGRICULTURAL	15 %
BOTTOM SLOPE	3.6 %	FOREST OR UNPRODUCTIVE	69 %
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)

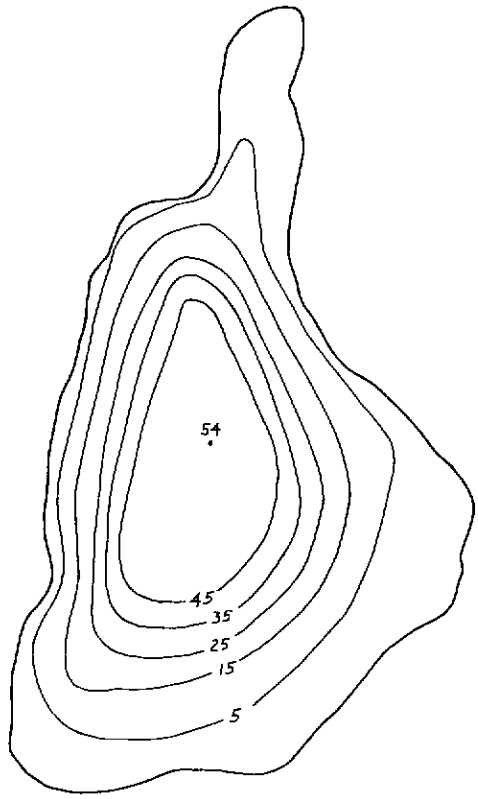
SAMPLE SITE	1	
DATE	7/ 1/74	
TIME	1015	1020
DEPTH (FT)	3.	52.
TOTAL NITRATE (N)	0.00	0.01
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.04	1.7
TOTAL ORGANIC NITROGEN (N)	0.85	1.3
TOTAL PHOSPHORUS (P)	0.015	0.16
TOTAL ORTHOPHOSPHATE (P)	0.003	0.11
SPECIFIC CONDUCTANCE (MICROMHOS)	225	310
WATER TEMPERATURE (DEG C)	21.9	4.5
COLOR (PLATINUM-COBALT UNITS)	5	70
SECCHI-DISC VISIBILITY (FT)	9	
DISSOLVED OXYGEN	9.1	0.2

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	10- 25 %

DATE	7/ 1/74
TIME	1030
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	35
FECAL COLIFORM, MAXIMUM (COL./100ML)	81
FECAL COLIFORM, MEAN (COL./100ML)	59

REMARKS

THE LITTORAL BOTTOM IS SILT AND MUCK AND APPROXIMATELY 80 PERCENT OF THE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (CATTAIL, YELLOW LILY, AND SEDGE). HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.



N

0 500 1000 FEET

EXPLANATION

15

Line of equal water depth Interval 10 feet

Bear (Kuester) Lake, Spokane County. From Washington Department of Game, February 26, 1952.

Bear (Kuester) Lake, Spokane County.
July 2, 1967. Approx. scale 1:12,000.

CHAPMAN LAKE SPOKANE COUNTY

LATITUDE 47*21'23" LONGITUDE 117*33'58" T22N-R41E-36
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	48.5 SQ MI	RESIDENTIAL DEVELOPMENT	3 %
ALTITUDE	2154. FT		
LAKE AREA	150. ACRES	NUMBER OF NEARSHORE HOMES	8
LAKE VOLUME	9900. ACRE-FT		
MEAN DEPTH	66. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	160. FT		
SHORELINE LENGTH	5.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	3.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.41	AGRICULTURAL	76 %
BOTTOM SLOPE	5.5 %	FOREST OR UNPRODUCTIVE	23 %
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)

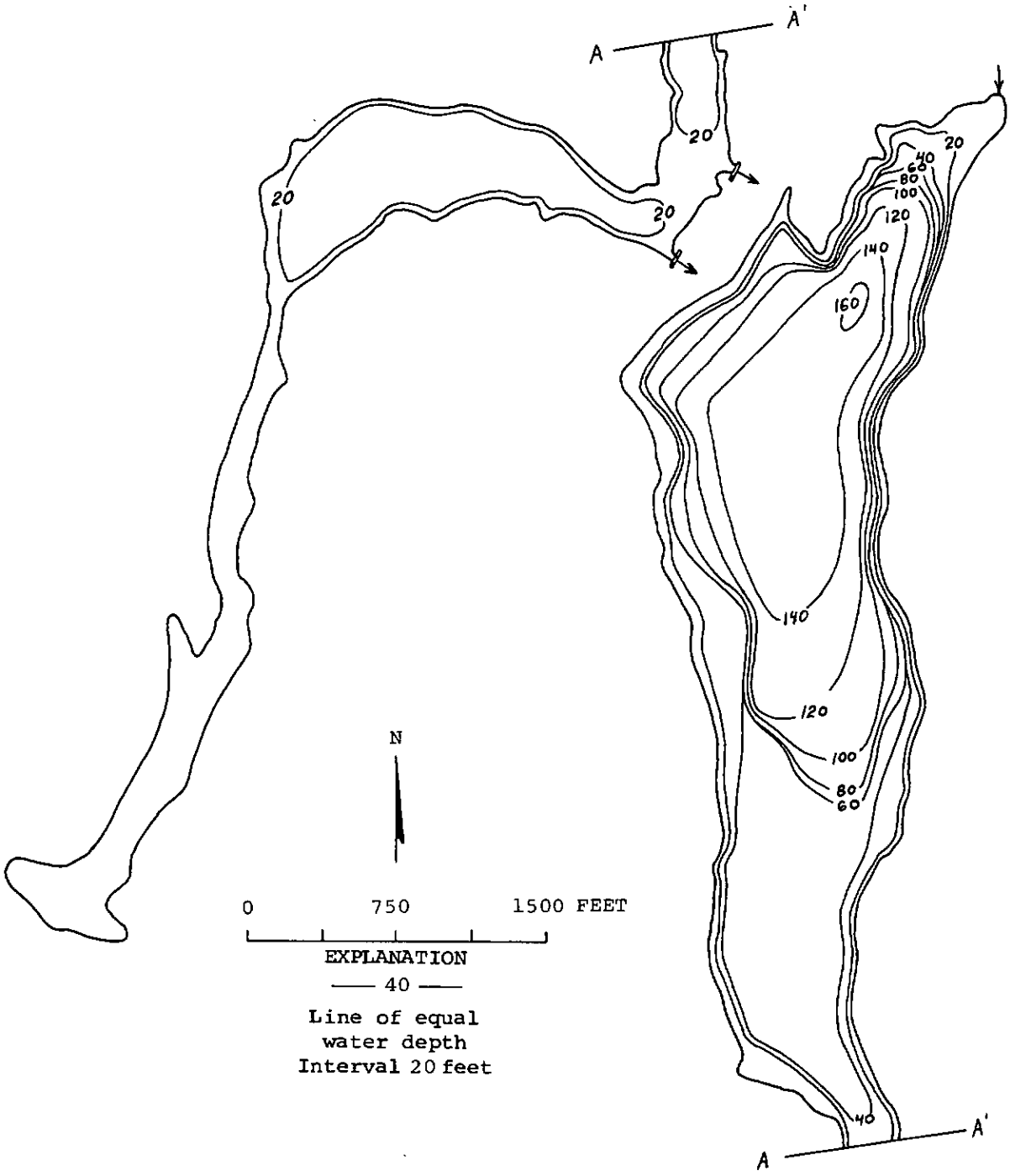
SAMPLE SITE	1	
DATE	6/26/74	
TIME	1000	1005
DEPTH (FT)	3.	151.
TOTAL NITRATE (N)	0.10	0.91
TOTAL NITRITE (N)	0.00	0.02
TOTAL AMMONIA (N)	0.04	0.23
TOTAL ORGANIC NITROGEN (N)	0.71	0.67
TOTAL PHOSPHORUS (P)	0.032	0.28
TOTAL ORTHOPHOSPHATE (P)	0.008	0.18
SPECIFIC CONDUCTANCE (MICROMHOS)	230	240
WATER TEMPERATURE (DEG C)	20.7	5.0
COLOR (PLATINUM-COBALT UNITS)	25	30
SECCHI-DISC VISIBILITY (FT)	3	
DISSOLVED OXYGEN	7.6	1.4

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

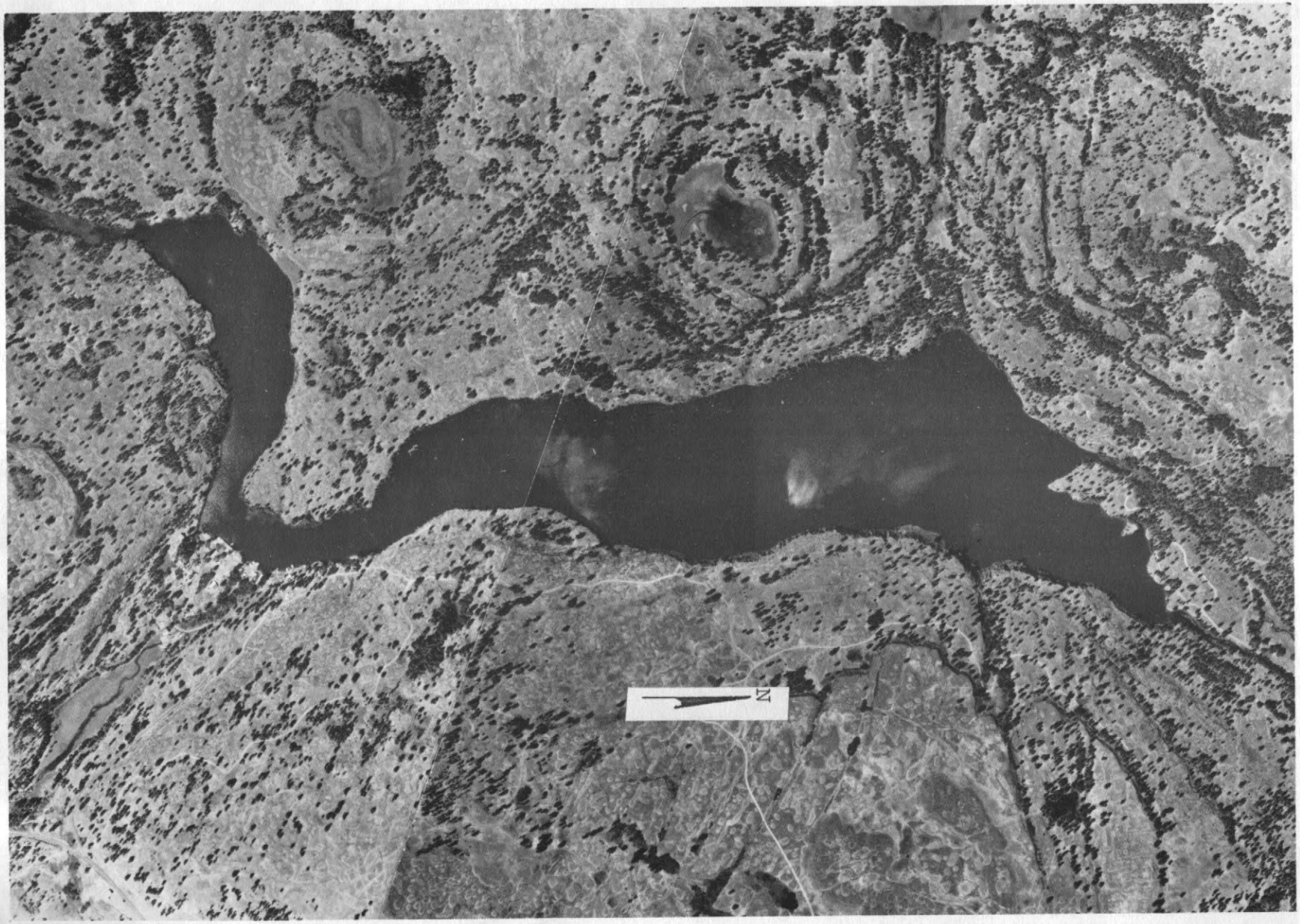
DATE	6/26/74
TIME	1000
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	3
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE LAKE IS AN ENLARGEMENT OF ROCK CREEK AND IS STABILIZED BY A DAM. MOST EMERSED AQUATIC PLANTS WERE AT THE SHALLOW SOUTHWEST END. THE LAKE IS BORDERED BY BASALT CLIFFS AND RECREATIONAL USE IS HEAVY.



Chapman Lake, Spokane County. From Washington Department of Game, January 7, 1952.



Chapman Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

CLEAR LAKE SPOKANE COUNTY

LATITUDE 47°30'58" LONGITUDE 117°42'22" T23N-R40E-1
CRAB CREEK BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	9.51 SQ MI	RESIDENTIAL DEVELOPMENT	23 %
ALTITUDE	2342. FT		
LAKE AREA	410. ACRES	NUMBER OF NEARSHORE HOMES	28
LAKE VOLUME	11000. ACRE-FT		
MEAN DEPTH	26. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	110. FT		
SHORELINE LENGTH	9.1 MI	RESIDENTIAL URBAN	<1 %
SHORELINE CONFIGURATION	3.2	RESIDENTIAL SUBURBAN	3 %
DEVELOPMENT OF VOLUME	0.24	AGRICULTURAL	73 %
BOTTOM SLOPE	2.3 %	FOREST OR UNPRODUCTIVE	16 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	8 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

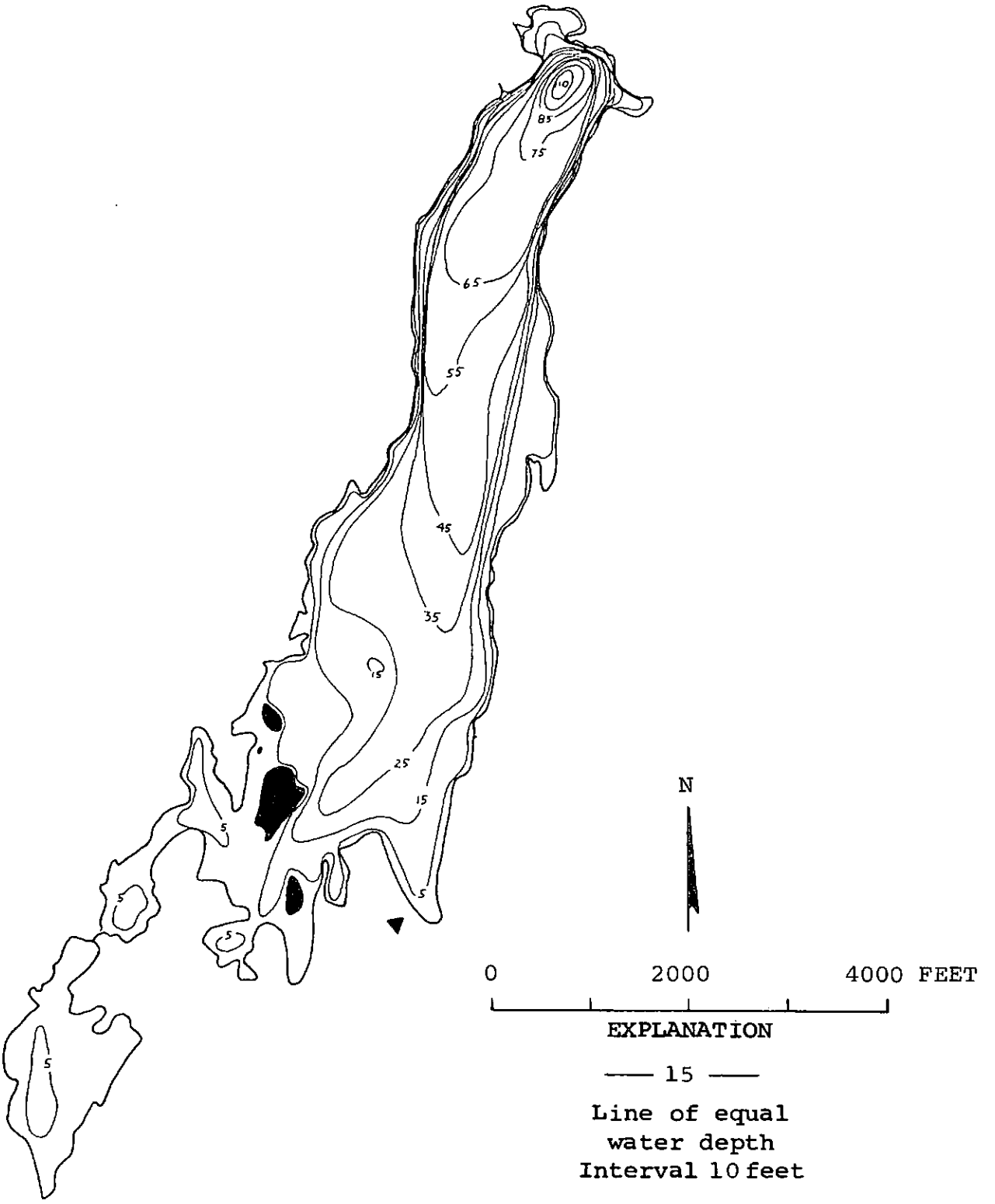
SAMPLE SITE	1	
DATE	7/ 9/73	
TIME	1540	1550
DEPTH (FT)	3.	105.
TOTAL NITRATE (N)	0.02	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.09	3.2
TOTAL ORGANIC NITROGEN (N)	0.39	3.0
TOTAL PHOSPHORUS (P)	0.054	0.32
DISSOLVED ORTHOPHOSPHATE (P)	0.004	0.32
SPECIFIC CONDUCTANCE (MICROMHOS)	670	660
WATER TEMPERATURE (DEG C)	21.3	5.0
COLOR (PLATINUM-COBALT UNITS)	10	20
SECCHI-DISC VISIBILITY (FT)	5	
DISSOLVED OXYGEN	11.5	0.5

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

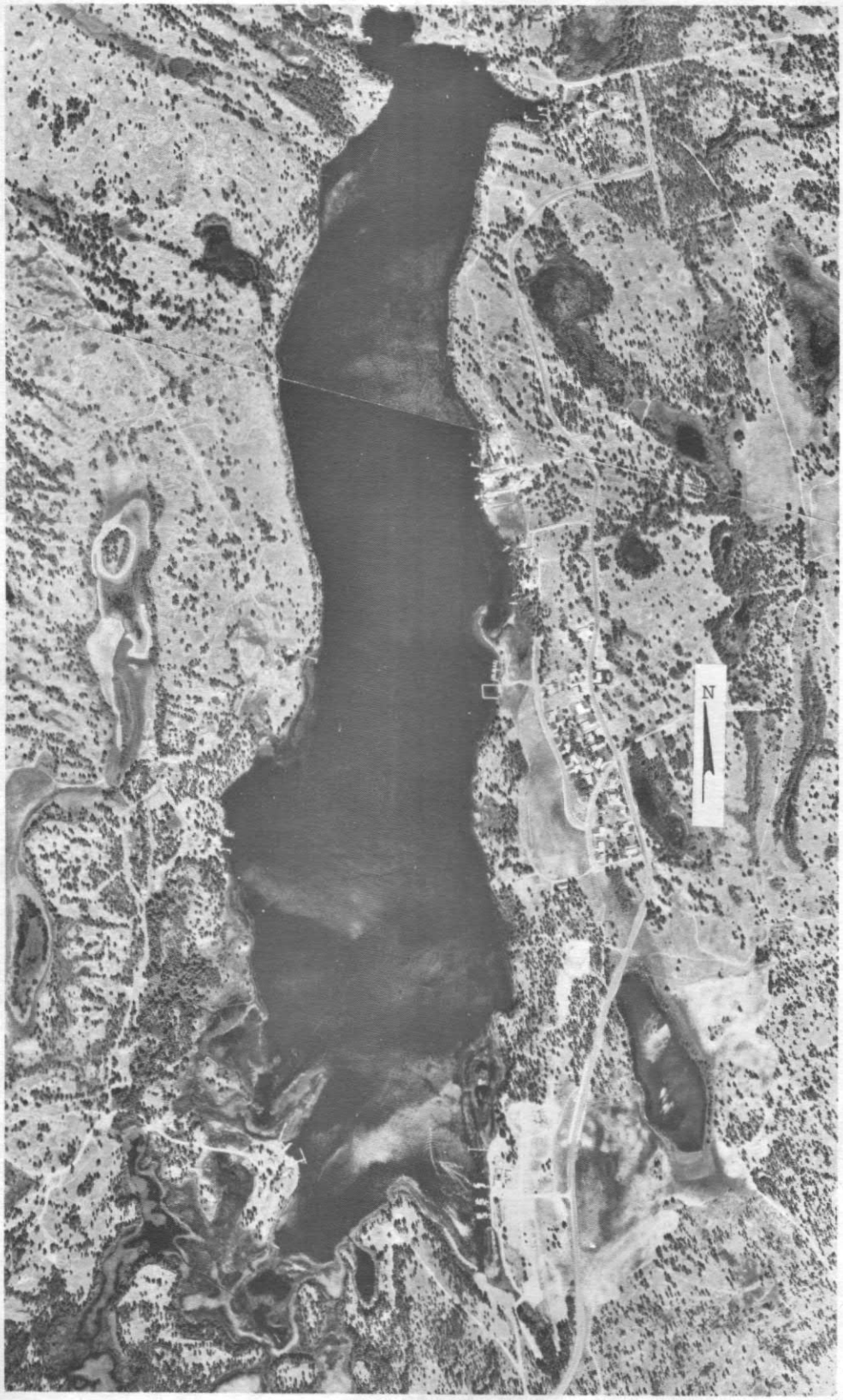
DATE	7/ 9/73
TIME	1615
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE LAKE HAS SEVERAL RESORTS AND RECREATIONAL USE IS HEAVY. A DENSE ALGAL BLOOM WAS OBSERVED AND HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. IN 1973 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE OCTOBER 3, 1973. THE U.S.G.S. HAS MONITORED THE LAKE STAGE SINCE 1958.



Clear Lake, Spokane County. From Washington Department of Game, February 8, 1956.



Clear Lake, Spokane County. July 25, 1974. Approx. scale 1:14,000.

ELOIKA LAKE SPOKANE COUNTY

LATITUDE 48° 0'34" LONGITUDE 117°21'52" T29N-R43E-15
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	111. SQ MI	RESIDENTIAL DEVELOPMENT	18 %
ALTITUDE	1905. FT		
LAKE AREA	660. ACRES	NUMBER OF NEARSHORE HOMES	41
LAKE VOLUME	6000. ACRE-FT		
MEAN DEPTH	9. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	15. FT		
SHORELINE LENGTH	5.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.61	AGRICULTURAL	8 %
BOTTOM SLOPE	0.25 %	FOREST OR UNPRODUCTIVE	89 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	3 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

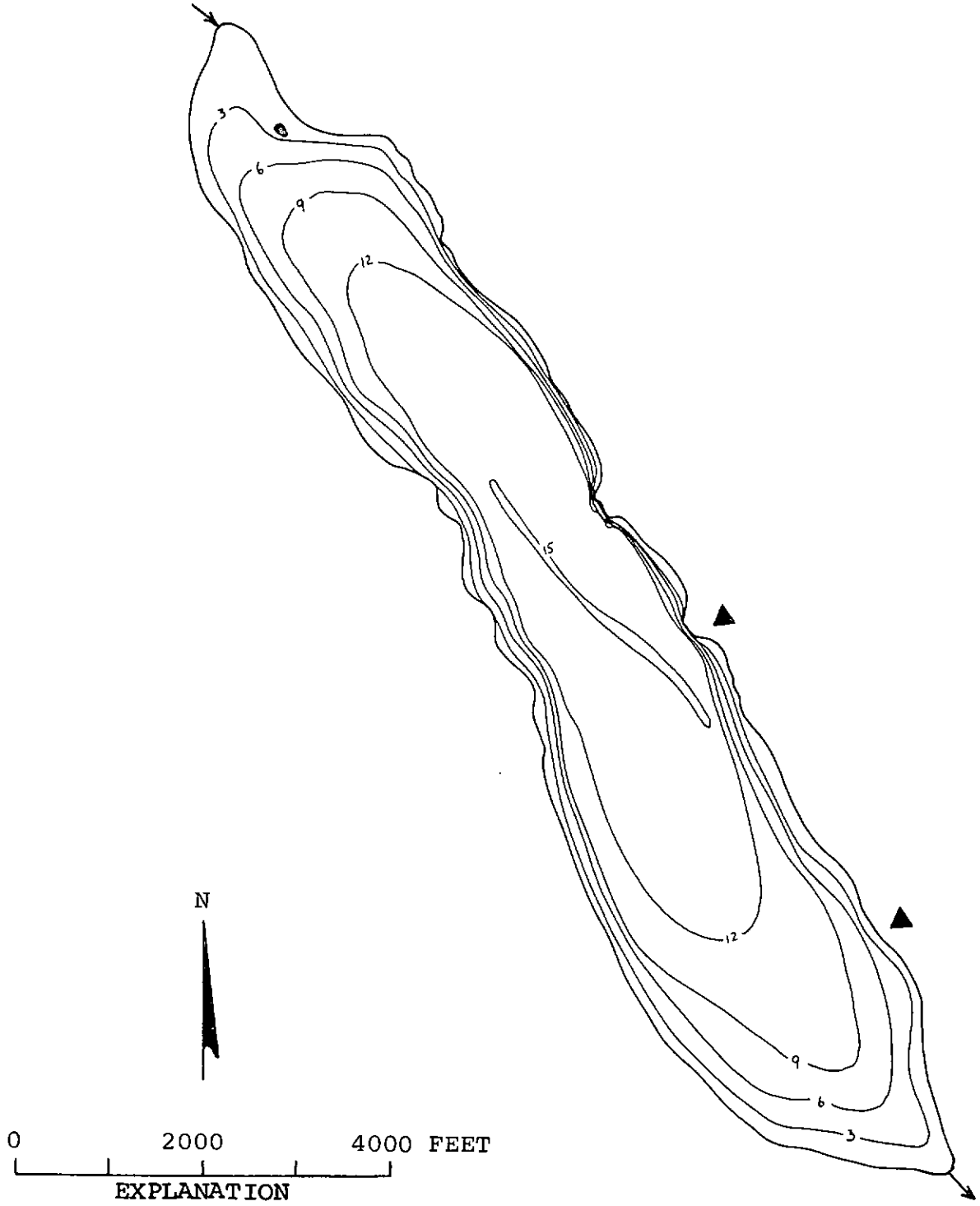
SAMPLE SITE	1	
DATE	7/ 1/74	
TIME	1135	1140
DEPTH (FT)	3.	10.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.04	0.12
TOTAL ORGANIC NITROGEN (N)	0.50	0.64
TOTAL PHOSPHORUS (P)	0.028	0.035
TOTAL ORTHOPHOSPHATE (P)	0.007	0.009
SPECIFIC CONDUCTANCE (MICROMHOS)	85	85
WATER TEMPERATURE (DEG C)	21.1	17.2
COLOR (PLATINUM-COBALT UNITS)	20	25
SECCHI-DISC VISIBILITY (FT)	9	
DISSOLVED OXYGEN	10.7	17.2

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	7/ 1/74
TIME	1155
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	93
FECAL COLIFORM, MEAN (COL./100ML)	32

REMARKS

THE LAKE IS AN ENLARGEMENT OF THE WEST BRANCH LITTLE SPOKANE RIVER AND SUPPORTS A LARGE WATERFOWL POPULATION. THERE ARE SEVERAL RESORTS AND RECREATIONAL USE OF THE LAKE IS HEAVY. THE ALGAL DENSITY WAS MODERATELY HIGH. THE LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (COONTAIL, ELODEA, AND PONDWEED). THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (SEDGE, CATTAIL, AND WATER SHIELD). THE U.S. GEOLOGICAL SURVEY HAS MONITORED THE LAKE STAGE SINCE 1953.



Eloika Lake, Spokane County. From Washington Department of Game, January 29, 1958.

Eloika Lake, Spokane County. July 2, 1967. Approx. scale 1:16,000.

FEUSTAL LAKE SPOKANE COUNTY

LATITUDE 47*16' 3" LONGITUDE 117*47' 8" T21N-R40E-32
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.72 SQ MI	RESIDENTIAL DEVELOPMENT	1 %
ALTITUDE	2110. FT		
LAKE AREA	40. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	250. ACRE-FT		
MEAN DEPTH	6. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	12. FT		
SHORELINE LENGTH	1.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.53	AGRICULTURAL	91 %
BOTTOM SLOPE	0.81 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	9 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

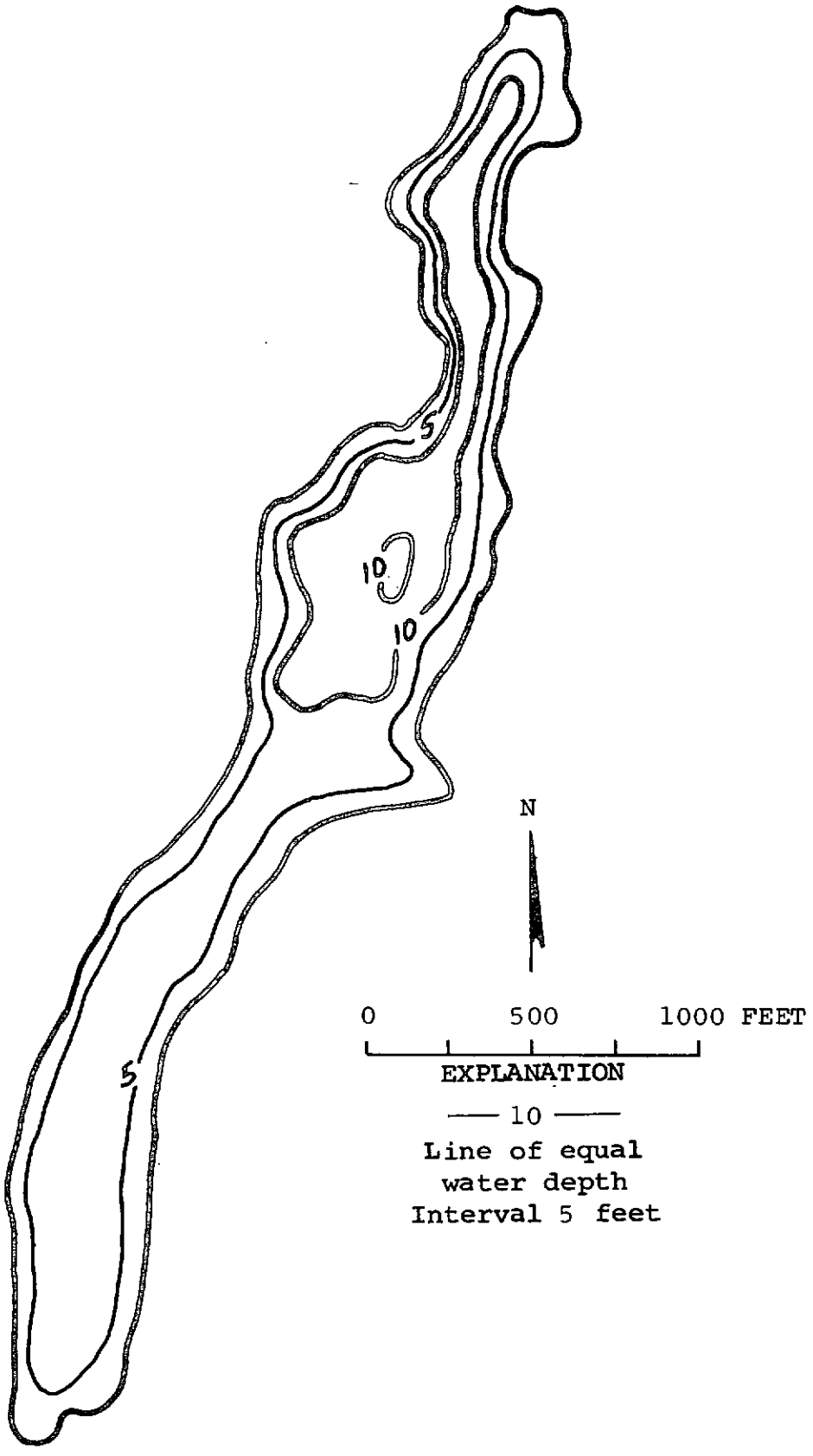
SAMPLE SITE	1	
DATE	6/26/74	
TIME	1100	1105
DEPTH (FT)	3.	5.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.06	0.10
TOTAL ORGANIC NITROGEN (N)	2.1	2.1
TOTAL PHOSPHORUS (P)	0.86	0.86
TOTAL ORTHOPHOSPHATE (P)	0.78	0.86
SPECIFIC CONDUCTANCE (MICROMHOS)	1200	1200
WATER TEMPERATURE (DEG C)	19.5	19.4
COLOR (PLATINUM-COBALT UNITS)	35	35
SECCHI-DISC VISIBILITY (FT)	3	
DISSOLVED OXYGEN	8.4	8.2

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

DATE	6/26/74
TIME	1112
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	14
FECAL COLIFORM, MEAN (COL./100ML)	9

REMARKS

THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (RUSHES).
A DENSE ALGAL BLOOM WAS OBSERVED.



Feustal Lake, Spokane County. From
U.S. Geological Survey, May 14, 1974.

Feustal Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

FISH LAKE SPOKANE COUNTY

LATITUDE 47*30'59" LONGITUDE 117*31' 8" T23N-R42E-5
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.48 SQ MI	RESIDENTIAL DEVELOPMENT	15 %
ALTITUDE	2171. FT		
LAKE AREA	47. ACRES	NUMBER OF NEARSHORE HOMES	12
LAKE VOLUME	1400. ACRE-FT		
MEAN DEPTH	29. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	48. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	1 %
DEVELOPMENT OF VOLUME	0.60	AGRICULTURAL	50 %
BOTTOM SLOPE	3.0 %	FOREST OR UNPRODUCTIVE	44 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	5 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

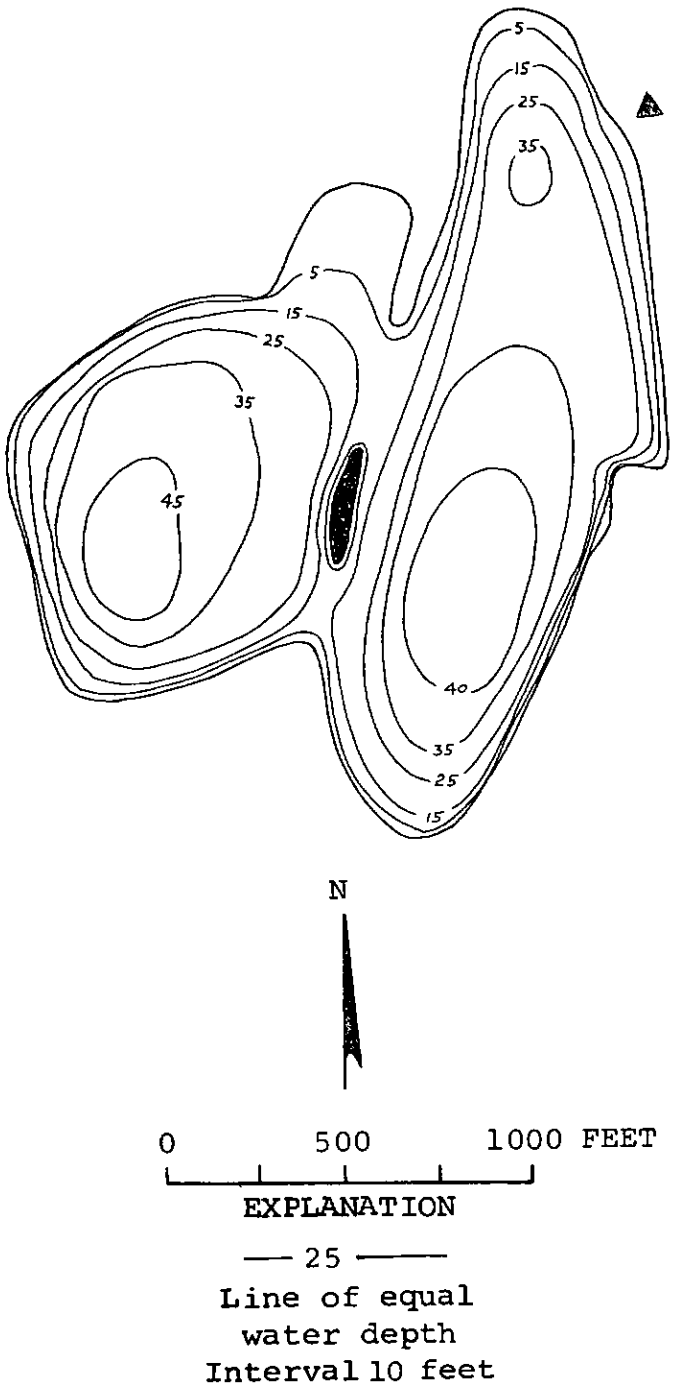
SAMPLE SITE	1		2	
DATE	6/24/74		6/24/74	
TIME	1555	1600	1650	1655
DEPTH (FT)	3.	36.	3.	36.
TOTAL NITRATE (N)	0.00	0.00	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00	0.00	0.00
TOTAL AMMONIA (N)	0.04	1.3	0.03	1.1
TOTAL ORGANIC NITROGEN (N)	0.50	1.0	0.50	0.50
TOTAL PHOSPHORUS (P)	0.11	0.17	0.074	0.17
TOTAL ORTHOPHOSPHATE (P)	0.004	0.079	0.002	0.091
SPECIFIC CONDUCTANCE (MICROMHOS)	310	370	300	370
WATER TEMPERATURE (DEG C)	23.3	5.2	24.1	6.0
COLOR (PLATINUM-COBALT UNITS)	5	5	5	5
SECCHI-DISC VISIBILITY (FT)	12		12	
DISSOLVED OXYGEN	8.2	0.0	8.2	0.0

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

DATE	6/24/74
TIME	1605
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

RECREATIONAL USE OF THE LAKE IS HEAVY. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE LITTORAL BOTTOM IS SILT AND MUCK BUT VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED. THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (YELLOW LILY, WHITE LILY, AND CATTAIL). THE SOUTHEAST SHORE IS RAILROAD FILL.



Fish Lake, Spokane County. From Washington Department of Game, February 4, 1947.

Fish Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

GRANITE LAKE SPOKANE COUNTY

LATITUDE 47*32'47" LONGITUDE 117*37'48" T24N-R41E-28
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.68 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2381. FT		
LAKE AREA	100. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	4000. ACRE-FT		
MEAN DEPTH	40. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	110. FT		
SHORELINE LENGTH	2.1 MI	RESIDENTIAL URBAN	4 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.35	AGRICULTURAL	59 %
BOTTOM SLOPE	4.7 %	FOREST OR UNPRODUCTIVE	13 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	24 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

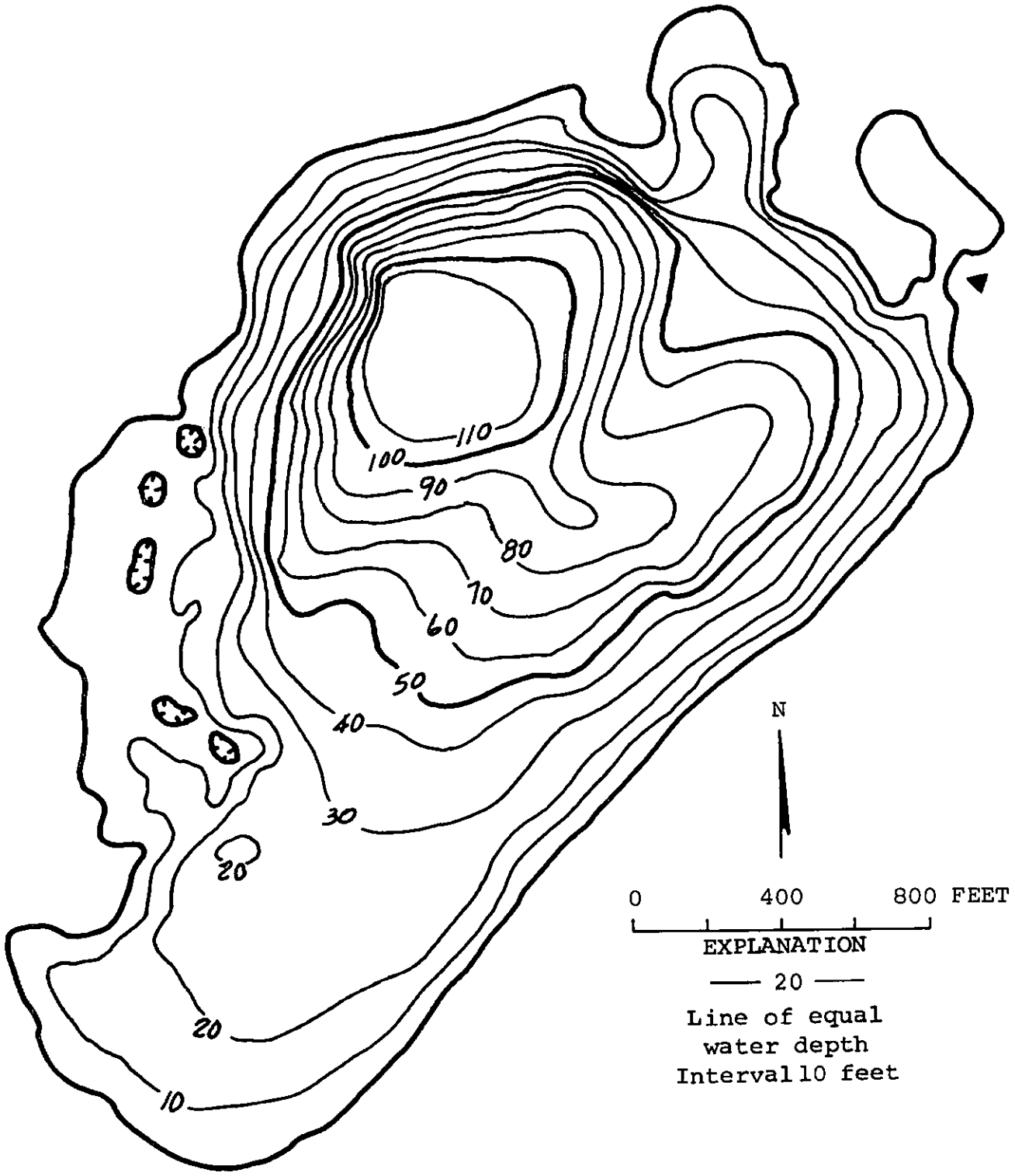
SAMPLE SITE	1	
DATE	6/24/74	
TIME	1520	1525
DEPTH (FT)	3.	75.
TOTAL NITRATE (N)	0.16	0.38
TOTAL NITRITE (N)	0.02	0.02
TOTAL AMMONIA (N)	0.18	0.23
TOTAL ORGANIC NITROGEN (N)	3.4	3.2
TOTAL PHOSPHORUS (P)	2.9	3.0
TOTAL ORTHOPHOSPHATE (P)	2.6	2.6
SPECIFIC CONDUCTANCE (MICROMHOS)	5750	7500
WATER TEMPERATURE (DEG C)	23.8	4.9
COLOR (PLATINUM-COBALT UNITS)	--	--
SECCHI-DISC VISIBILITY (FT)	3	
DISSOLVED OXYGEN	8.5	9.7

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

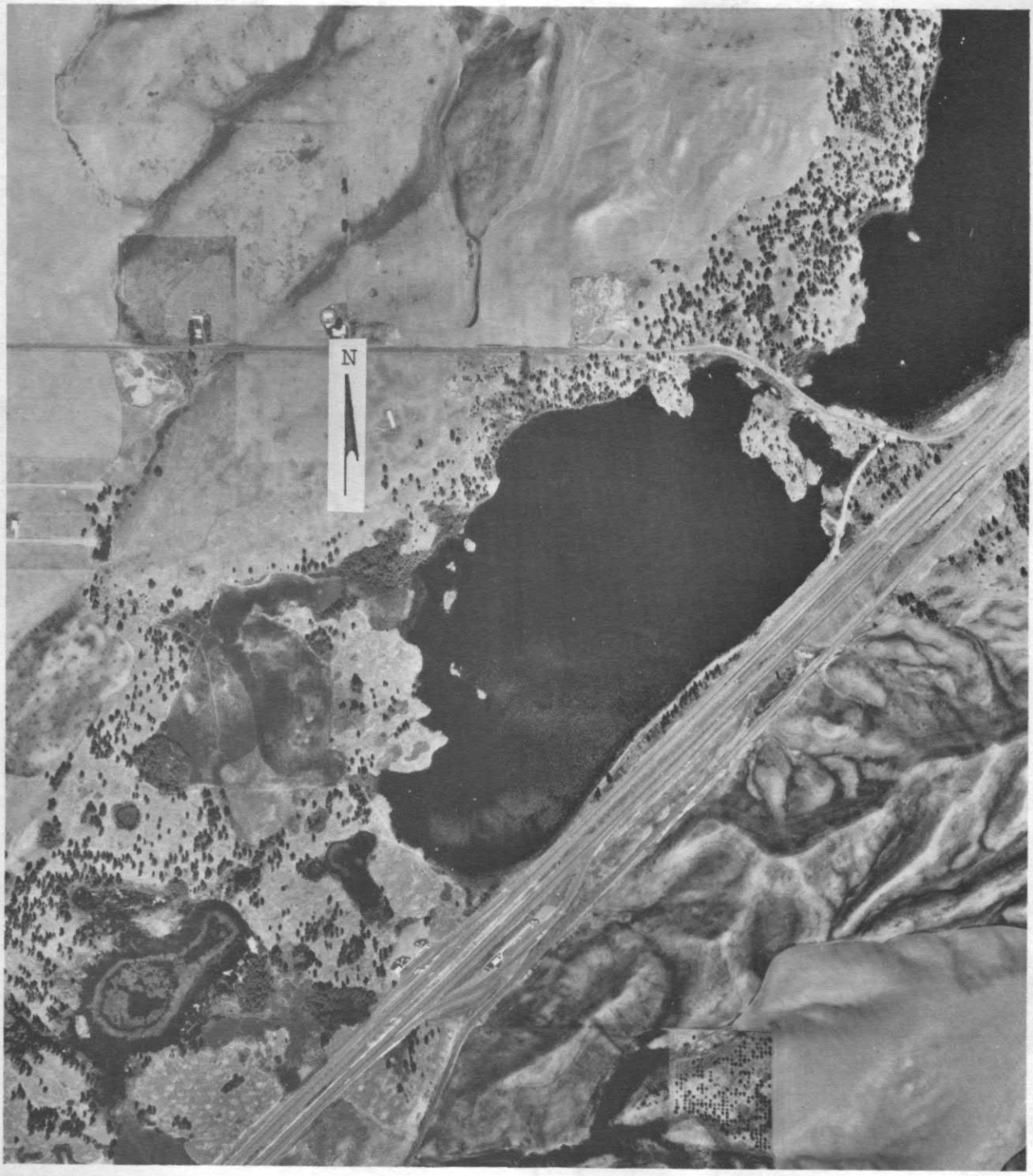
DATE	6/24/74
TIME	1540
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	9
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

NO SUBMERSED AQUATIC PLANTS WERE OBSERVED. THE VERY DARK COLOR OF THE WATER PRECLUDED A DETERMINATION OF COLOR.



Granite Lake, Spokane County. From
U.S. Geological Survey, May 17, 1974.



Granite Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

HOG (HOG CANYON) LAKE SPOKANE COUNTY

LATITUDE 47°22'30" LONGITUDE 117°48'21" T22N-R40E-30
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	100. SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2010. FT		
LAKE AREA	44. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	240. ACRE-FT		
MEAN DEPTH	5. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	13. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	2 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.41	AGRICULTURAL	79 %
BOTTOM SLOPE	0.83 %	FOREST OR UNPRODUCTIVE	19 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	<1 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

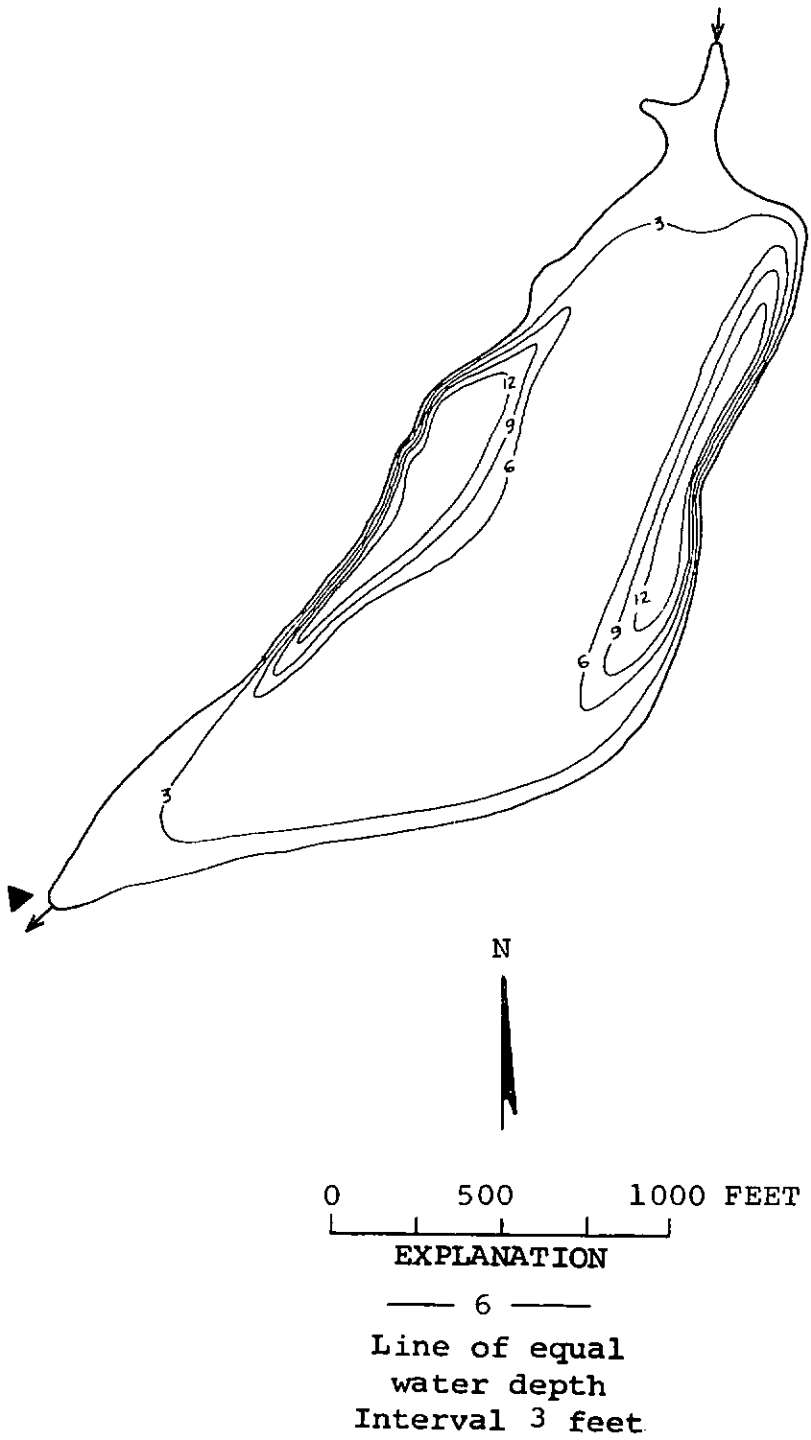
SAMPLE SITE	1	
DATE	6/25/74	
TIME	1035	1040
DEPTH (FT)	3.	13.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.08
TOTAL ORGANIC NITROGEN (N)	0.78	0.78
TOTAL PHOSPHORUS (P)	0.076	0.077
TOTAL ORTHOPHOSPHATE (P)	0.006	0.056
SPECIFIC CONDUCTANCE (MICROMHOS)	370	380
WATER TEMPERATURE (DEG C)	22.3	16.8
COLOR (PLATINUM-COBALT UNITS)	20	25
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	10.2	3.4

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

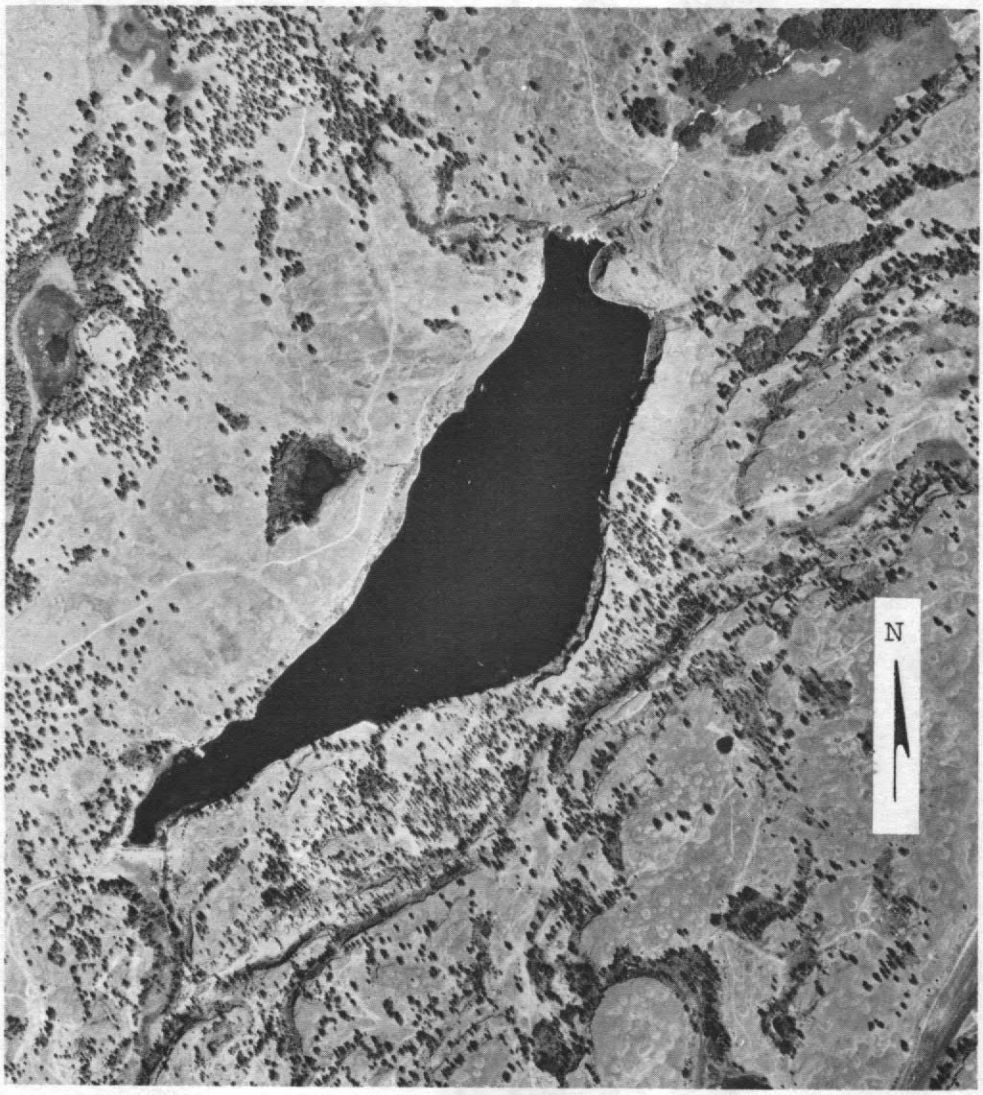
DATE	6/25/74
TIME	1052
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	5
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

A MODERATELY DENSE ALGAL BLOOM, BUT VERY FEW AQUATIC MACROPHYTES, WERE OBSERVED.



Hog (Hog Canyon) Lake, Spokane County. From Washington Department of Game, February 6, 1951.



Hog (Hog Canyon) Lake, Spokane County.
July 25, 1974. Approx. scale 1:12,000.

HORSESHOE LAKE SPOKANE COUNTY

LATITUDE 47°45'34" LONGITUDE 117°44'53" T26N-R40E-15
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.14 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2440. FT		
LAKE AREA	68. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	440. ACRE-FT		
MEAN DEPTH	6. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	51. FT		
SHORELINE LENGTH	2.7 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.13	AGRICULTURAL	67 %
BOTTOM SLOPE	2.6 %	FOREST OR UNPRODUCTIVE	24 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	9 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

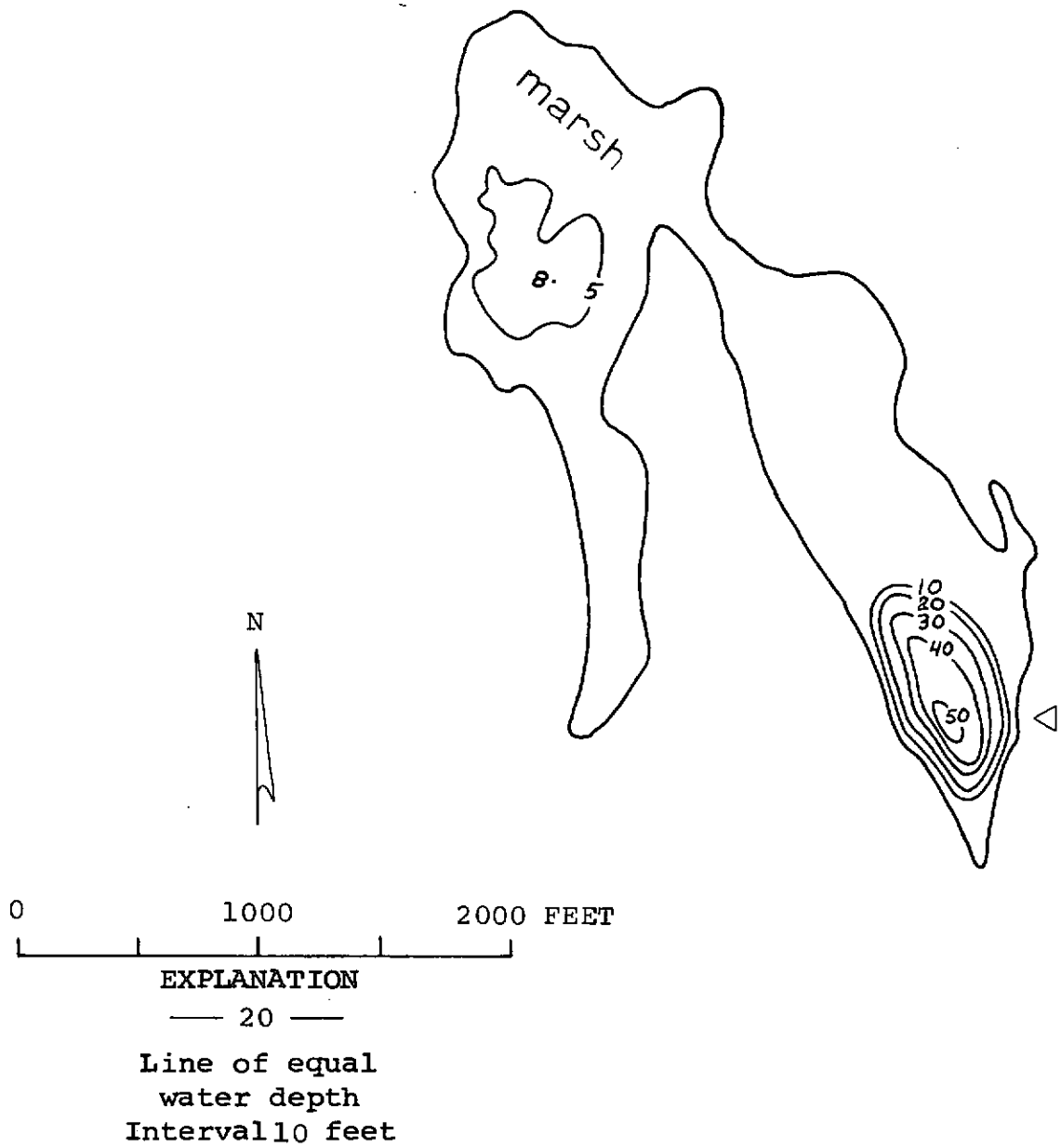
SAMPLE SITE	1	
DATE	7/ 1/74	
TIME	1030	1035
DEPTH (FT)	3.	39.
TOTAL NITRATE (N)	0.02	0.02
TOTAL NITRITE (N)	0.01	0.00
TOTAL AMMONIA (N)	0.08	1.9
TOTAL ORGANIC NITROGEN (N)	1.2	2.1
TOTAL PHOSPHORUS (P)	0.047	0.32
TOTAL ORTHOPHOSPHATE (P)	0.005	0.24
SPECIFIC CONDUCTANCE (MICROMHOS)	600	850
WATER TEMPERATURE (DEG C)	21.0	4.5
COLOR (PLATINUM-COBALT UNITS)	25	45
SECCHI-DISC VISIBILITY (FT)	13	
DISSOLVED OXYGEN	7.2	0.4

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

DATE	7/ 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

A MARSHY LAKE THAT HAS VERY LITTLE OPEN WATER AND WHICH SUPPORTS A LARGE WATERFOWL POPULATION. THE LITTORAL BOTTOM IS MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (PONDWEED AND WATER MILFOIL). THE ENTIRE SHORELINE, AS WELL AS MOST OF THE LAKE SURFACE, WAS COVERED WITH DENSE BEDS OF EMERSED AQUATIC PLANTS (CATTAIL AND SEDGE).



Horseshoe Lake, Spokane County. From Washington Department of Game, February 25, 1952.

KNIGHT LAKE SPOKANE COUNTY

LATITUDE 47°51' 0" LONGITUDE 117°40'48" T27N-R41E-7
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.84 SQ MI	RESIDENTIAL DEVELOPMENT	4 %
ALTITUDE	1745. FT		
LAKE AREA	26. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME (EST.)	740. ACRE-FT		
MEAN DEPTH (EST.)	28. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	63. FT		
SHORELINE LENGTH	0.97 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.45	AGRICULTURAL	3 %
BOTTOM SLOPE	5.2 %	FOREST OR UNPRODUCTIVE	92 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	5 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

SAMPLE SITE	1	
DATE	6/28/74	
TIME	1345	1350
DEPTH (FT)	3.	59.
TOTAL NITRATE (N)	0.02	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.05	1.4
TOTAL ORGANIC NITROGEN (N)	0.59	1.5
TOTAL PHOSPHORUS (P)	0.012	0.087
TOTAL ORTHOPHOSPHATE (P)	0.003	0.042
SPECIFIC CONDUCTANCE (MICROMHOS)	290	370
WATER TEMPERATURE (DEG C)	22.0	4.6
COLOR (PLATINUM-COBALT UNITS)	10	15
SECCHI-DISC VISIBILITY (FT)	15	
DISSOLVED OXYGEN	8.9	0.3

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

DATE	6/28/74
TIME	1400
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	3
FECAL COLIFORM, MAXIMUM (COL./100ML)	6
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE VOLUME AND MEAN DEPTH ARE ESTIMATED.

LIBERTY LAKE SPOKANE COUNTY

LATITUDE 47*39' 9" LONGITUDE 117* 5'20" T25N-R42E-22
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	13.3 SQ MI	RESIDENTIAL DEVELOPMENT	83 %
ALTITUDE	2053. FT		
LAKE AREA	710. ACRES	NUMBER OF NEARSHORE HOMES	196
LAKE VOLUME	16000. ACRE-FT		
MEAN DEPTH	23. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	30. FT		
SHORELINE LENGTH	4.8 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	3 %
DEVELOPMENT OF VOLUME	0.76	AGRICULTURAL	1 %
BOTTOM SLOPE	1.9 %	FOREST OR UNPRODUCTIVE	88 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	8 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

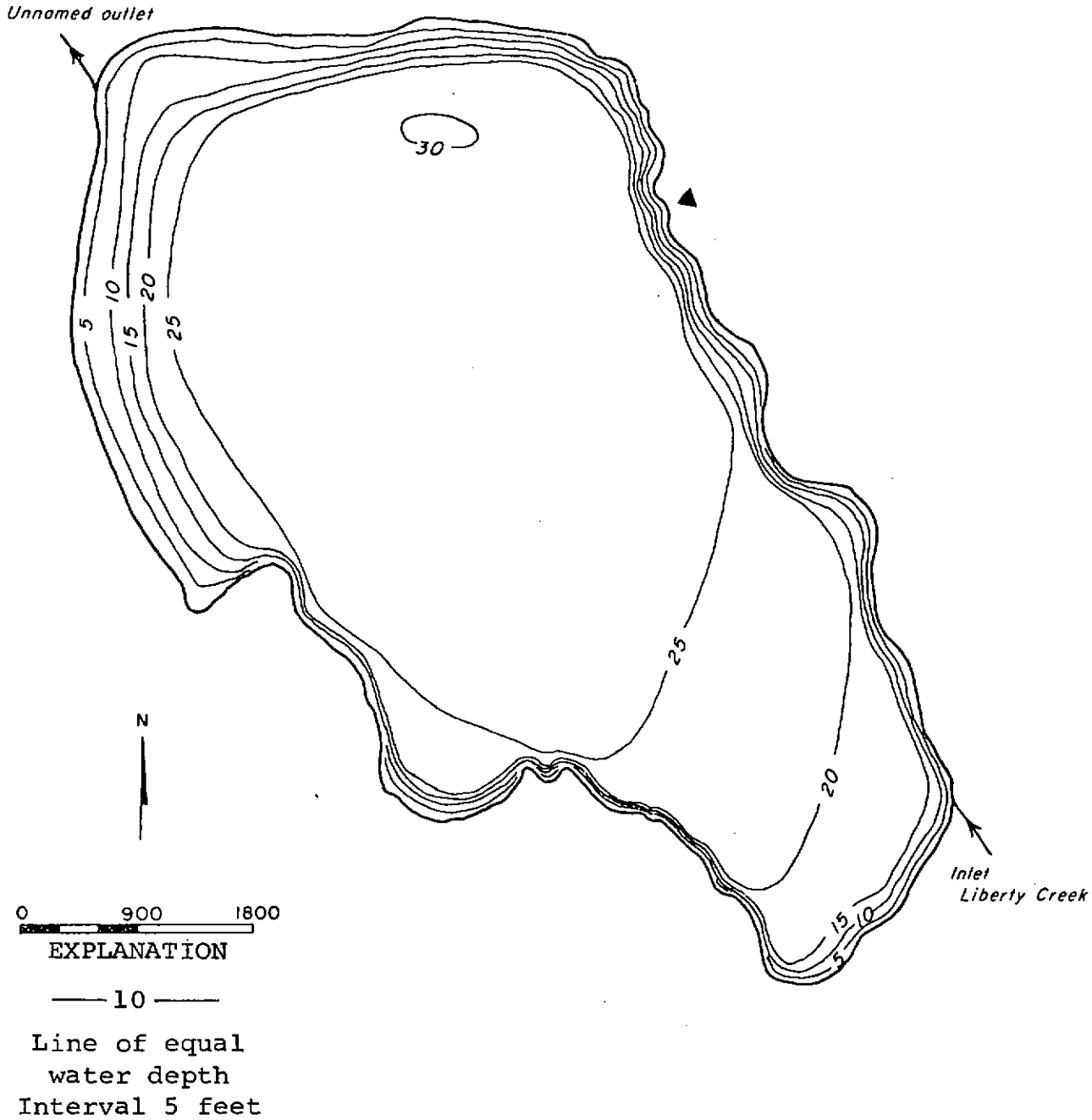
SAMPLE SITE	1	
DATE	6/28/74	
TIME	1010	1015
DEPTH (FT)	3.	23.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.07
TOTAL ORGANIC NITROGEN (N)	0.29	0.33
TOTAL PHOSPHORUS (P)	0.014	0.024
TOTAL ORTHOPHOSPHATE (P)	0.005	0.004
SPECIFIC CONDUCTANCE (MICROMHOS)	50	50
WATER TEMPERATURE (DEG C)	20.8	16.5
COLOR (PLATINUM-COBALT UNITS)	5	10
SECCHI-DISC VISIBILITY (FT)	18	
DISSOLVED OXYGEN	8.2	8.2

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

DATE	6/28/74
TIME	1020
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 ADJOINS MARSH ON THE SOUTHEAST SIDE. THERE ARE SEVERAL RESORTS AND RECREATIONAL USE OF THE LAKE IS HEAVY. THE ALGAL DENSITY WAS MODERATE AND VERY FEW EMERSED AQUATIC PLANTS WERE OBSERVED. IN 1971 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE SEPTEMBER 27, 1971. IN THE FALL OF 1974 THE LAKE WAS TREATED WITH 105 TONS OF ALUM TO PRECIPITATE THE NUTRIENT PHOSPHORUS AND THEREBY RETARD ALGAL GROWTH. THE PROCEDURE WAS DESCRIBED BY HARVEY (1975). THE U.S.G.S. HAS MONITORED THE LAKE STAGE SINCE 1950.



Liberty Lake, Spokane County. From Washington Department of Game, January 14, 1948.

Liberty Lake, Spokane County. August 10, 1972. Approx. scale 1:13,000.

MASON LAKE SPOKANE COUNTY

LATITUDE 47°20'40" LONGITUDE 117°46'16" T21N-R40E-4
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.95 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2110. FT		
LAKE AREA	56. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	760. ACRE-FT		
MEAN DEPTH	14. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	21. FT		
SHORELINE LENGTH	2.0 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.9	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.65	AGRICULTURAL	96 %
BOTTOM SLOPE	1.2 %	FOREST OR UNPRODUCTIVE	1 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	3 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

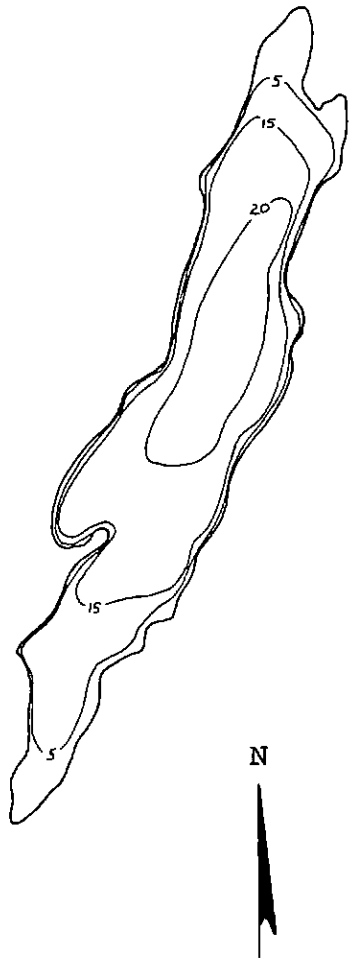
SAMPLE SITE	1	
DATE	6/26/74	
TIME	1155	1200
DEPTH (FT)	3.	16.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.07	0.32
TOTAL ORGANIC NITROGEN (N)	1.2	1.1
TOTAL PHOSPHORUS (P)	0.052	0.053
TOTAL ORTHOPHOSPHATE (P)	0.009	0.006
SPECIFIC CONDUCTANCE (MICROMHOS)	260	280
WATER TEMPERATURE (DEG C)	20.1	15.9
COLOR (PLATINUM-COBALT UNITS)	25	25
SECCHI-DISC VISIBILITY (FT)	4	
DISSOLVED OXYGEN	9.4	0.1

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

DATE	6/26/74
TIME	1207
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

A DENSE ALGAL BLOOM, BUT VERY FEW SUBMERSED AQUATIC PLANTS, WERE OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.



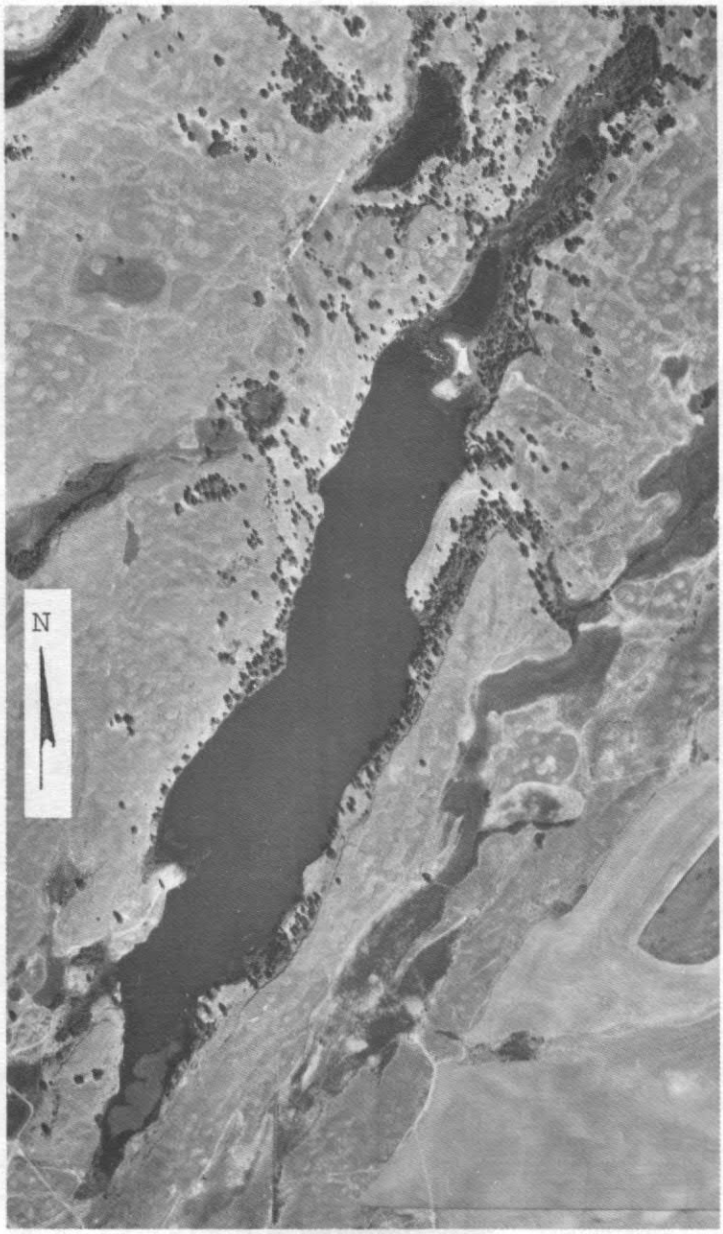
0 1000 2000 FEET

EXPLANATION

—— 15 ——

Line of equal
water depth
Interval 10 feet

Mason Lake, Spokane County. From Washington Department of Game, February 6, 1947.



Mason Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

MASON, LITTLE LAKE SPOKANE COUNTY

LATITUDE 47°22'45" LONGITUDE 117°44'19" T22N-R40E-22
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.51 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2200. FT		
LAKE AREA	17. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	-- ACRE-FT		
MEAN DEPTH	-- FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	-- FT		
SHORELINE LENGTH	-- MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	--	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	--	AGRICULTURAL	95 %
BOTTOM SLOPE	-- %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	5 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

SAMPLE SITE	1	
DATE	6/28/74	
TIME	930	935
DEPTH (FT)	3.	7.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.06	0.05
TOTAL ORGANIC NITROGEN (N)	1.5	1.4
TOTAL PHOSPHORUS (P)	0.062	0.096
TOTAL ORTHOPHOSPHATE (P)	0.018	0.035
SPECIFIC CONDUCTANCE (MICROMHOS)	240	240
WATER TEMPERATURE (DEG C)	18.0	17.8
COLOR (PLATINUM-COBALT UNITS)	85	85
SECCHI-DISC VISIBILITY (FT)	4	
DISSOLVED OXYGEN	5.8	5.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	51- 75 %

DATE	6/28/74
TIME	942
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 LITTORAL BOTTOM IS SILT AND MUCK. THE ENTIRE SHORELINE WAS COVERED WITH DENSE BEDS OF EMERSED AQUATIC PLANTS (RUSHES, SEDGE, AND YELLOW LILY). BATHYMETRIC DATA ARE NOT AVAILABLE.

MEADOW LAKE SPOKANE COUNTY

LATITUDE 47*32'49" LONGITUDE 117*35'29" T24N-R41E-26
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	4.02 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2371. FT		
LAKE AREA	50. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	270. ACRE-FT		
MEAN DEPTH	5. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	16. FT		
SHORELINE LENGTH	1.4 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	2 %
DEVELOPMENT OF VOLUME	0.34	AGRICULTURAL	89 %
BOTTOM SLOPE	0.96 %	FOREST OR UNPRODUCTIVE	7 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	2 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

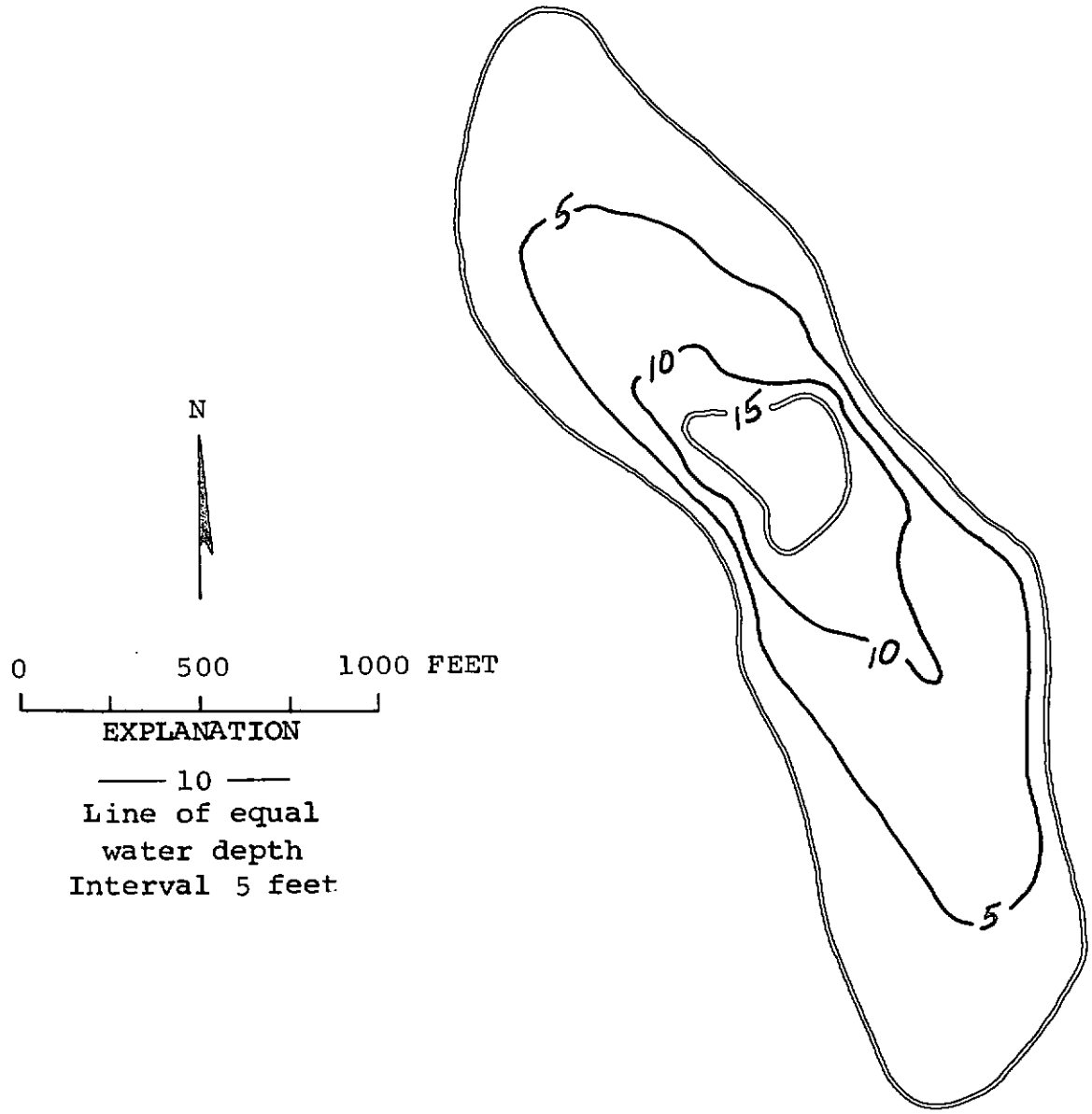
SAMPLE SITE	1	
DATE	0/ 0/ 0	
TIME	--	--
DEPTH (FT)	--	--
TOTAL NITRATE (N)	--	--
TOTAL NITRITE (N)	--	--
TOTAL AMMONIA (N)	--	--
TOTAL ORGANIC NITROGEN (N)	--	--
TOTAL PHOSPHORUS (P)	--	--
TOTAL ORTHOPHOSPHATE (P)	--	--
SPECIFIC CONDUCTANCE (MICROMHOS)	--	--
WATER TEMPERATURE (DEG C)	--	--
COLOR (PLATINUM-COBALT UNITS)	--	--
SECCHI-DISC VISIBILITY (FT)	--	
DISSOLVED OXYGEN	--	--

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

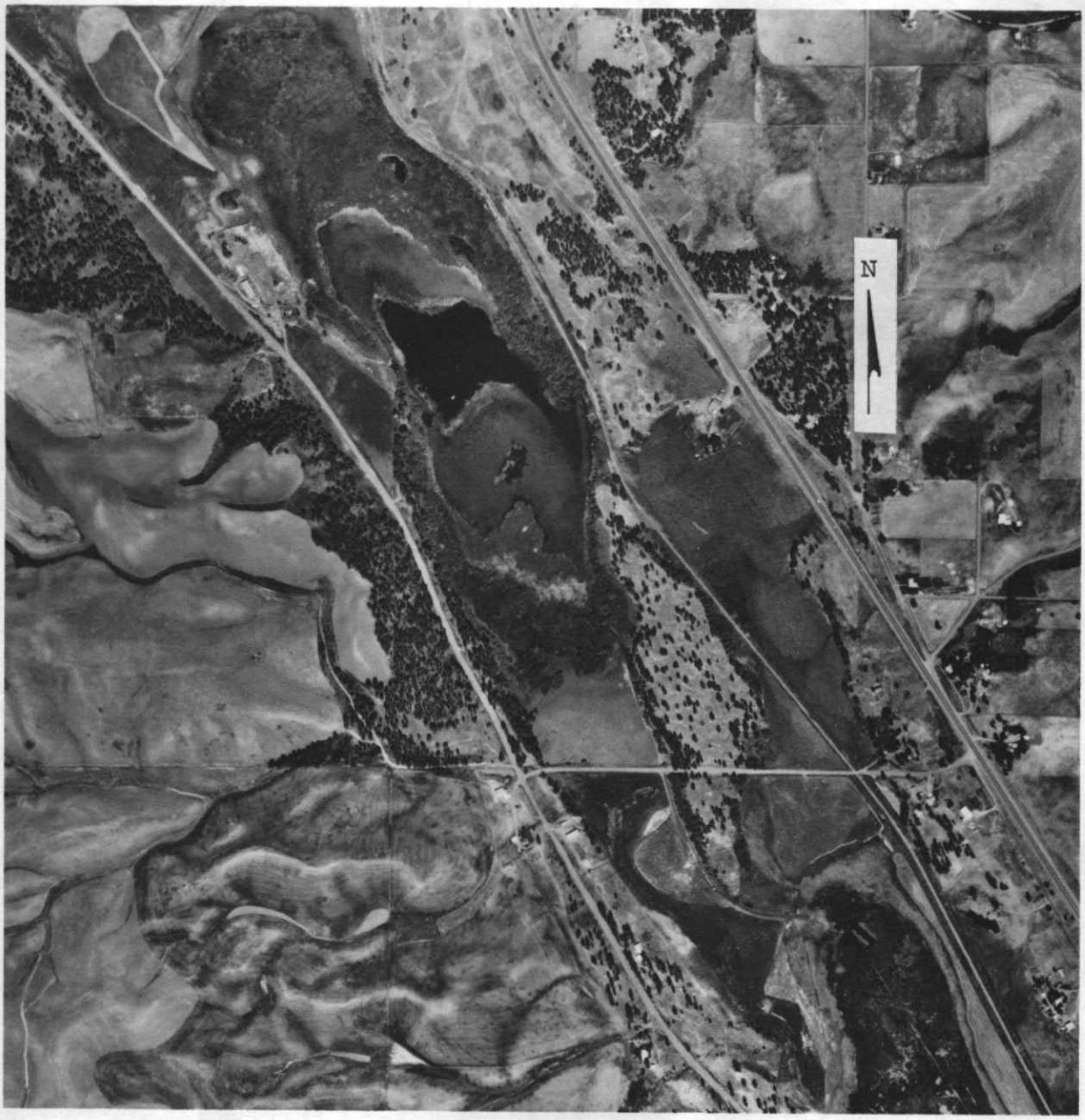
DATE	6/24/74
TIME	--
NUMBER OF FECAL COLIFORM SAMPLES	0
FECAL COLIFORM, MINIMUM (COL./100ML)	--
FECAL COLIFORM, MAXIMUM (COL./100ML)	--
FECAL COLIFORM, MEAN (COL./100ML)	--

REMARKS

THE LAKE SURFACE WAS COMPLETELY COVERED WITH DENSE BEDS OF EMERSED AQUATIC PLANTS AND WAS NOT SAMPLED.



Meadow Lake, Spokane County. From
U.S. Geological Survey, May 17, 1974.



Meadow Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

MEDICAL LAKE SPOKANE COUNTY

LATITUDE 47°33'48" LONGITUDE 117°41'21" T24N-R41E-19
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.35 SQ MI	RESIDENTIAL DEVELOPMENT	36 %
ALTITUDE	2394. FT		
LAKE AREA	160. ACRES	NUMBER OF NEARSHORE HOMES	26
LAKE VOLUME	5000. ACRE-FT		
MEAN DEPTH	32. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	60. FT		
SHORELINE LENGTH	3.1 MI	RESIDENTIAL URBAN	47 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	4 %
DEVELOPMENT OF VOLUME	0.53	AGRICULTURAL	0 %
BOTTOM SLOPE	2.0 %	FOREST OR UNPRODUCTIVE	31 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	18 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

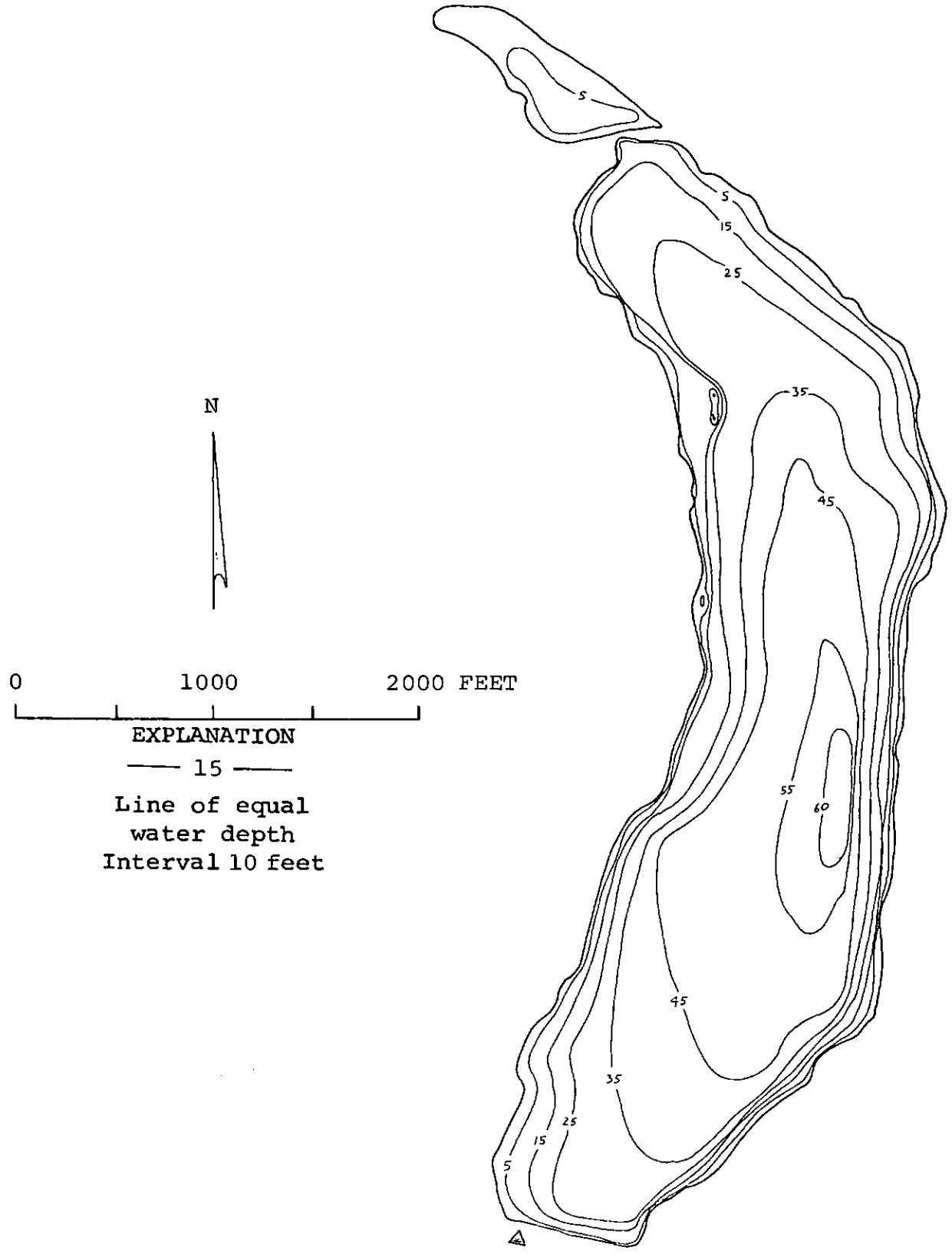
SAMPLE SITE	1	
DATE	7/11/73	
TIME	745	755
DEPTH (FT)	3.	52.
TOTAL NITRATE (N)	0.01	0.02
TOTAL NITRITE (N)	0.01	0.00
TOTAL AMMONIA (N)	1.5	4.0
TOTAL ORGANIC NITROGEN (N)	1.7	1.0
TOTAL PHOSPHORUS (P)	0.31	1.4
DISSOLVED ORTHOPHOSPHATE (P)	0.16	0.98
SPECIFIC CONDUCTANCE (MICROMHOS)	1800	1850
WATER TEMPERATURE (DEG C)	19.9	6.1
COLOR (PLATINUM-COBALT UNITS)	20	15
SECCHI-DISC VISIBILITY (FT)	3	
DISSOLVED OXYGEN	15.0	0.2

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

DATE	7/11/73
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

THE LAKE IS ADJACENT TO THE TOWN OF MEDICAL LAKE. IN 1973 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE OCTOBER 3, 1973 AND VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. A DENSE ALGAL BLOOM WAS OBSERVED. THE U.S.G.S. MONITORED THE LAKE STAGE FROM 1953 TO 1958.



Medical Lake, Spokane County. From Washington Department of Game, February 12, 1955.

Medical Lake, Spokane County. July 27, 1967. Approx. scale 1:12,000.

MEDICAL, WEST LAKE SPOKANE COUNTY

LATITUDE 47°33'42" LONGITUDE 117°42' 6" T24N-R40E-24
CRAB CREEK BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.84 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2423. FT		
LAKE AREA	220. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	4900. ACRE-FT		
MEAN DEPTH	22. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	35. FT		
SHORELINE LENGTH	4.0 MI	RESIDENTIAL URBAN	1 %
SHORELINE CONFIGURATION	1.9	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.63	AGRICULTURAL	59 %
BOTTOM SLOPE	1.0 %	FOREST OR UNPRODUCTIVE	21 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	19 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

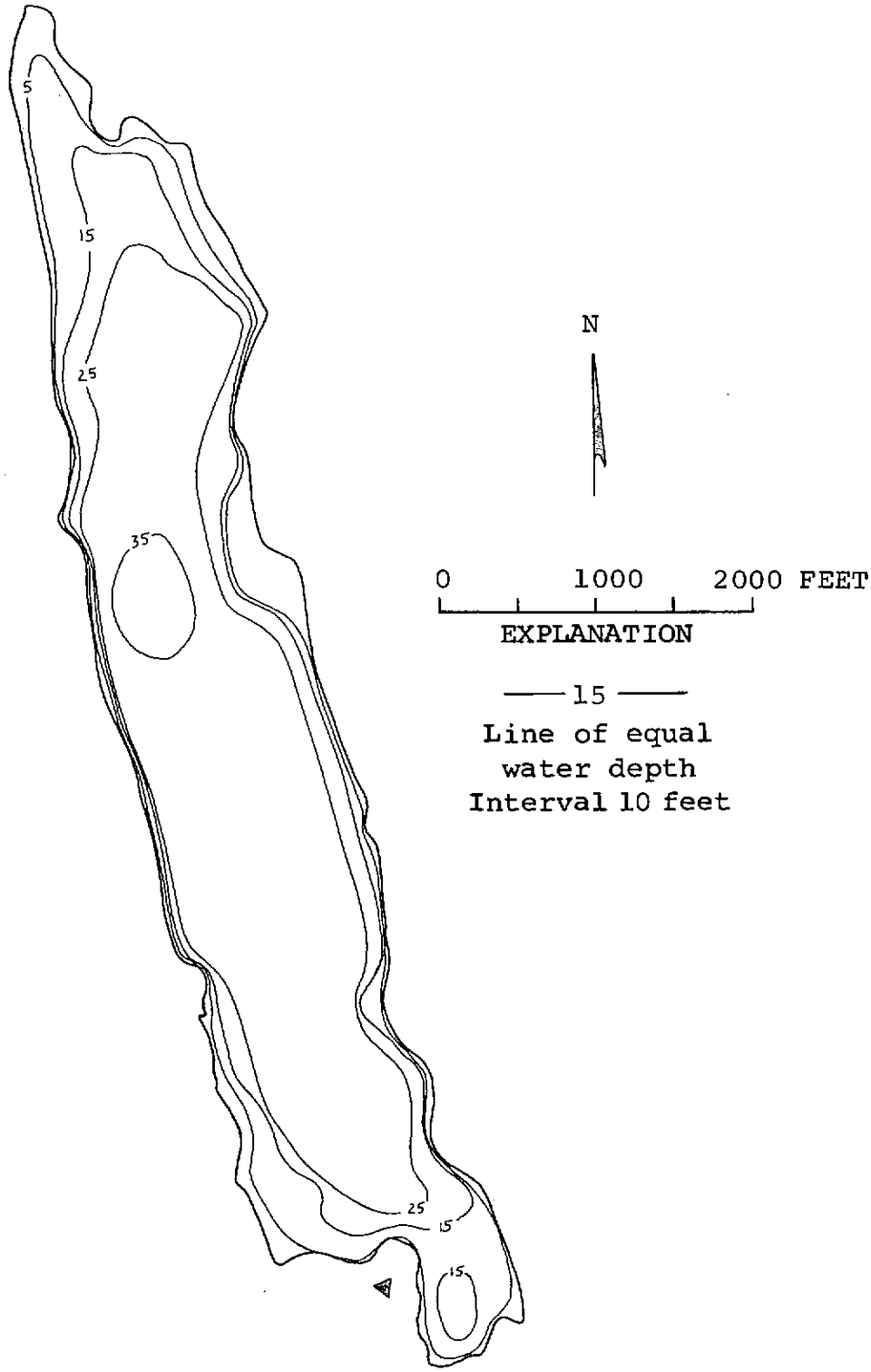
SAMPLE SITE	1	
DATE	7/11/73	
TIME	945	950
DEPTH (FT)	3.	25.
TOTAL NITRATE (N)	0.01	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	1.7	1.2
TOTAL ORGANIC NITROGEN (N)	0.80	0.80
TOTAL PHOSPHORUS (P)	3.0	3.4
DISSOLVED ORTHOPHOSPHATE (P)	2.9	3.4
SPECIFIC CONDUCTANCE (MICROMHOS)	749	784
WATER TEMPERATURE (DEG C)	19.3	14.1
COLOR (PLATINUM-COBALT UNITS)	15	15
SECCHI-DISC VISIBILITY (FT)	6	
DISSOLVED OXYGEN	12.6	0.2

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

DATE	7/11/73
TIME	1712
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 DENSE ALGAL BLOOM WAS OBSERVED AND HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. RECREATIONAL USE OF THE LAKE IS HEAVY. IN 1973 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE OCTOBER 3, 1973. THE U.S.G.S. HAS MONITORED THE LAKE STAGE SINCE 1963. THERE IS A SEWAGE TREATMENT PLANT ON THE SOUTHEAST SHORE. THE WASHINGTON DEPARTMENT OF ECOLOGY WASTE-WATER DISCHARGE MASTER REPORT INDICATES A MUNICIPAL WASTE DISCHARGE TO WEST MEDICAL LAKE AVERAGING 300,000 GALLONS PER DAY. ASSUMING A PHOSPHORUS CONCENTRATION OF .000063 POUNDS PER GALLON, THE TOTAL PHOSPHORUS LOAD TO THE LAKE WOULD BE 31.4 POUNDS PER ACRE PER YEAR.



Medical, West Lake, Spokane County. From Washington Department of Game, February 3, 1955.

Medical, West Lake, Spokane County. July 25, 1974. Approx. scale 1:14,000.

NEWMAN LAKE SPOKANE COUNTY

LATITUDE 47*45'38" LONGITUDE 117* 5'25" T26N-R42E-10
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	28.6 SQ MI	RESIDENTIAL DEVELOPMENT	67 %
ALTITUDE	2124. FT		
LAKE AREA	1200. ACRES	NUMBER OF NEARSHORE HOMES	316
LAKE VOLUME	23000. ACRE-FT		
MEAN DEPTH	19. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	30. FT		
SHORELINE LENGTH	9.7 MI	RESIDENTIAL URBAN	2 %
SHORELINE CONFIGURATION	2.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.62	AGRICULTURAL	9 %
BOTTOM SLOPE	2.0 %	FOREST OR UNPRODUCTIVE	82 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	7 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

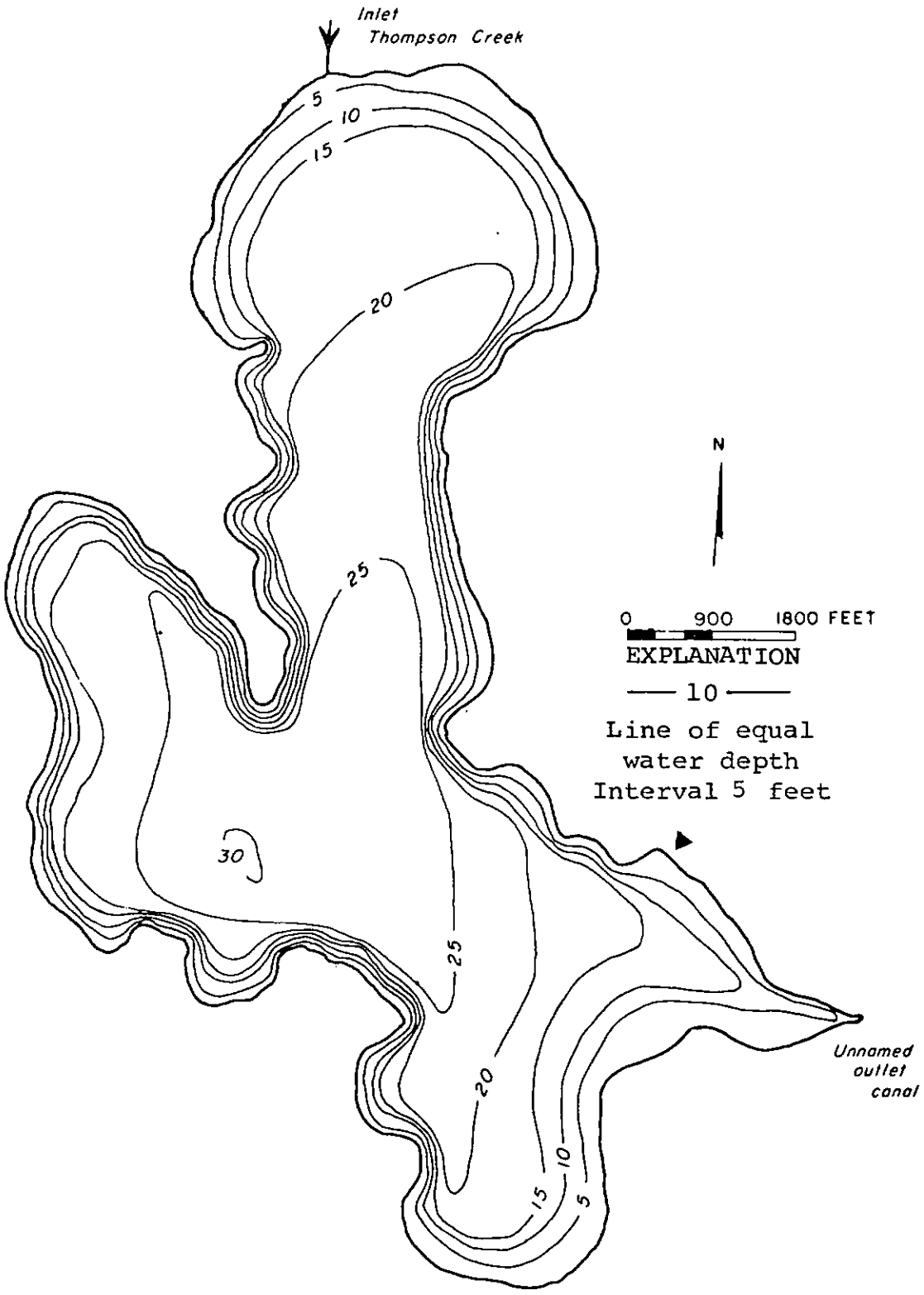
SAMPLE SITE	1	
DATE	6/28/74	
TIME	1120	1125
DEPTH (FT)	3.	26.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.18	0.28
TOTAL ORGANIC NITROGEN (N)	0.66	0.44
TOTAL PHOSPHORUS (P)	0.035	0.099
TOTAL ORTHOPHOSPHATE (P)	0.005	0.037
SPECIFIC CONDUCTANCE (MICROMHOS)	50	60
WATER TEMPERATURE (DEG C)	20.4	10.8
COLOR (PLATINUM-COBALT UNITS)	25	25
SECCHI-DISC VISIBILITY (FT)	5	
DISSOLVED OXYGEN	9.5	0.3

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

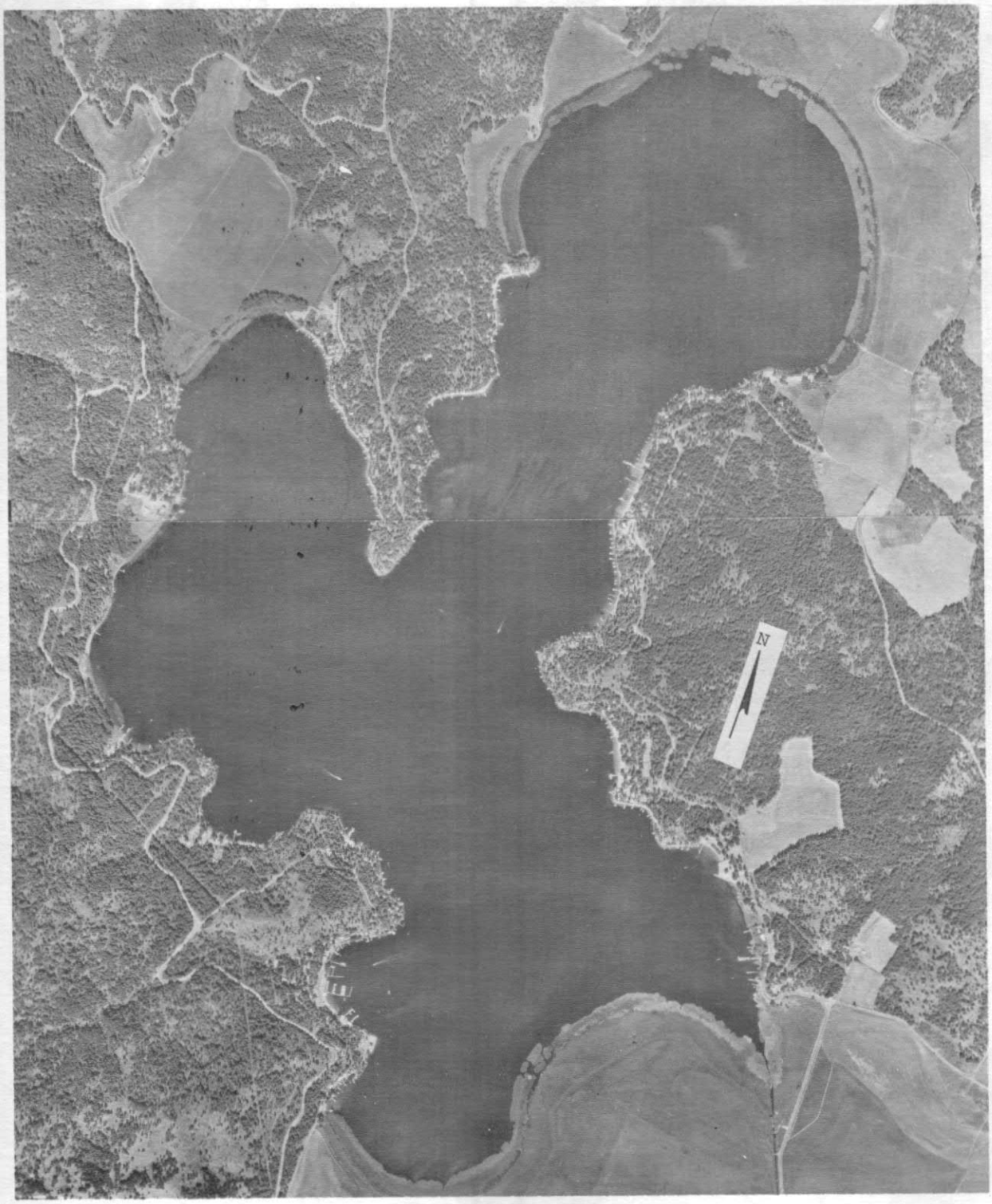
DATE	6/28/74
TIME	1135
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	3
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE WATER IS USED FOR IRRIGATION PURPOSES. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE ALGAL DENSITY WAS MODERATELY HIGH. IN 1971 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE SEPTEMBER 29, 1971 AND VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED. THERE ARE SEVERAL RESORTS AND RECREATIONAL USE OF THE LAKE IS HEAVY. THE U.S.G.S. HAS MONITORED THE LAKE STAGE SINCE 1958.



Newman Lake, Spokane County. From Washington Department of Game, February 18, 1951.



Newman Lake, Spokane County. August 10, 1972. Approx. scale 1:14,000.

OTTER LAKE SPOKANE COUNTY

LATITUDE 47°32'58" LONGITUDE 117°40'53" T24N-R41E-30
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.66 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2390. FT		
LAKE AREA	31. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	140. ACRE-FT		
MEAN DEPTH	5. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	8. FT		
SHORELINE LENGTH	1.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.57	AGRICULTURAL	91 %
BOTTOM SLOPE	0.61 %	FOREST OR UNPRODUCTIVE	2 %
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)

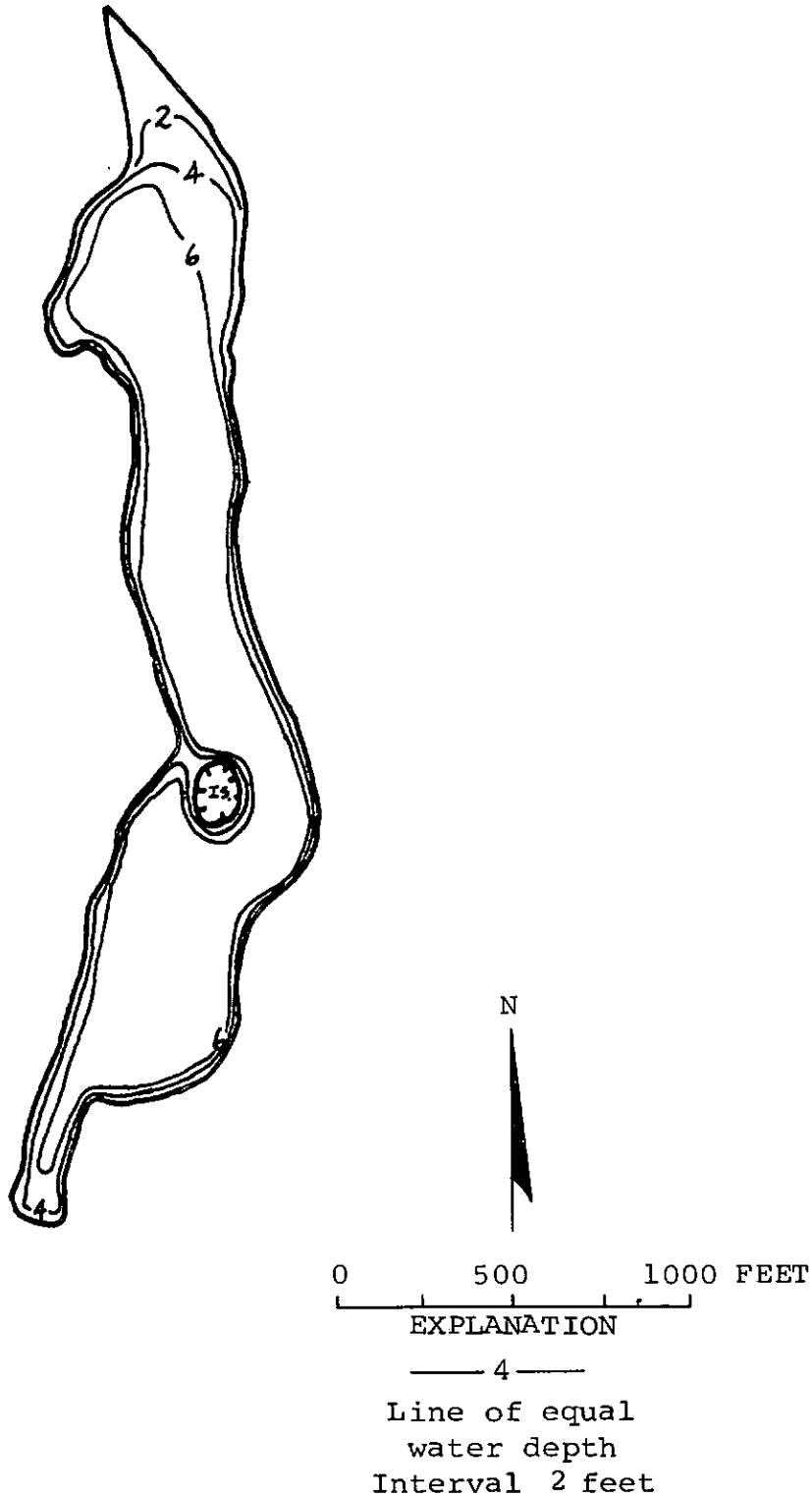
SAMPLE SITE	1	
DATE	6/27/74	
TIME	1130	1135
DEPTH (FT)	3.	6.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.36	0.43
TOTAL ORGANIC NITROGEN (N)	3.9	3.7
TOTAL PHOSPHORUS (P)	0.067	0.080
TOTAL ORTHOPHOSPHATE (P)	0.026	0.034
SPECIFIC CONDUCTANCE (MICROMHOS)	1100	1100
WATER TEMPERATURE (DEG C)	21.2	20.2
COLOR (PLATINUM-COBALT UNITS)	75	75
SECCHI-DISC VISIBILITY (FT)	5	
DISSOLVED OXYGEN	4.4	0.9

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

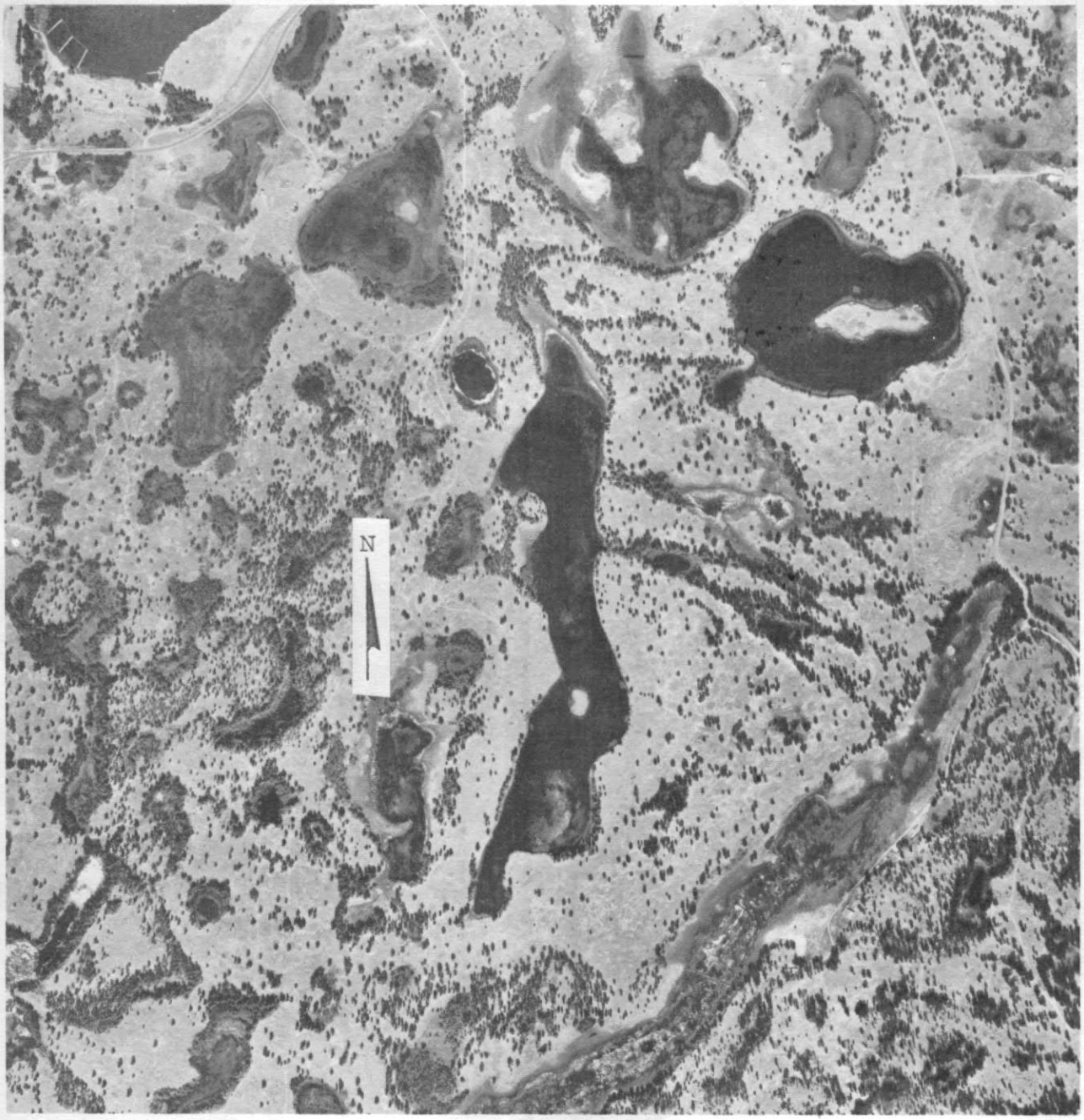
DATE	6/27/74
TIME	1145
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (YELLOW LILY AND SEDGE). THE WATER HAD A MUSTY ODOR.



Otter Lake, Spokane County. From
U.S. Geological Survey, June 12, 1974.



Otter Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

PHILLEO LAKE SPOKANE COUNTY

LATITUDE 47°24'38" LONGITUDE 117°27'50" T22N-R42E-11
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.35 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2356. FT		
LAKE AREA	240. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	1100. ACRE-FT		
MEAN DEPTH	4. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	10. FT		
SHORELINE LENGTH	3.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.44	AGRICULTURAL	84 %
BOTTOM SLOPE	0.28 %	FOREST OR UNPRODUCTIVE	0 %
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)

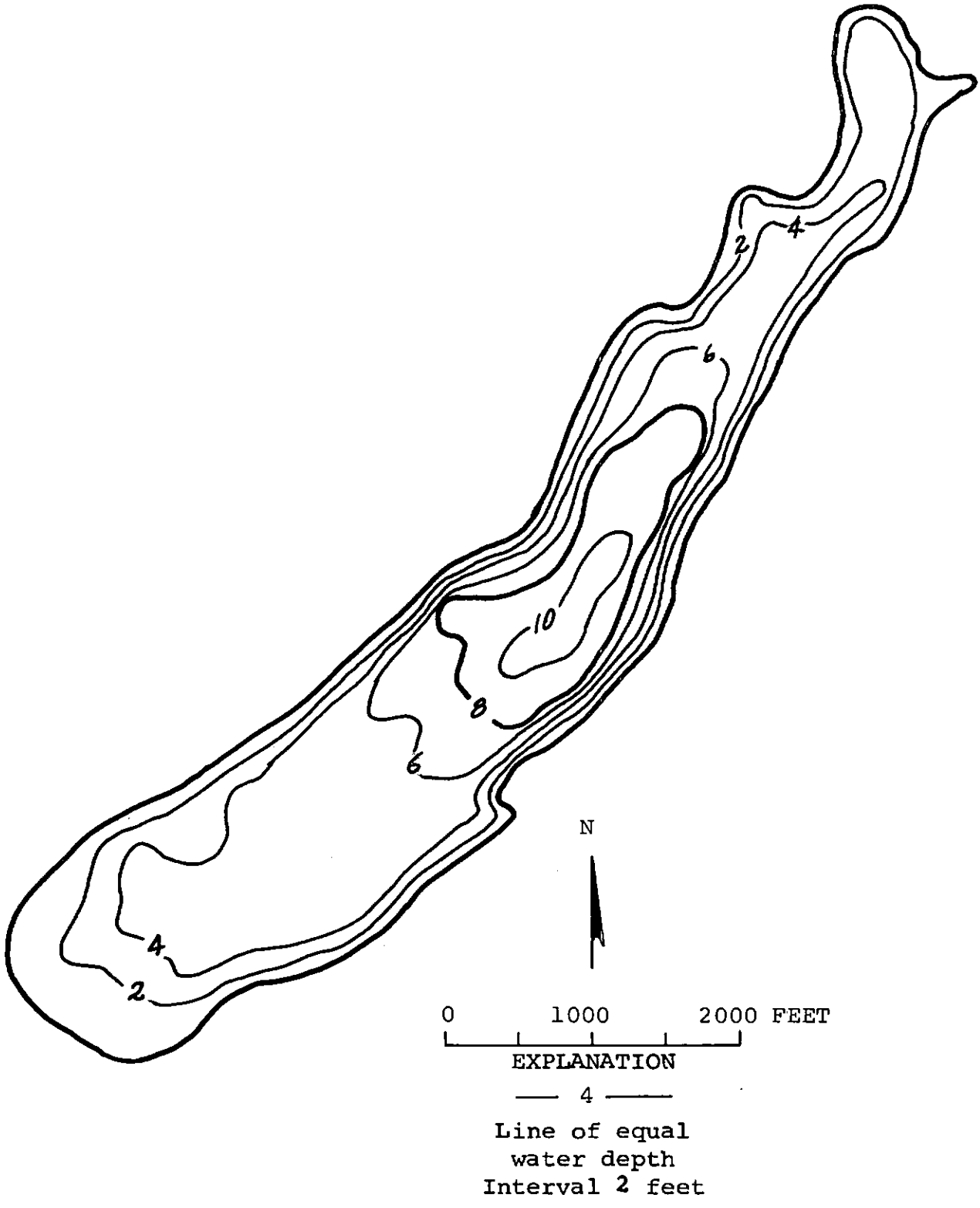
SAMPLE SITE	1	
DATE	6/24/74	
TIME	1425	1430
DEPTH (FT)	3.	7.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.28	0.31
TOTAL ORGANIC NITROGEN (N)	1.7	2.0
TOTAL PHOSPHORUS (P)	0.40	0.46
TOTAL ORTHOPHOSPHATE (P)	0.29	0.29
SPECIFIC CONDUCTANCE (MICROMHOS)	380	370
WATER TEMPERATURE (DEG C)	24.2	23.8
COLOR (PLATINUM-COBALT UNITS)	40	40
SECCHI-DISC VISIBILITY (FT)	8	
DISSOLVED OXYGEN	8.9	7.4

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

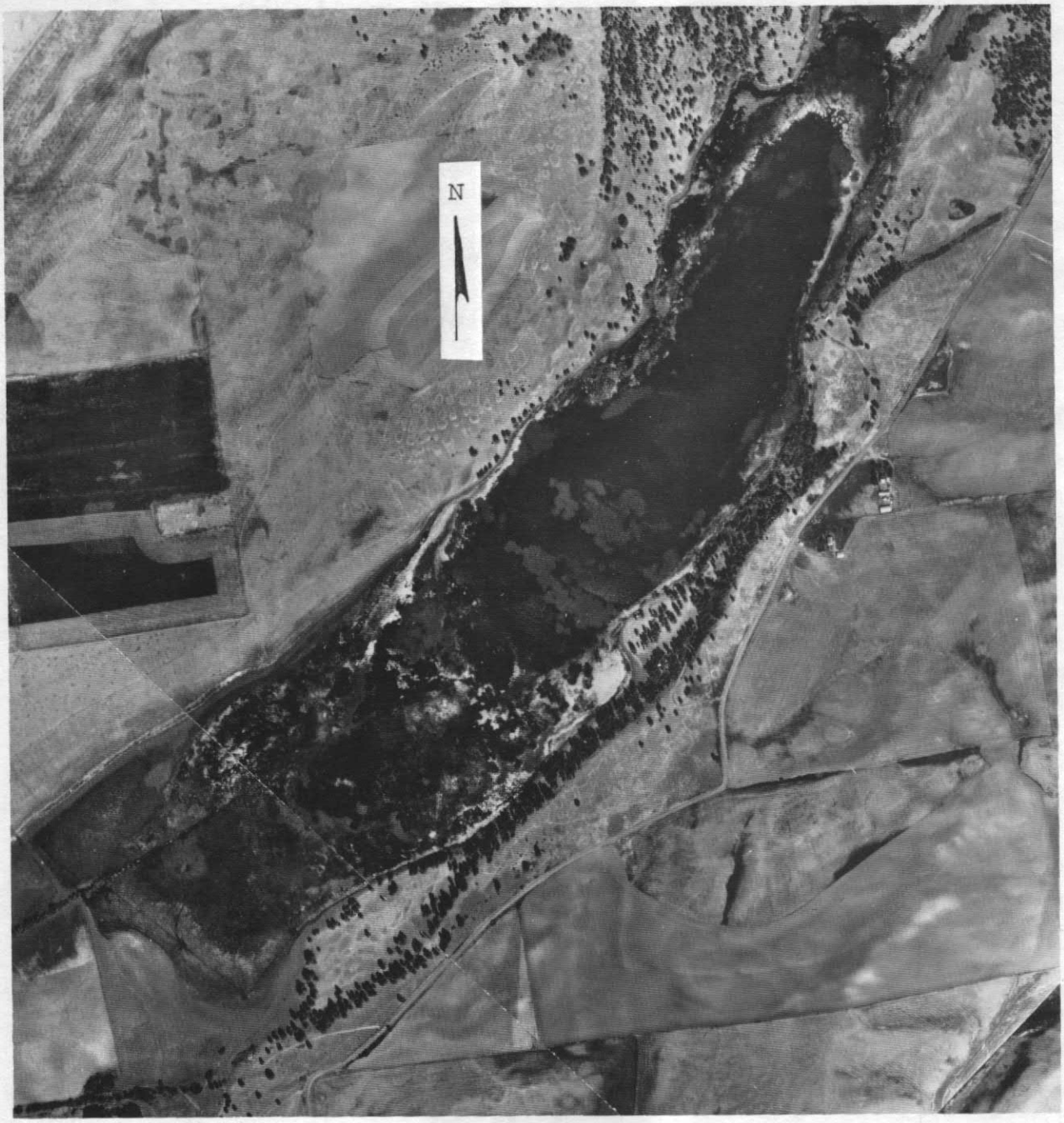
DATE	6/24/74
TIME	1442
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	22
FECAL COLIFORM, MEAN (COL./100ML)	7

REMARKS

THE LAKE ADJOINS EXTENSIVE MARSHES AT THE NORTHEAST AND SOUTHWEST ENDS. THE ALGAL DENSITY WAS MODERATELY HIGH. THE LITTORAL BOTTOM IS MUCK AND MOST OF THE LAKE BOTTOM WAS COVERED WITH SUBMERSED AQUATIC PLANTS. THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (SEDGE, RUSHES, YELLOW LILY, AND CATTAIL). THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION.



Philleo Lake, Spokane County. From
U.S. Geological Survey, May 16, 1974.



Philleo Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

QUEEN LUCAS LAKE SPOKANE COUNTY

LATITUDE 47°32'51" LONGITUDE 117°30'20" T24N-R42E-28
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	35.1 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2129. FT		
LAKE AREA	46. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	400. ACRE-FT		
MEAN DEPTH	9. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	16. FT		
SHORELINE LENGTH	1.8 MI	RESIDENTIAL URBAN	3 %
SHORELINE CONFIGURATION	1.9	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.55	AGRICULTURAL	45 %
BOTTOM SLOPE	1.0 %	FOREST OR UNPRODUCTIVE	52 %
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)

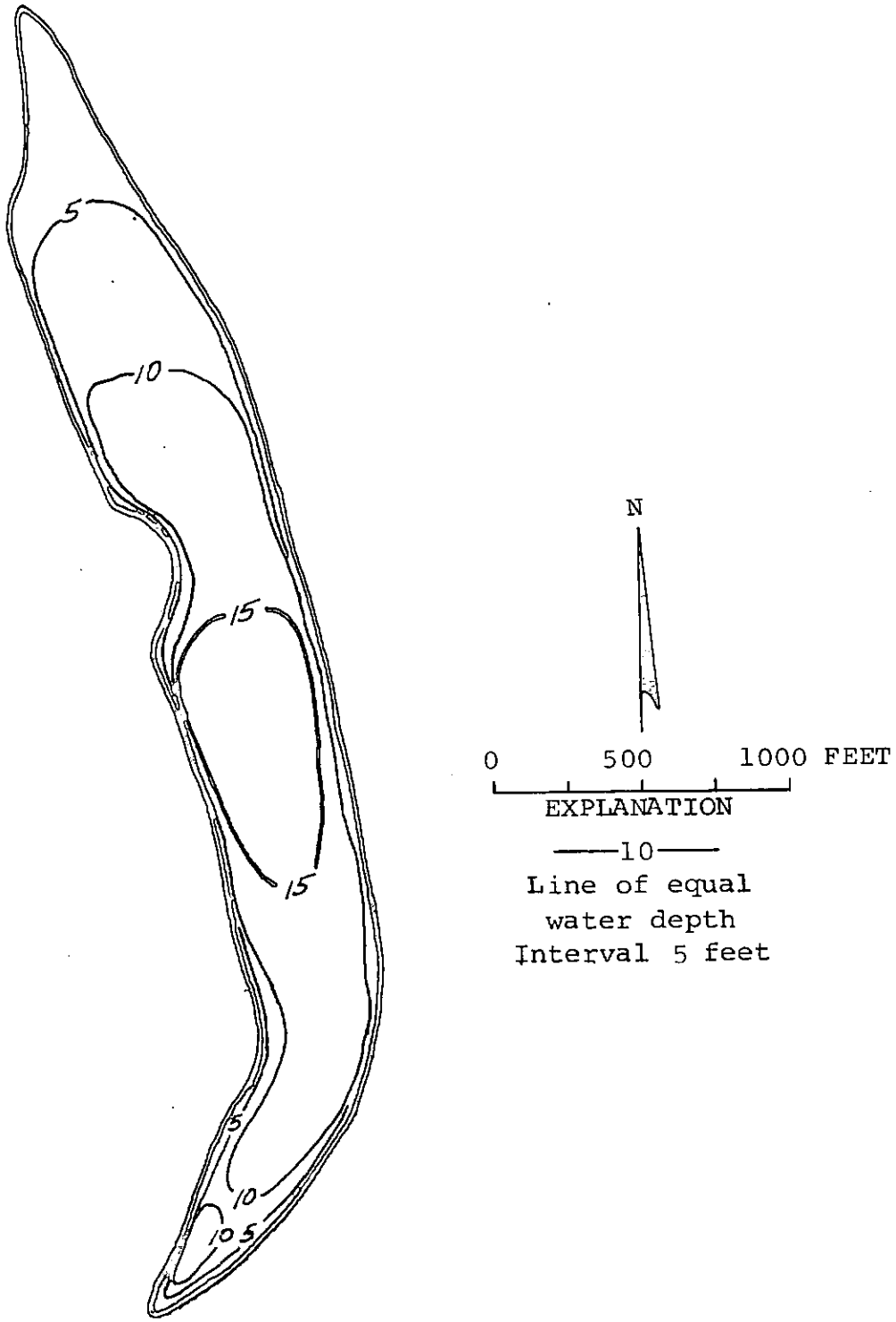
SAMPLE SITE	1	
DATE	6/27/74	
TIME	930	935
DEPTH (FT)	3.	13.
TOTAL NITRATE (N)	0.48	0.29
TOTAL NITRITE (N)	0.03	0.05
TOTAL AMMONIA (N)	0.72	0.65
TOTAL ORGANIC NITROGEN (N)	2.4	1.8
TOTAL PHOSPHORUS (P)	0.80	1.8
TOTAL ORTHOPHOSPHATE (P)	0.70	1.7
SPECIFIC CONDUCTANCE (MICROMHOS)	370	460
WATER TEMPERATURE (DEG C)	21.2	11.5
COLOR (PLATINUM-COBALT UNITS)	40	45
SECCHI-DISC VISIBILITY (FT)	3	
DISSOLVED OXYGEN	19.6	0.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	11- 25 %
LAKE SURFACE COVERED BY EMERSED PLANTS	26- 50 %

DATE	6/27/74
TIME	945
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 EASTERN AND WESTERN SHORES ARE RAILROAD FILL. A DENSE BLUE-GREEN ALGAL BLOOM, BUT VERY FEW SUBMERSED AQUATIC MACROPHYTES, WERE OBSERVED.



Queen Lucas Lake, Spokane County. From U.S. Geological Survey, June 11, 1974.

Queen Lucas Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

REFLECTION LAKE SPOKANE COUNTY

LATITUDE 47*59'53" LONGITUDE 117*17' 2" T29N-R44E-19
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.62 SQ MI	RESIDENTIAL DEVELOPMENT	45 %
ALTITUDE	1840. FT		
LAKE AREA	58. ACRES	NUMBER OF NEARSHORE HOMES	30
LAKE VOLUME	490. ACRE-FT		
MEAN DEPTH	8. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	19. FT		
SHORELINE LENGTH	1.7 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	2 %
DEVELOPMENT OF VOLUME	0.44	AGRICULTURAL	58 %
BOTTOM SLOPE	1.1 %	FOREST OR UNPRODUCTIVE	25 %
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/ 1/74	
TIME	1530	1535
DEPTH (FT)	3.	13.
TOTAL NITRATE (N)	0.10	0.11
TOTAL NITRITE (N)	0.02	0.02
TOTAL AMMONIA (N)	0.46	0.56
TOTAL ORGANIC NITROGEN (N)	0.54	0.54
TOTAL PHOSPHORUS (P)	0.032	0.049
TOTAL ORTHOPHOSPHATE (P)	0.012	0.019
SPECIFIC CONDUCTANCE (MICROMHOS)	220	220
WATER TEMPERATURE (DEG C)	22.0	20.8
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	>15	
DISSOLVED OXYGEN	5.8	1.3

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

DATE	7/ 1/74
TIME	1555
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

AN ARTIFICIAL LAKE CREATED BY AN EARTHEN DAM ABOUT 1955. A PRIVATELY-OWNED SPRING-FED FISH HATCHERY IS LOCATED ON THE EAST SHORE. THE WEST SHORE IS HEAVILY DEVELOPED WITH RESIDENTIAL AND RECREATIONAL HOMES.

Reflection Lake, Spokane County. Bathymetric map from U.S. Geological Survey, June 11, 1974. Aerial photo, July 2, 1967.

RING LAKE SPOKANE COUNTY

LATITUDE 47°33'28" LONGITUDE 117°40'32" T24N-R41E-19
CRAB CREEK BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.32 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2390. FT		
LAKE AREA	24. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	220. ACRE-FT		
MEAN DEPTH	9. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	12. FT		
SHORELINE LENGTH	0.85 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.75	AGRICULTURAL	78 %
BOTTOM SLOPE	1.0 %	FOREST OR UNPRODUCTIVE	10 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	12 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

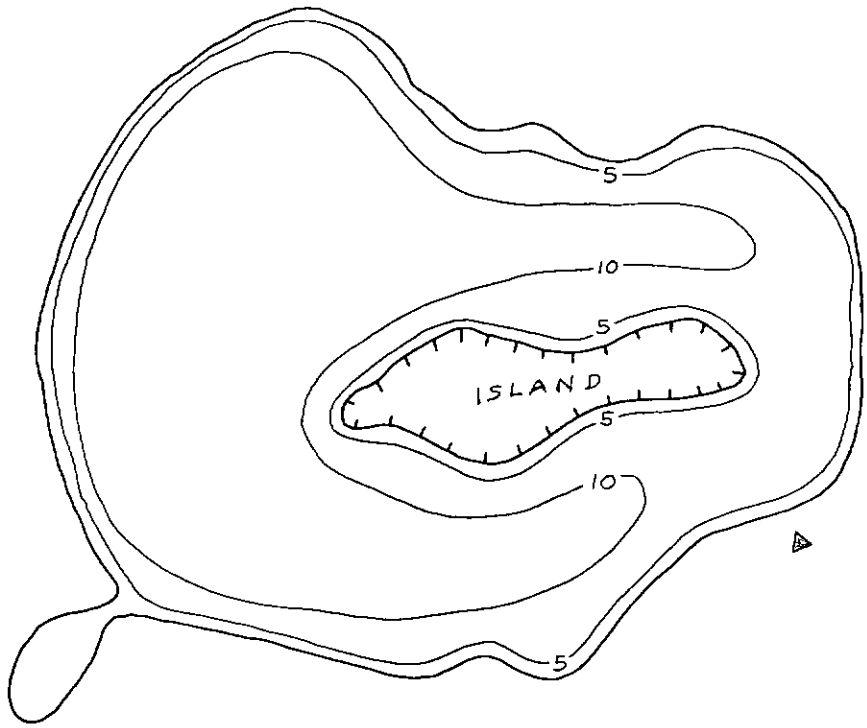
SAMPLE SITE	1	
DATE	6/27/74	
TIME	1230	1235
DEPTH (FT)	3.	8.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.10	0.11
TOTAL ORGANIC NITROGEN (N)	3.4	3.4
TOTAL PHOSPHORUS (P)	0.038	0.040
TOTAL ORTHOPHOSPHATE (P)	0.009	0.007
SPECIFIC CONDUCTANCE (MICROMHOS)	1400	1400
WATER TEMPERATURE (DEG C)	21.6	19.8
COLOR (PLATINUM-COBALT UNITS)	45	45
SECCHI-DISC VISIBILITY (FT)	7	
DISSOLVED OXYGEN	8.8	8.7

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

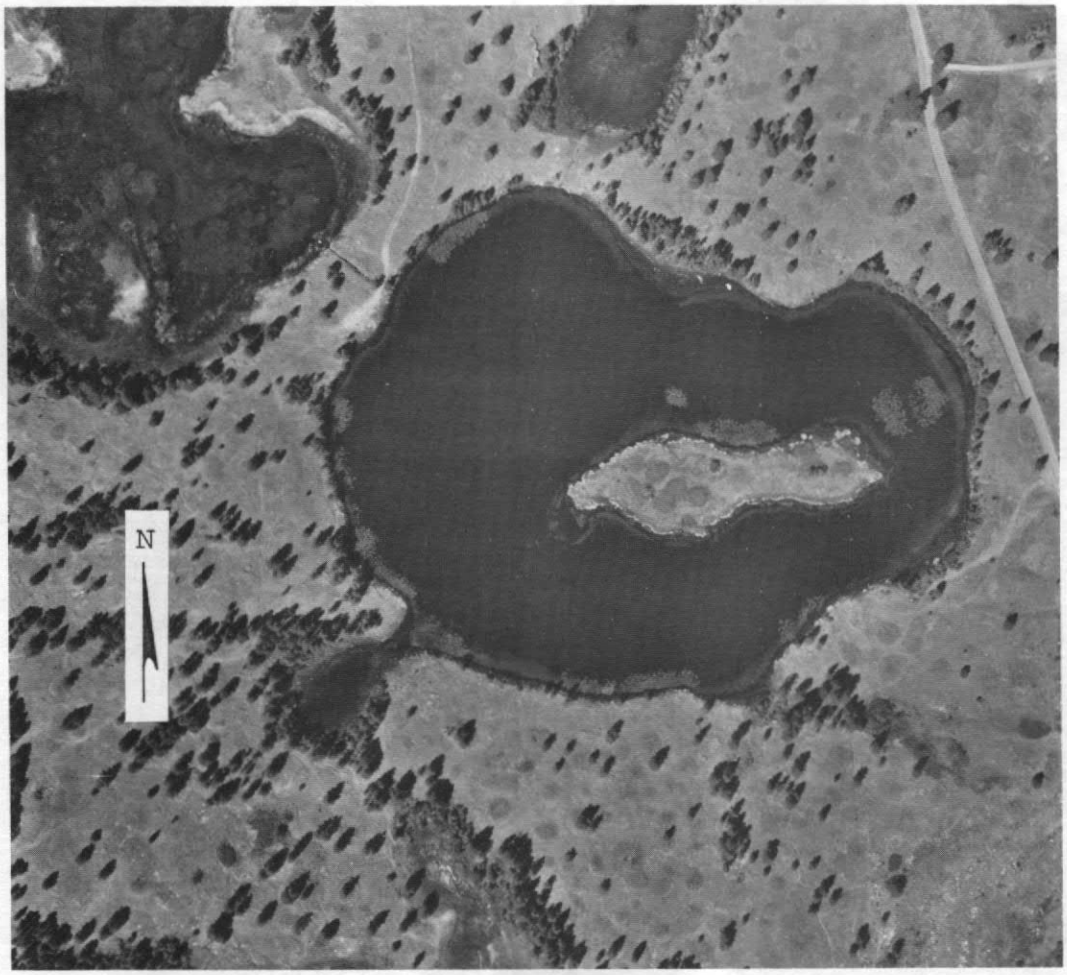
DATE	6/27/74
TIME	1245
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	6
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (YELLOW LILY AND SEDGE). AN ARTIFICIAL OUTLET FOR THE LAKE HAS BEEN DUG INTO ROCK.



Ring Lake, Spokane County. From Washington Department of Game, February 12, 1955.



Ring Lake, Spokane County. July 25, 1974. Approx. scale 1:4800.

SHELLEY LAKE SPOKANE COUNTY

LATITUDE 47*38'59" LONGITUDE 117*10'56" T25N-R44E-24
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	-- SQ MI	RESIDENTIAL DEVELOPMENT	2 %
ALTITUDE	2025. FT		
LAKE AREA	37. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	710. ACRE-FT		
MEAN DEPTH	19. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	41. FT		
SHORELINE LENGTH	1.7 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	2.0		
DEVELOPMENT OF VOLUME	0.47		
BOTTOM SLOPE	2.9 %		
BASIN GEOLOGY	IGNEOUS		
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

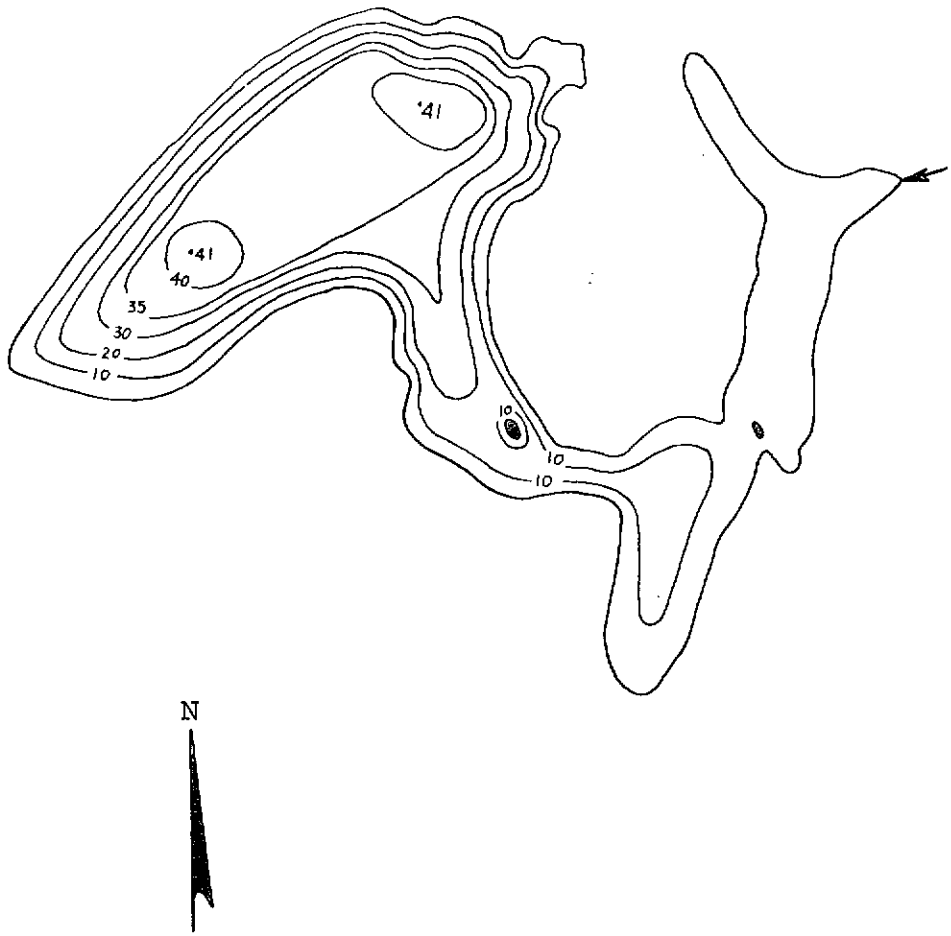
SAMPLE SITE	1	
DATE	6/28/74	
TIME	910	915
DEPTH (FT)	3.	23.
TOTAL NITRATE (N)	0.02	0.44
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.15	0.10
TOTAL ORGANIC NITROGEN (N)	0.85	0.63
TOTAL PHOSPHORUS (P)	0.072	0.087
TOTAL ORTHOPHOSPHATE (P)	0.020	0.052
SPECIFIC CONDUCTANCE (MICROMHOS)	120	130
WATER TEMPERATURE (DEG C)	19.1	9.2
COLOR (PLATINUM-COBALT UNITS)	50	50
SECCHI-DISC VISIBILITY (FT)	3	
DISSOLVED OXYGEN	8.0	0.3

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

DATE	6/28/74
TIME	925
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	5

REMARKS

THE ALGAL DENSITY WAS MODERATELY HIGH BUT NO AQUATIC MACROPHYTES WERE OBSERVED. THERE IS A FEED LOT ON THE NORTH SIDE OF THE LAKE. THE LAKE RECEIVES IRRIGATION WATER IMPORTED FROM OUTSIDE THE NATURAL DRAINAGE AREA.



Shelley Lake, Spokane County. From Washington Department of Game, February 22, 1952.

Shelley Lake, Spokane County. July 25, 1974. Approx. scale 1:4800.

SILVER LAKE SPOKANE COUNTY

LATITUDE 47°32'10" LONGITUDE 117°39'13" T24N-R41E-32
CRAB CREEK BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	19.0 SQ MI	RESIDENTIAL DEVELOPMENT	25 %
ALTITUDE	2341. FT		
LAKE AREA	490. ACRES	NUMBER OF NEARSHORE HOMES	83
LAKE VOLUME	14000. ACRE-FT		
MEAN DEPTH	30. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	80. FT		
SHORELINE LENGTH	8.7 MI	RESIDENTIAL URBAN	12 %
SHORELINE CONFIGURATION	2.8	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.37	AGRICULTURAL	84 %
BOTTOM SLOPE	1.5 %	FOREST OR UNPRODUCTIVE	<1 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	4 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

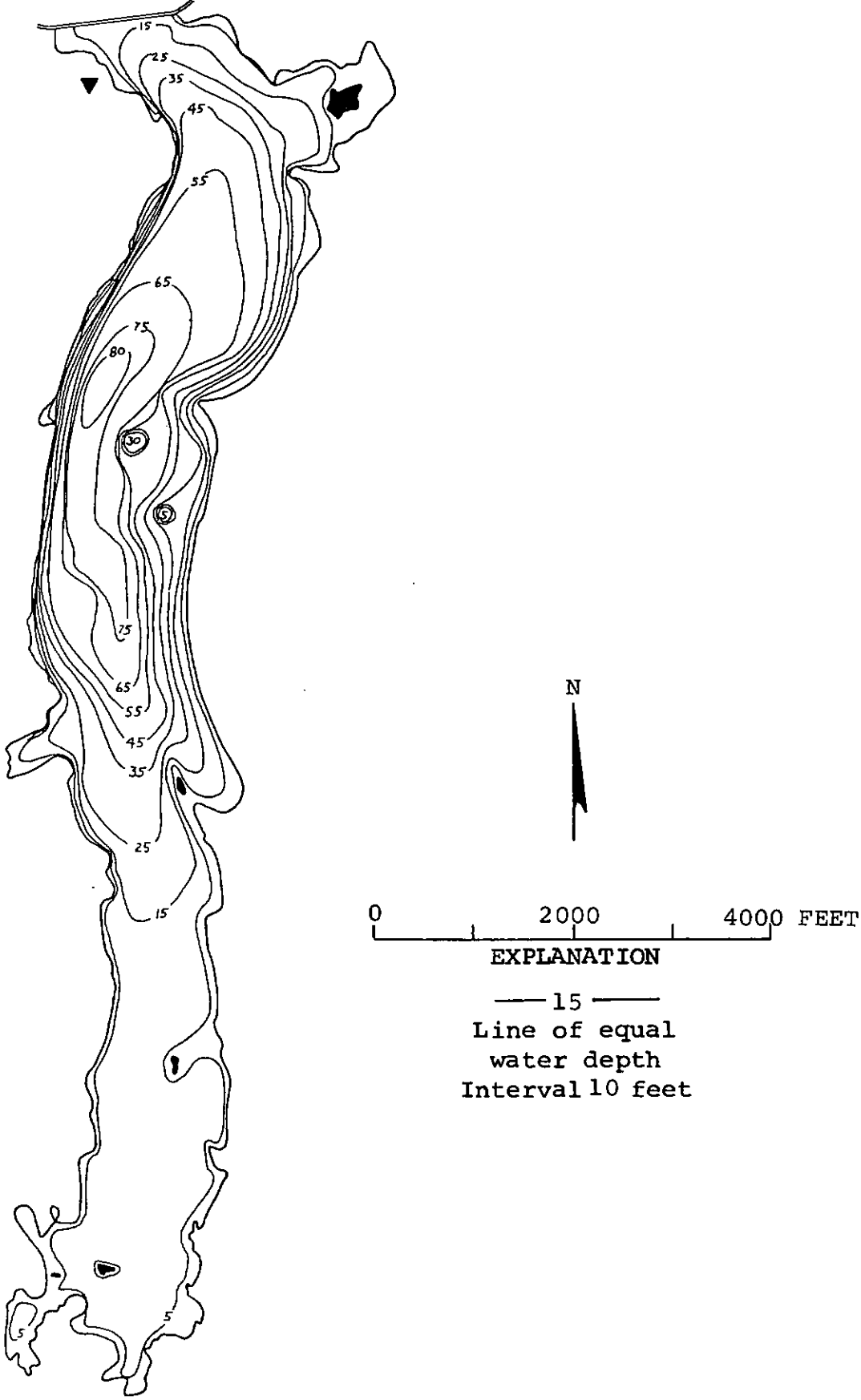
SAMPLE SITE	1	
DATE	6/24/74	
TIME	1640	1645
DEPTH (FT)	3.	72.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.06	0.71
TOTAL ORGANIC NITROGEN (N)	1.2	1.3
TOTAL PHOSPHORUS (P)	0.032	0.15
TOTAL ORTHOPHOSPHATE (P)	0.013	0.13
SPECIFIC CONDUCTANCE (MICROMHOS)	670	790
WATER TEMPERATURE (DEG C)	23.7	6.7
COLOR (PLATINUM-COBALT UNITS)	5	10
SECCHI-DISC VISIBILITY (FT)	18	
DISSOLVED OXYGEN	8.9	0.4

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

DATE	6/24/74
TIME	1645
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	9
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

THERE ARE SEVERAL RESORTS AND RECREATIONAL USE OF THE LAKE IS HEAVY. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE U.S. GEOLOGICAL SURVEY HAS MONITORED THE LAKE STAGE SINCE 1958. IN 1975 THE U.S.G.S. WILL SAMPLE THE LAKE FOUR TIMES.



Silver Lake, Spokane County. From Washington Department of Game, February 4, 1957.

Silver Lake, Spokane County. July 3, 1968. Approx. scale 1:60,000.

UNNAMED (21N-40E-7) LAKE SPOKANE COUNTY

LATITUDE 47°19'44" LONGITUDE 117°48'45" T21N-R40E-7
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	4.55 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2030. FT		
LAKE AREA	21. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	50. ACRE-FT		
MEAN DEPTH	2. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	4. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.59	AGRICULTURAL	98 %
BOTTOM SLOPE	0.37 %	FOREST OR UNPRODUCTIVE	1 %
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)

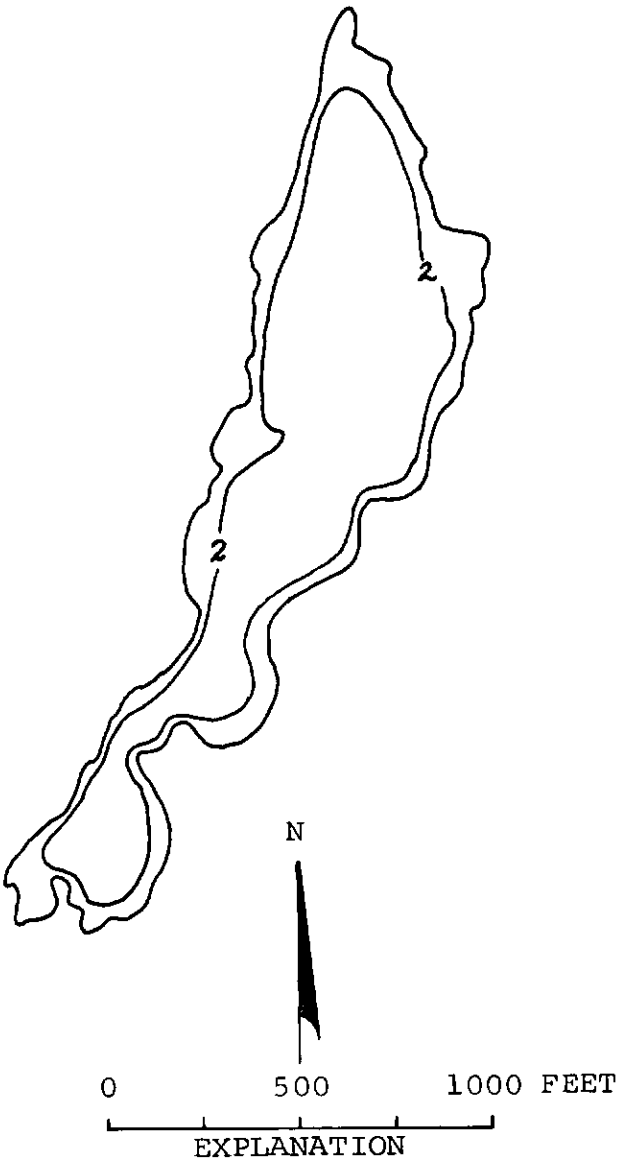
SAMPLE SITE	1	
DATE	6/26/74	
TIME	905	910
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.11	0.13
TOTAL ORGANIC NITROGEN (N)	1.7	1.7
TOTAL PHOSPHORUS (P)	0.056	0.065
TOTAL ORTHOPHOSPHATE (P)	0.013	0.010
SPECIFIC CONDUCTANCE (MICROMHOS)	500	500
WATER TEMPERATURE (DEG C)	18.0	18.0
COLOR (PLATINUM-COBALT UNITS)	110	100
SECCHI-DISC VISIBILITY (FT)	> 5	
DISSOLVED OXYGEN	5.4	5.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	6/26/74
TIME	948
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 LITTORAL BOTTOM IS MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (COONTAIL AND PONDWEED). THE ENTIRE SHORELINE WAS COVERED WITH DENSE BEDS OF EMERSED AQUATIC PLANTS (RUSHES).



Unnamed (21N-40E-7) Lake, Spokane County.
From U.S. Geological Survey, September 26, 1974.

Unnamed (21N-40E-7) Lake, Spokane County.
July 26, 1974. Approx. scale 1:4800.

UNNAMED (22N-40E-6) LAKE SPOKANE COUNTY

LATITUDE 47°25'34" LONGITUDE 117°48'59" T22N-R40E-6
CRAB CREEK BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.22 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2280. FT		
LAKE AREA	25. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	91. ACRE-FT		
MEAN DEPTH	4. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	6. FT		
SHORELINE LENGTH	1.0 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.4	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.62	AGRICULTURAL	96 %
BOTTOM SLOPE	0.52 %	FOREST OR UNPRODUCTIVE	1 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	3 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

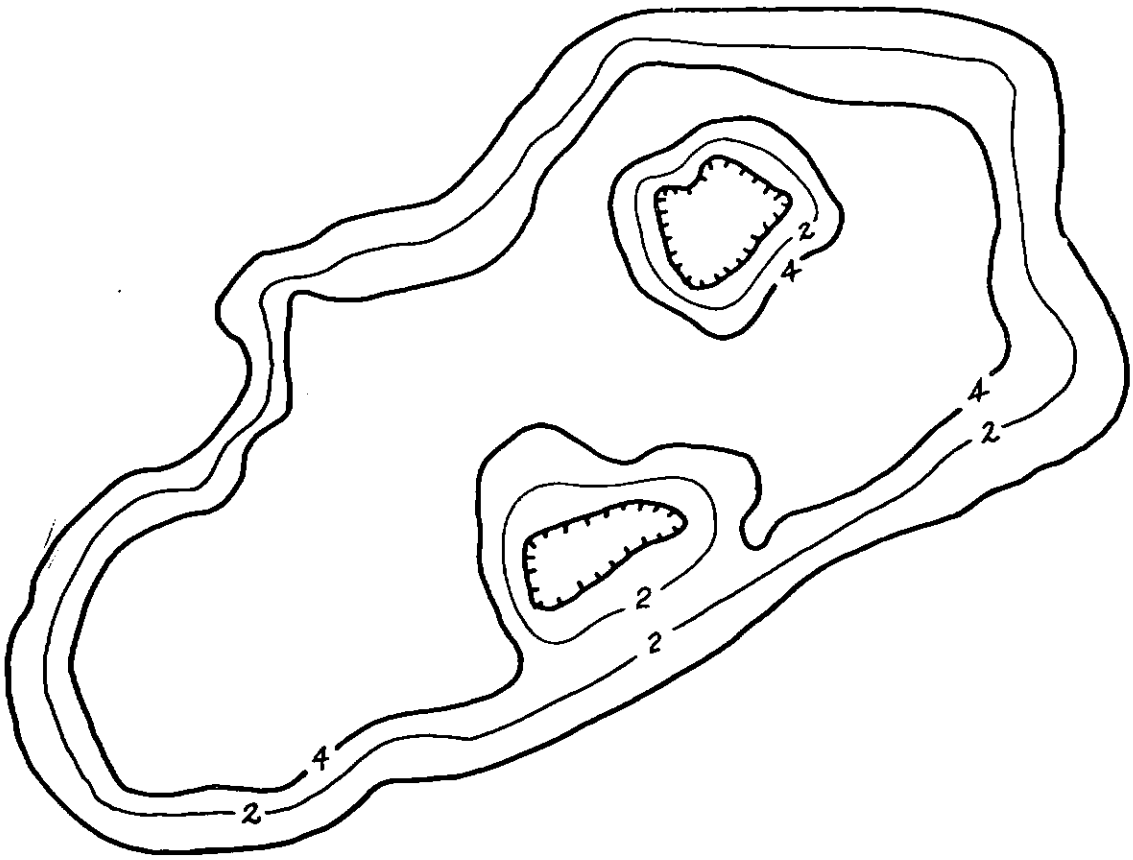
SAMPLE SITE	1	
DATE	6/25/74	
TIME	850	855
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.20	0.22
TOTAL ORGANIC NITROGEN (N)	2.2	2.7
TOTAL PHOSPHORUS (P)	0.19	0.14
TOTAL ORTHOPHOSPHATE (P)	0.080	0.092
SPECIFIC CONDUCTANCE (MICROMHOS)	750	750
WATER TEMPERATURE (DEG C)	21.0	20.8
COLOR (PLATINUM-COBALT UNITS)	170	170
SECCHI-DISC VISIBILITY (FT)	3	
DISSOLVED OXYGEN	2.6	1.7

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

DATE	6/25/74
TIME	904
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	17
FECAL COLIFORM, MEAN (COL./100ML)	8

REMARKS

THE LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (PONDWEED). THE ENTIRE SHORELINE WAS COVERED WITH SCATTERED DENSE BEDS OF EMERSED AQUATIC PLANTS (RUSHES AND SEDGE).



N

0 400 800 FEET

EXPLANATION

— 4 —

Line of equal
water depth
Interval 2 feet

Unnamed (22N-40E-6) Lake, Spokane County.
From U.S. Geological Survey, May 14, 1974.

UNNAMED (22N-41E-21) LAKE SPOKANE COUNTY

LATITUDE 47°23'24" LONGITUDE 117°38'38" T22N-R41E-21
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.33 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2300. FT		
LAKE AREA	23. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	86. ACRE-FT		
MEAN DEPTH	4. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	8. FT		
SHORELINE LENGTH	1.5 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.46	AGRICULTURAL	87 %
BOTTOM SLOPE	0.70 %	FOREST OR UNPRODUCTIVE	2 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	11 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

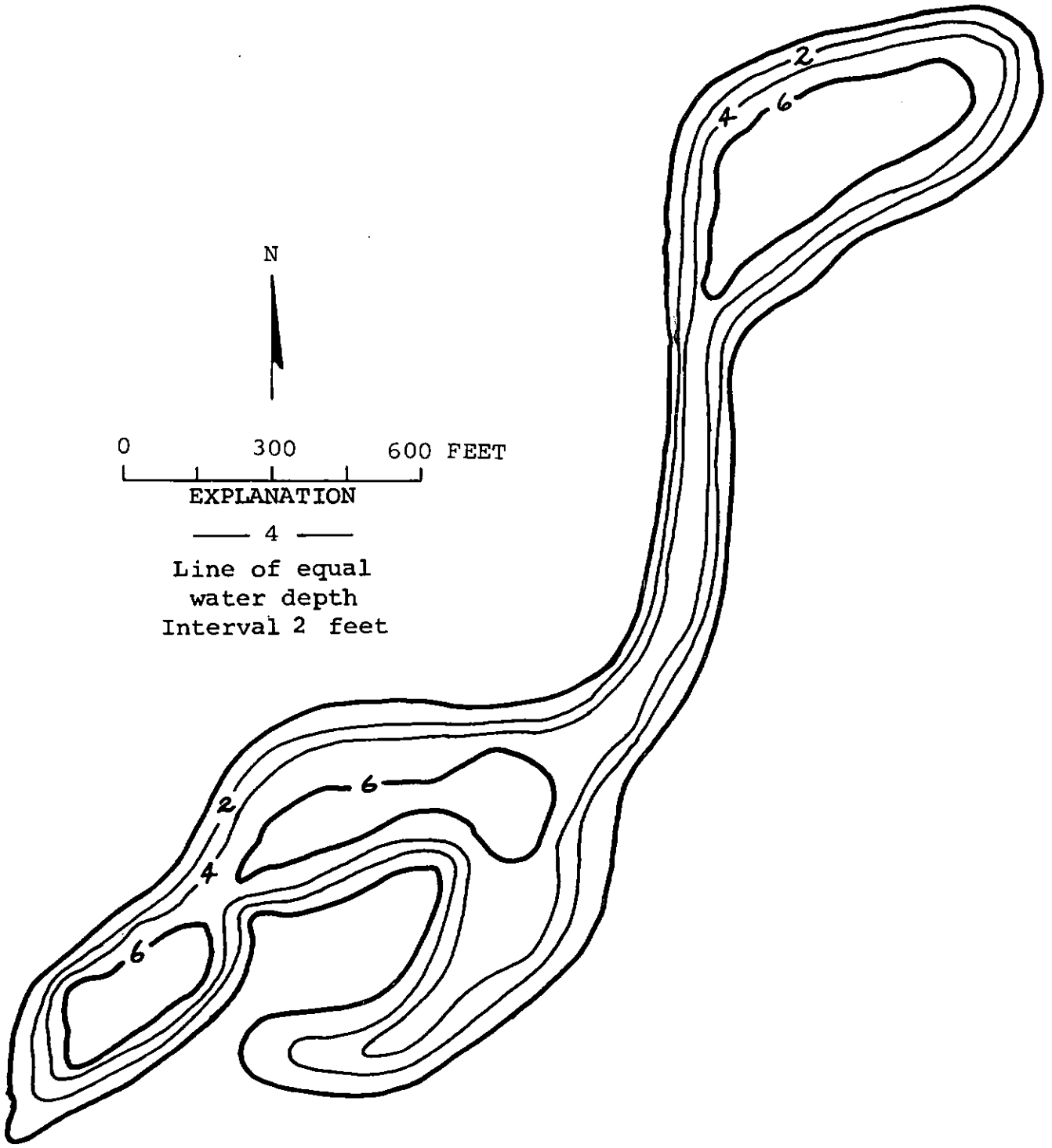
SAMPLE SITE	1	
DATE	6/26/74	
TIME	1420	1425
DEPTH (FT)	3.	5.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.08	0.09
TOTAL ORGANIC NITROGEN (N)	1.3	1.6
TOTAL PHOSPHORUS (P)	0.14	0.14
TOTAL ORTHOPHOSPHATE (P)	0.086	0.095
SPECIFIC CONDUCTANCE (MICROMHOS)	280	280
WATER TEMPERATURE (DEG C)	20.9	20.9
COLOR (PLATINUM-COBALT UNITS)	60	65
SECCHI-DISC VISIBILITY (FT)	> 5	
DISSOLVED OXYGEN	7.7	7.9

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

DATE	6/26/74
TIME	1430
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 ENTIRE SHORELINE AND APPROXIMATELY 80 PERCENT OF THE LAKE SURFACE WERE COVERED WITH EMERSED AQUATIC PLANTS (SEDGE). THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION.



Unnamed (22N-41E-21) Lake, Spokane County.
From U.S. Geological Survey, May 15, 1974.

UNNAMED (22N-41E-27) LAKE SPOKANE COUNTY

LATITUDE 47°21'58" LONGITUDE 117°36'36" T22N-R41E-27
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.10 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2270. FT		
LAKE AREA	26. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	66. ACRE-FT		
MEAN DEPTH	3. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	5. FT		
SHORELINE LENGTH	0.88 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.51	AGRICULTURAL	59 %
BOTTOM SLOPE	0.42 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	41 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

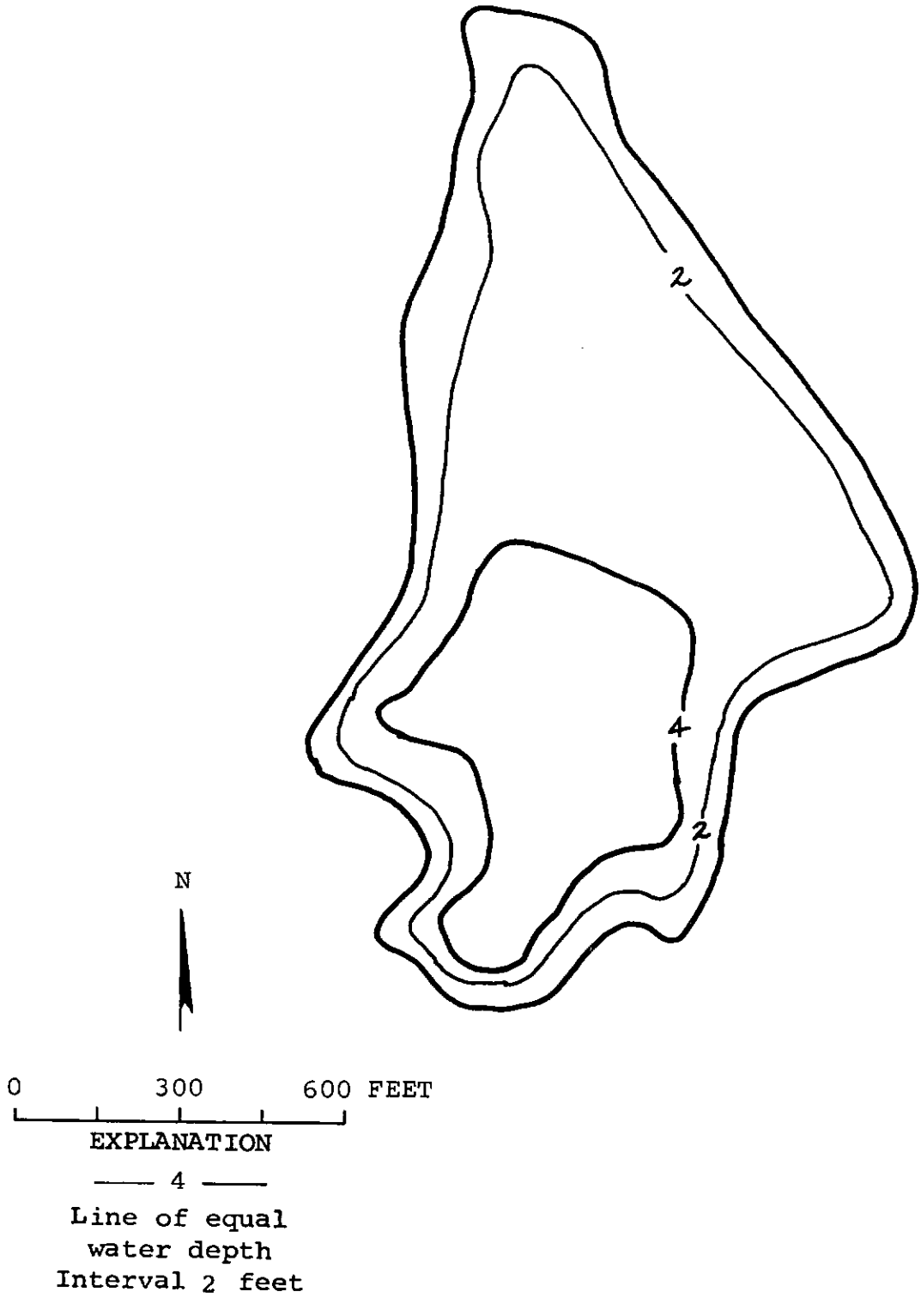
SAMPLE SITE	1	
DATE	6/26/74	
TIME	1245	1250
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.06	0.07
TOTAL NITRITE (N)	0.04	0.04
TOTAL AMMONIA (N)	0.61	0.62
TOTAL ORGANIC NITROGEN (N)	1.8	1.9
TOTAL PHOSPHORUS (P)	2.3	1.6
TOTAL ORTHOPHOSPHATE (P)	1.7	1.6
SPECIFIC CONDUCTANCE (MICROMHOS)	610	610
WATER TEMPERATURE (DEG C)	19.5	19.0
COLOR (PLATINUM-COBALT UNITS)	240	240
SECCHI-DISC VISIBILITY (FT)	1	
DISSOLVED OXYGEN	7.0	6.9

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

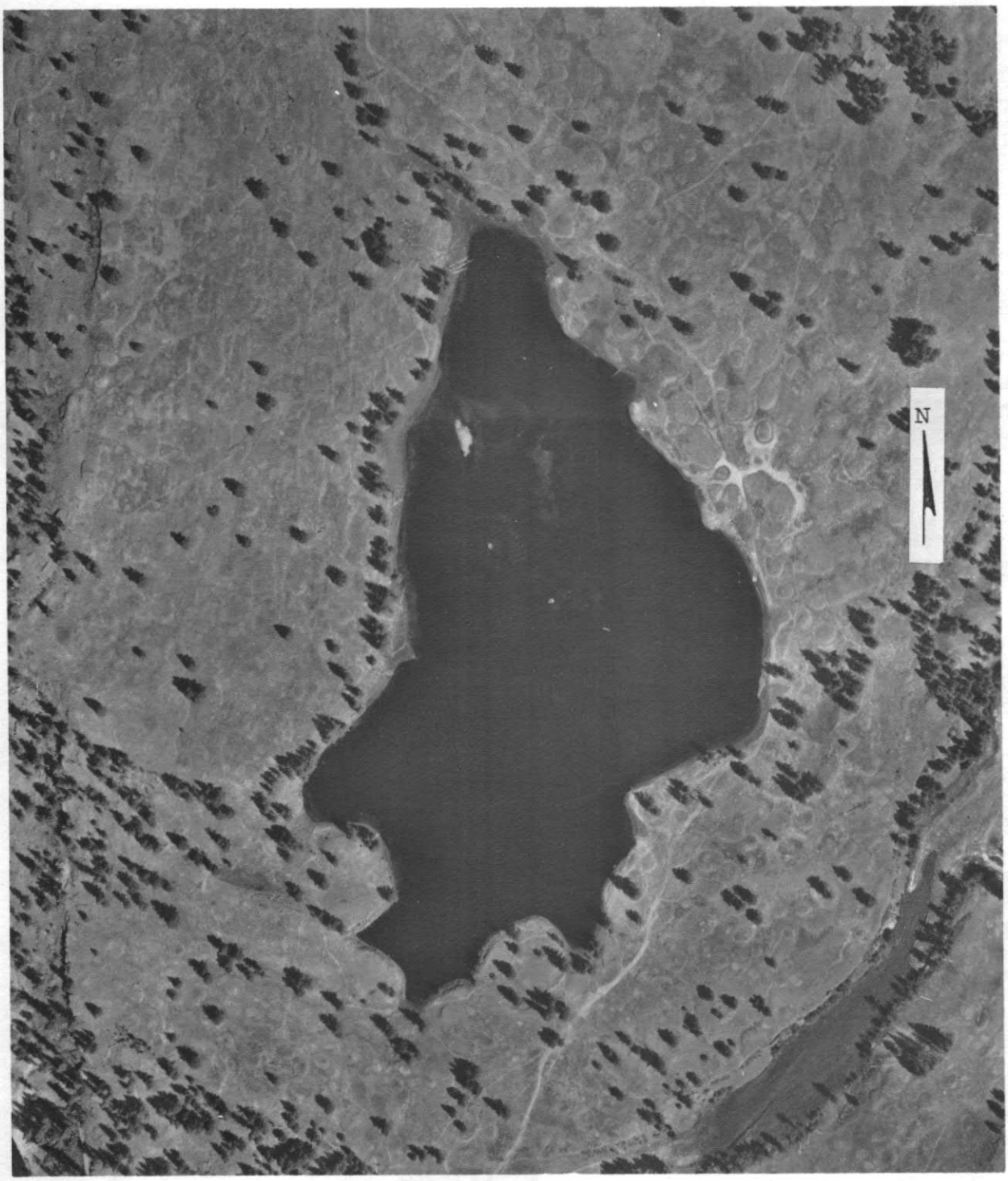
DATE	6/26/74
TIME	1255
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	8
FECAL COLIFORM, MAXIMUM (COL./100ML)	12
FECAL COLIFORM, MEAN (COL./100ML)	9

REMARKS

THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (WATER SHIELD AND SEDGE). THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION.



Unnamed (22N-41E-27) Lake, Spokane County.
From U.S. Geological Survey, May 15, 1974.



Unnamed (22N-41E-27) Lake, Spokane County.
July 25, 1974. Approx. scale 1:4800.

UNNAMED (22N-41E-32) LAKE SPOKANE COUNTY

LATITUDE 47°20'59" LONGITUDE 117°39'29" T22N-R41E-32
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	3.50 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2100. FT		
LAKE AREA	24. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	57. ACRE-FT		
MEAN DEPTH	2. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	10. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.24	AGRICULTURAL	98 %
BOTTOM SLOPE	0.87 %	FOREST OR UNPRODUCTIVE	1 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	1 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

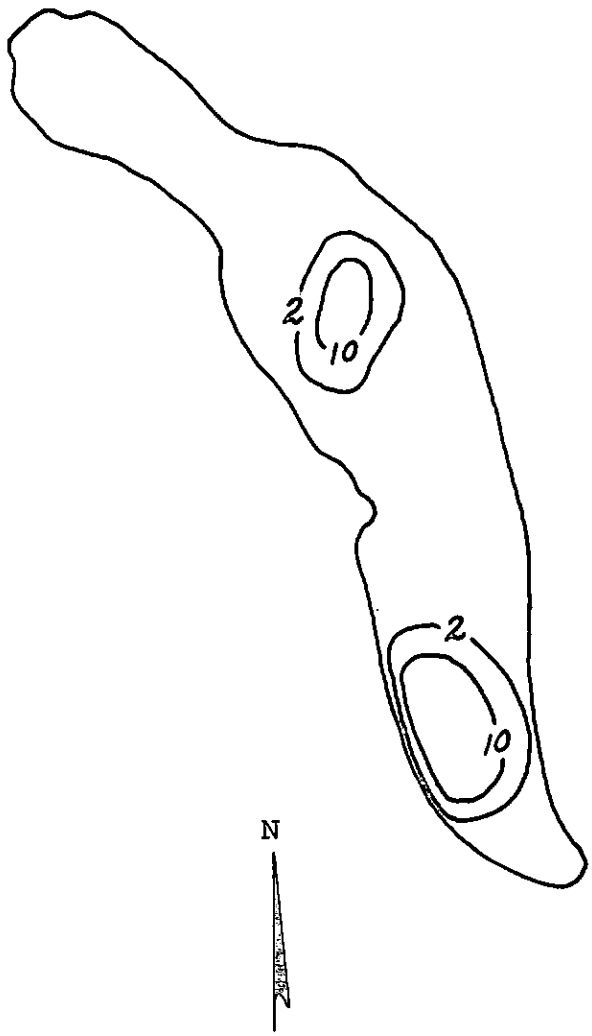
SAMPLE SITE	1	
DATE	6/26/74	
TIME	1330	1335
DEPTH (FT)	3.	10.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.10	0.56
TOTAL ORGANIC NITROGEN (N)	0.85	0.54
TOTAL PHOSPHORUS (P)	0.066	0.22
TOTAL ORTHOPHOSPHATE (P)	0.019	0.18
SPECIFIC CONDUCTANCE (MICROMHOS)	270	260
WATER TEMPERATURE (DEG C)	20.0	12.5
COLOR (PLATINUM-COBALT UNITS)	55	75
SECCHI-DISC VISIBILITY (FT)	9	
DISSOLVED OXYGEN	6.4	0.5

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

DATE	6/26/74
TIME	1340
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	5
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

THE LAKE IS BORDERED BY HIGH BASALT CLIFFS; AT THE BASE OF THE CLIFFS ARE WILLOWS AND HEAVY BRUSH. THE ENTIRE SHORELINE AND A LARGE PART OF THE LAKE SURFACE WERE COVERED WITH EMERSED AQUATIC PLANTS (CATTAIL, YELLOW LILY, AND SEDGE).



Unnamed (22N-41E-32) Lake, Spokane County.
From U.S. Geological Survey, September 26, 1974.

UNNAMED (23N-42E-14) LAKE SPOKANE COUNTY

LATITUDE 47°29' 7" LONGITUDE 117°28'21" T23N-R42E-14
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.38 SQ MI	RESIDENTIAL DEVELOPMENT	3 %
ALTITUDE	2310. FT		
LAKE AREA	20. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	66. ACRE-FT		
MEAN DEPTH	3. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	5. FT		
SHORELINE LENGTH	1.2 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.64	AGRICULTURAL	92 %
BOTTOM SLOPE	0.47 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	8 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

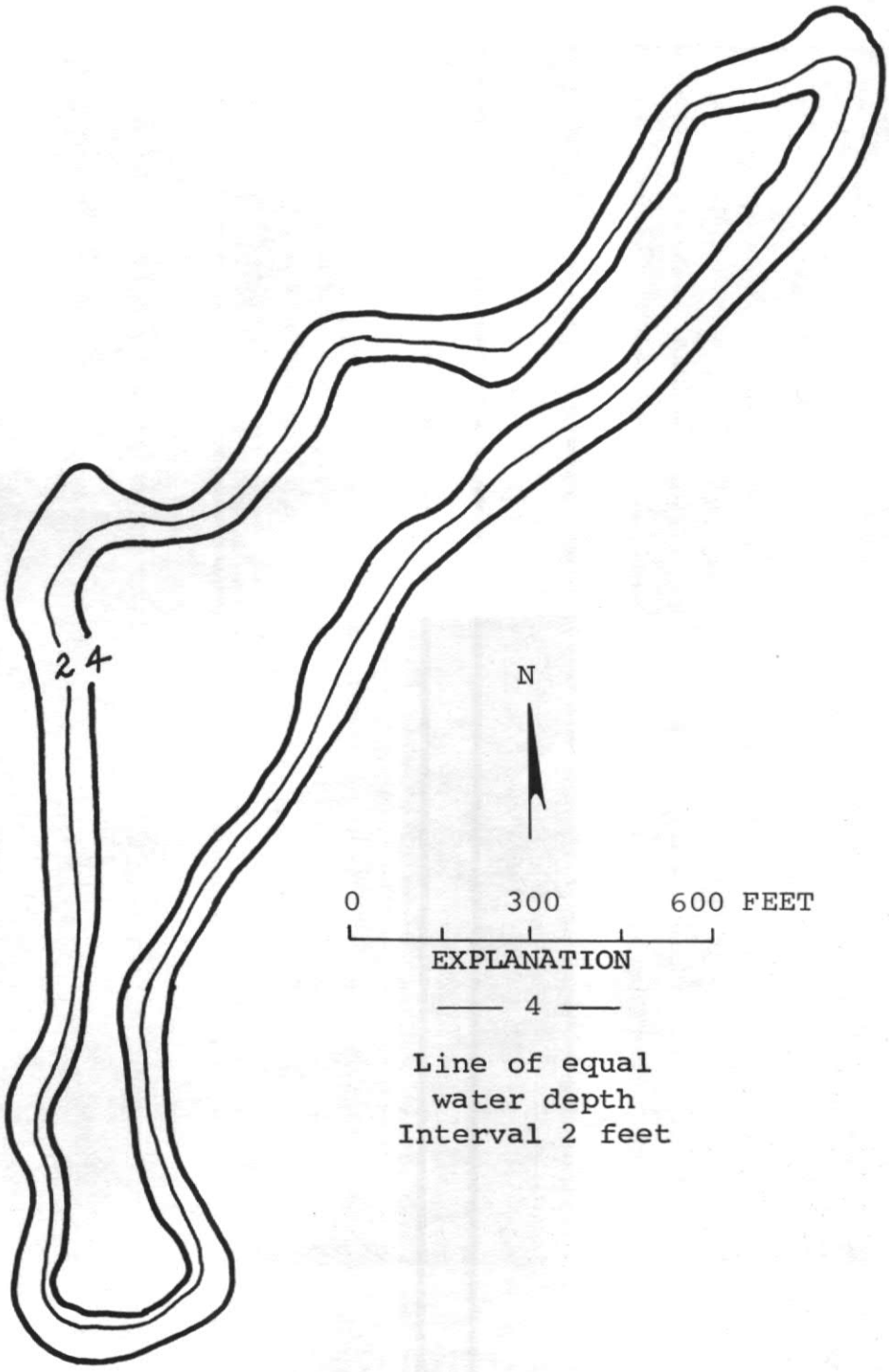
SAMPLE SITE	1	
DATE	6/27/74	
TIME	1030	1035
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.02	0.02
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.06	0.08
TOTAL ORGANIC NITROGEN (N)	0.64	2.0
TOTAL PHOSPHORUS (P)	0.068	0.076
TOTAL ORTHOPHOSPHATE (P)	0.013	0.019
SPECIFIC CONDUCTANCE (MICROMHOS)	350	320
WATER TEMPERATURE (DEG C)	20.0	20.2
COLOR (PLATINUM-COBALT UNITS)	50	45
SECCHI-DISC VISIBILITY (FT)	> 5	
DISSOLVED OXYGEN	15.2	15.6

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

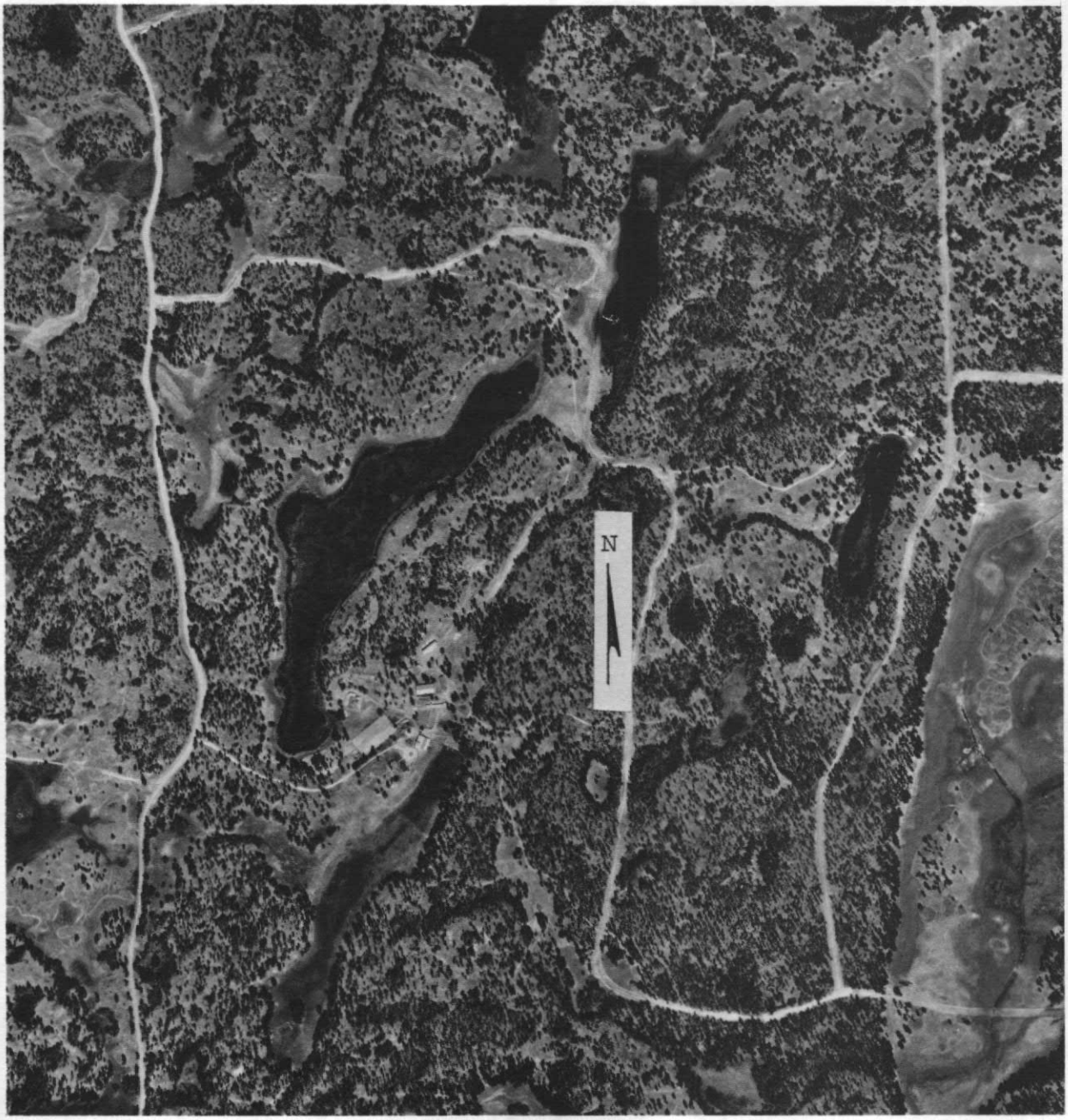
DATE	6/27/74
TIME	1045
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	3
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

A SHALLOW LAKE THAT WAS CHOKED WITH AQUATIC PLANTS AT THE TIME OF SAMPLING. THE LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (PONDWEED). THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (CATTAIL AND SEDGE). ALGAL DENSITY WAS MODERATELY HIGH. THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION.



Unnamed (23N-42E-14) Lake, Spokane County.
From U.S. Geological Survey, May 17, 1974.



Unnamed (23N-42E-14) Lake, Spokane County.
July 25, 1974. Approx. scale 1:12,000.

UNNAMED (24N-40E-21) LAKE SPOKANE COUNTY

LATITUDE 47°33' 5" LONGITUDE 117°45'34" T24N-R40E-21
CRAB CREEK BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.32 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2425. FT		
LAKE AREA	38. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	170. ACRE-FT		
MEAN DEPTH	4. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	8. FT		
SHORELINE LENGTH	1.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.55	AGRICULTURAL	81 %
BOTTOM SLOPE	0.55 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	19 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

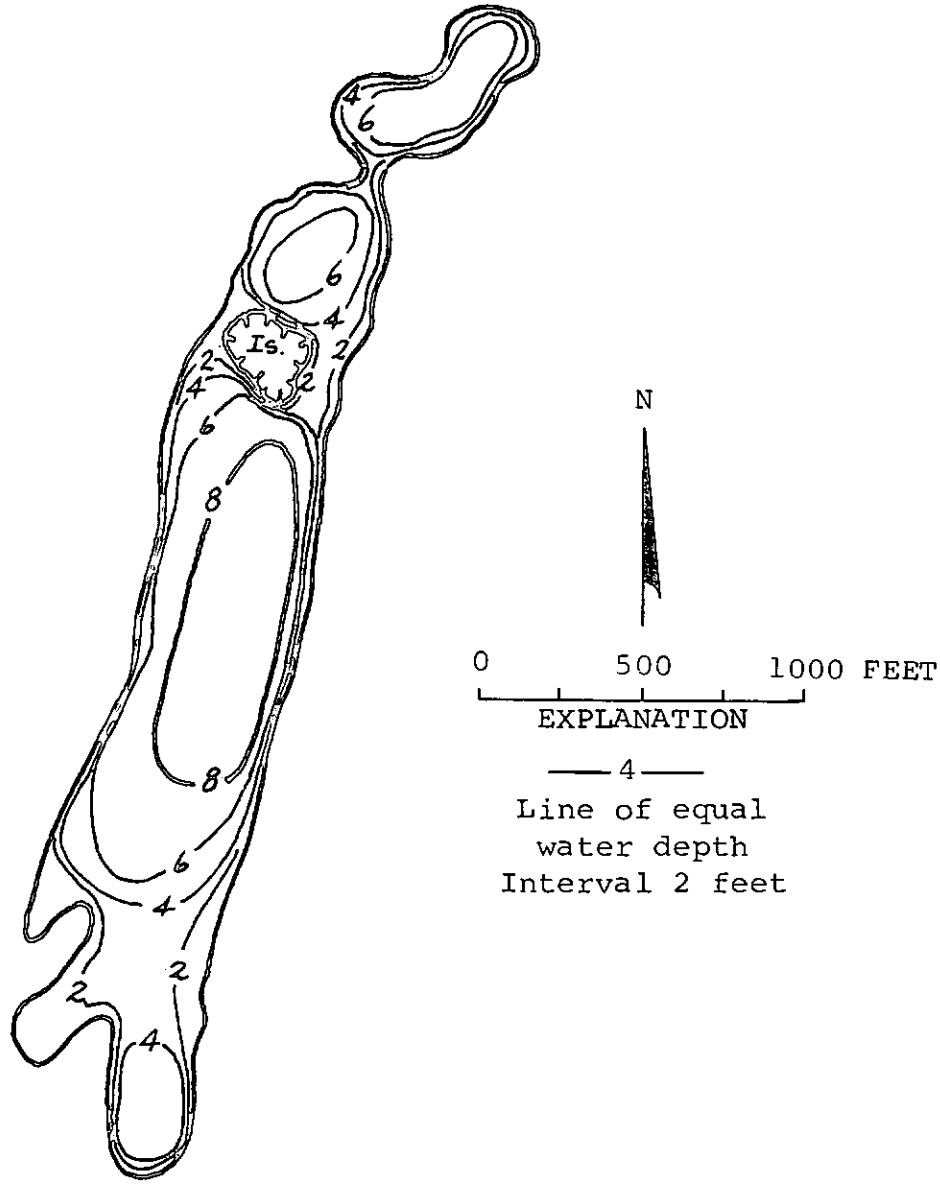
SAMPLE SITE	1	
DATE	6/27/74	
TIME	1330	1335
DEPTH (FT)	3.	7.
TOTAL NITRATE (N)	0.02	0.03
TOTAL NITRITE (N)	0.02	0.02
TOTAL AMMONIA (N)	0.20	0.20
TOTAL ORGANIC NITROGEN (N)	2.6	2.7
TOTAL PHOSPHORUS (P)	0.46	0.46
TOTAL ORTHOPHOSPHATE (P)	0.41	0.42
SPECIFIC CONDUCTANCE (MICROMHOS)	1350	1350
WATER TEMPERATURE (DEG C)	20.0	20.0
COLOR (PLATINUM-COBALT UNITS)	--	--
SECCHI-DISC VISIBILITY (FT)	2	
DISSOLVED OXYGEN	6.2	6.1

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

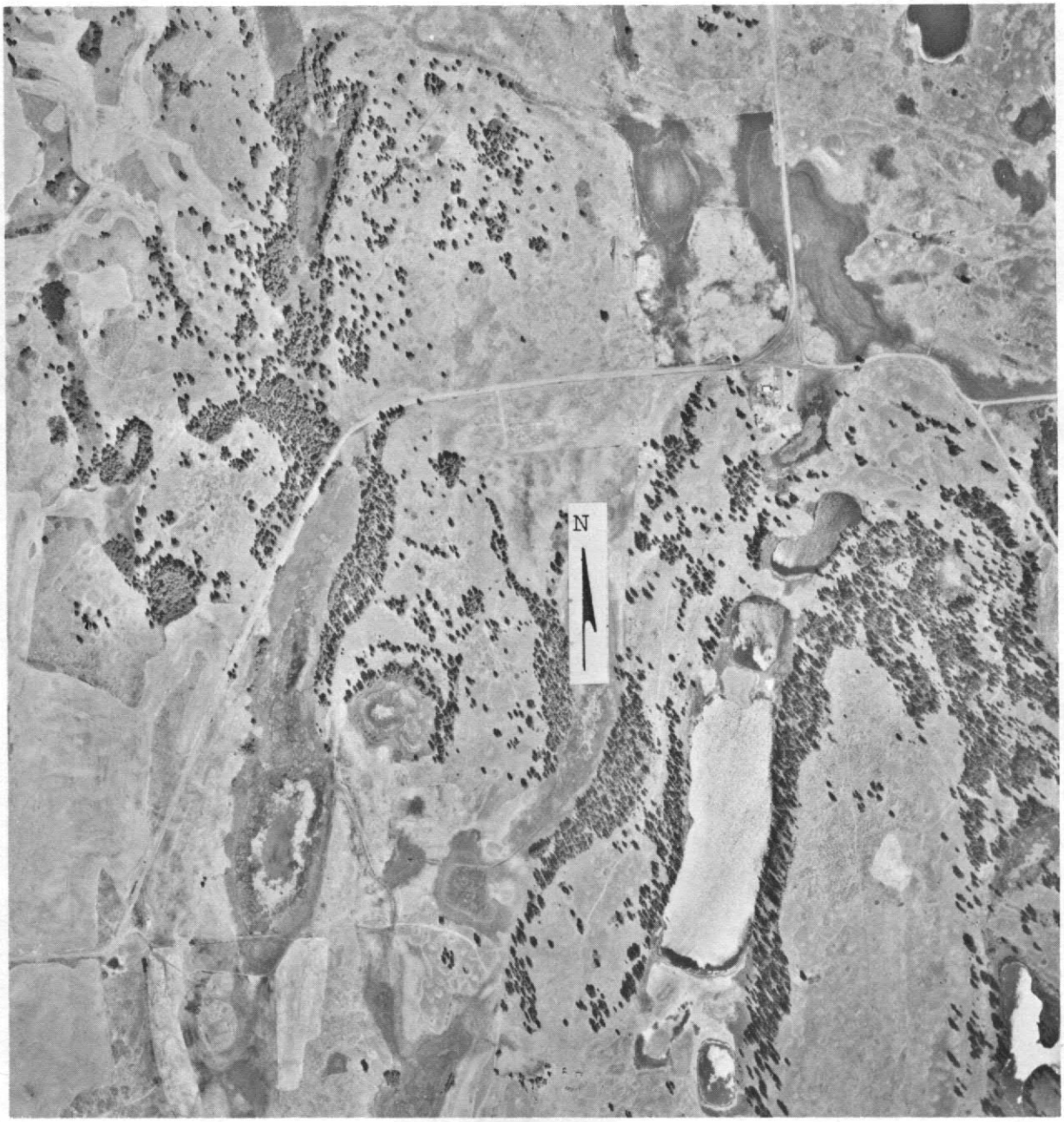
DATE	6/27/74
TIME	1345
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	4
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE WATER WAS MURKY AND NO COLOR DETERMINATIONS WERE MADE. THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (SEDGE).



Unnamed (24N-40E-21) Lake, Spokane County.
From U.S. Geological Survey, June 12, 1974.



Unnamed (24N-40E-21) Lake, Spokane County.
July 27, 1967. Approx. scale 1:12,000.

WILLIAMS LAKE SPOKANE COUNTY

LATITUDE 47*19' 2" LONGITUDE 117*42'28" T21N-R40E-13
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	21.8 SQ MI	RESIDENTIAL DEVELOPMENT	24 %
ALTITUDE	2052. FT		
LAKE AREA	320. ACRES	NUMBER OF NEARSHORE HOMES	25
LAKE VOLUME	12000. ACRE-FT		
MEAN DEPTH	37. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	120. FT		
SHORELINE LENGTH	5.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.1	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.32	AGRICULTURAL	77 %
BOTTOM SLOPE	2.7 %	FOREST OR UNPRODUCTIVE	21 %
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)

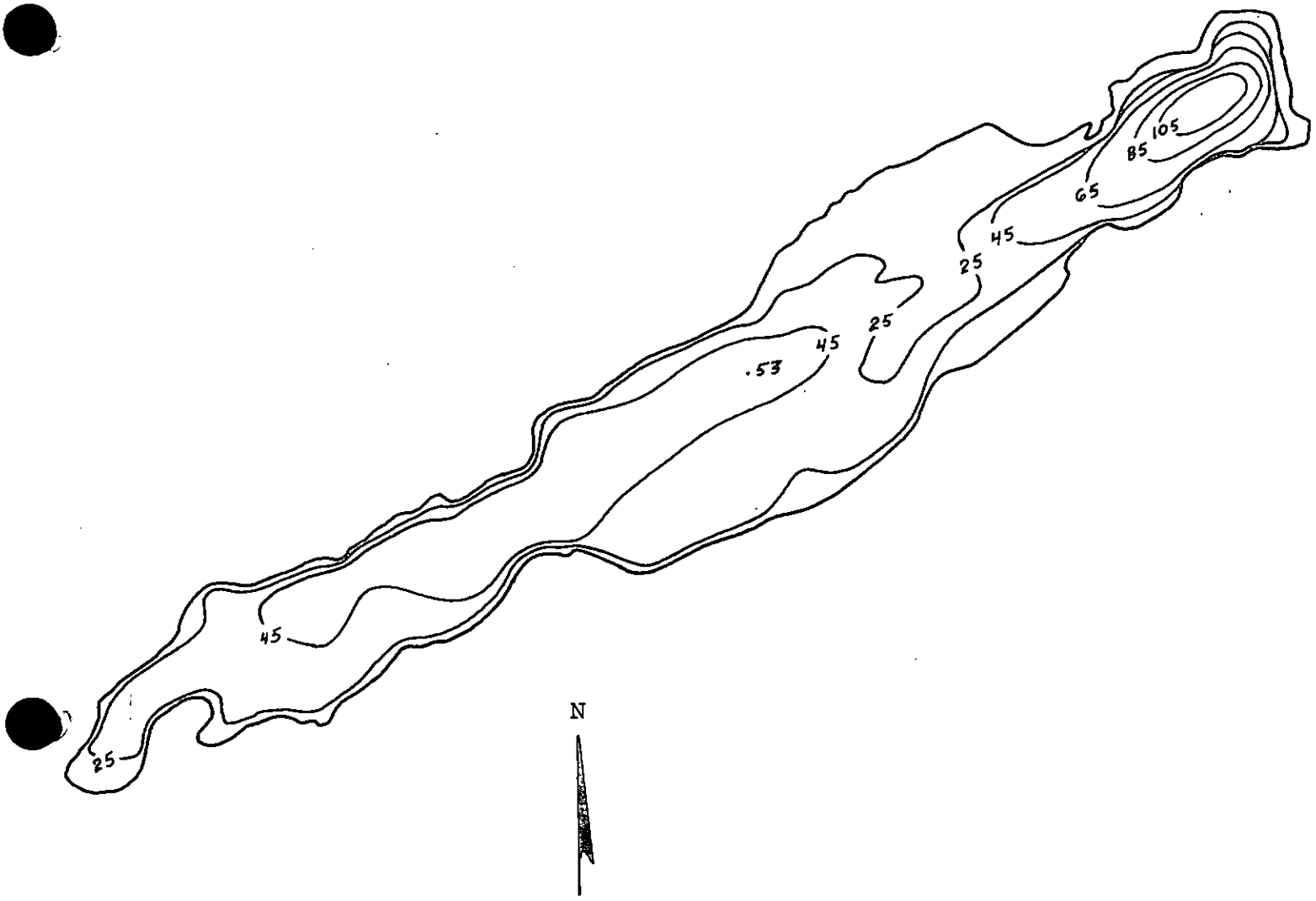
SAMPLE SITE	1	
DATE	7/10/73	
TIME	1315	1325
DEPTH (FT)	3.	112.
TOTAL NITRATE (N)	0.02	0.06
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	1.3
TOTAL ORGANIC NITROGEN (N)	0.09	1.3
TOTAL PHOSPHORUS (P)	0.027	0.23
DISSOLVED ORTHOPHOSPHATE (P)	0.002	0.18
SPECIFIC CONDUCTANCE (MICROMHOS)	250	250
WATER TEMPERATURE (DEG C)	20.7	5.2
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	6	
DISSOLVED OXYGEN	9.7	0.1

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

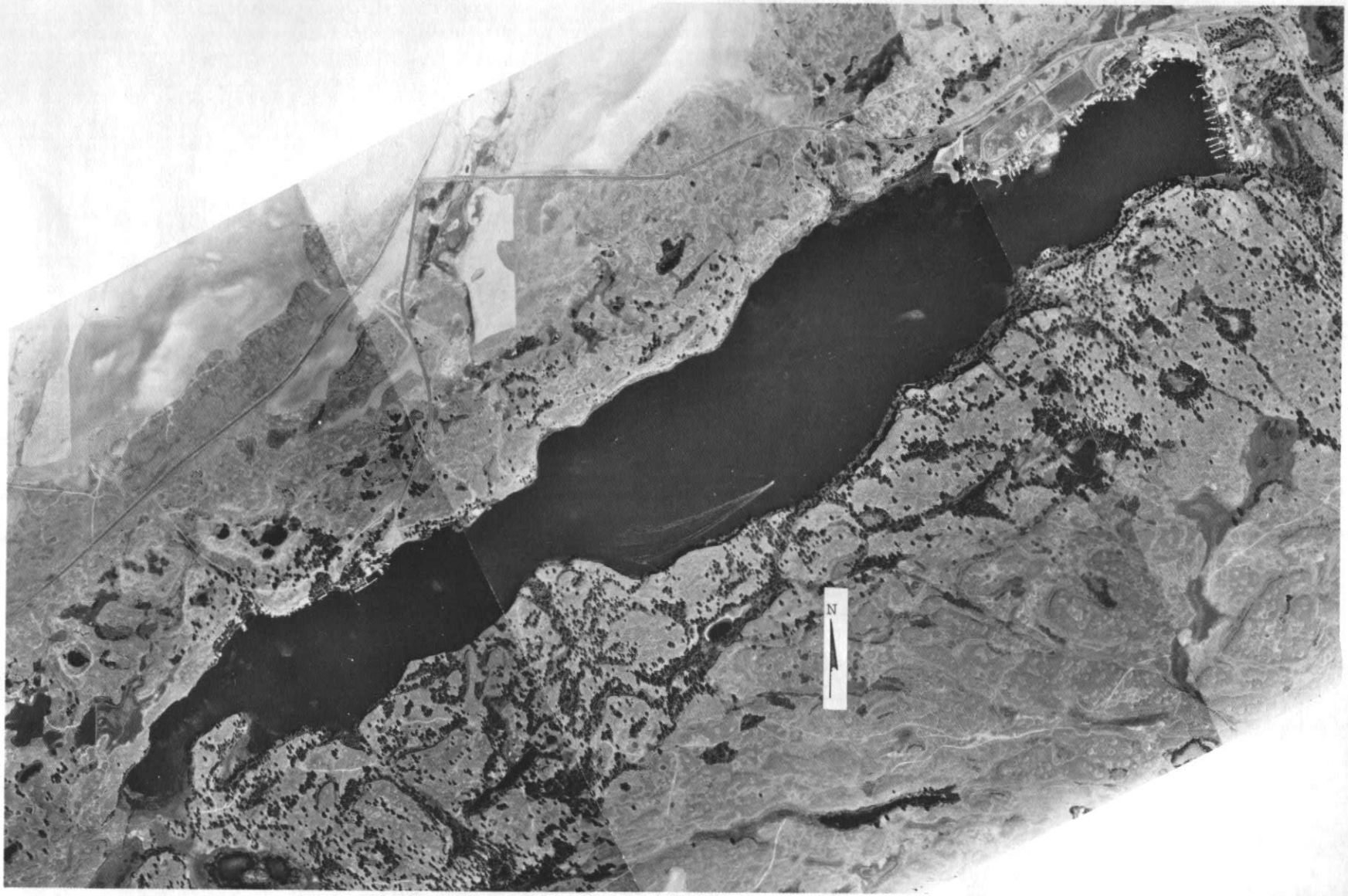
DATE	7/10/73
TIME	1345
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	2
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE ALGAL DENSITY WAS MODERATELY HIGH AND HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. RECREATIONAL USE OF THE LAKE IS HEAVY. IN 1973 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE OCTOBER 4, 1973. THE LIMNOLOGY OF WILLIAMS LAKE WAS DESCRIBED BY FLAHERTY (1968). THE U.S.G.S. HAS MONITORED THE LAKE STAGE SINCE 1955.



Williams Lake, Spokane County. From
Washington Department of Game, January 1948.



Williams Lake, Spokane County. July 25, 1974. Approx. scale 1:16,000.

WILLOW LAKE SPOKANE COUNTY

LATITUDE 47°33'14" LONGITUDE 117°37'11" T24N-R41E-22
PALOUSE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.04 SQ MI	RESIDENTIAL DEVELOPMENT	4 %
ALTITUDE	2388. FT		
LAKE AREA	54. ACRES	NUMBER OF NEARSHORE HOMES	2
LAKE VOLUME	160. ACRE-FT		
MEAN DEPTH	3. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	6. FT		
SHORELINE LENGTH	1.4 MI	RESIDENTIAL URBAN	1 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.48	AGRICULTURAL	92 %
BOTTOM SLOPE	0.35 %	FOREST OR UNPRODUCTIVE	3 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	4 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

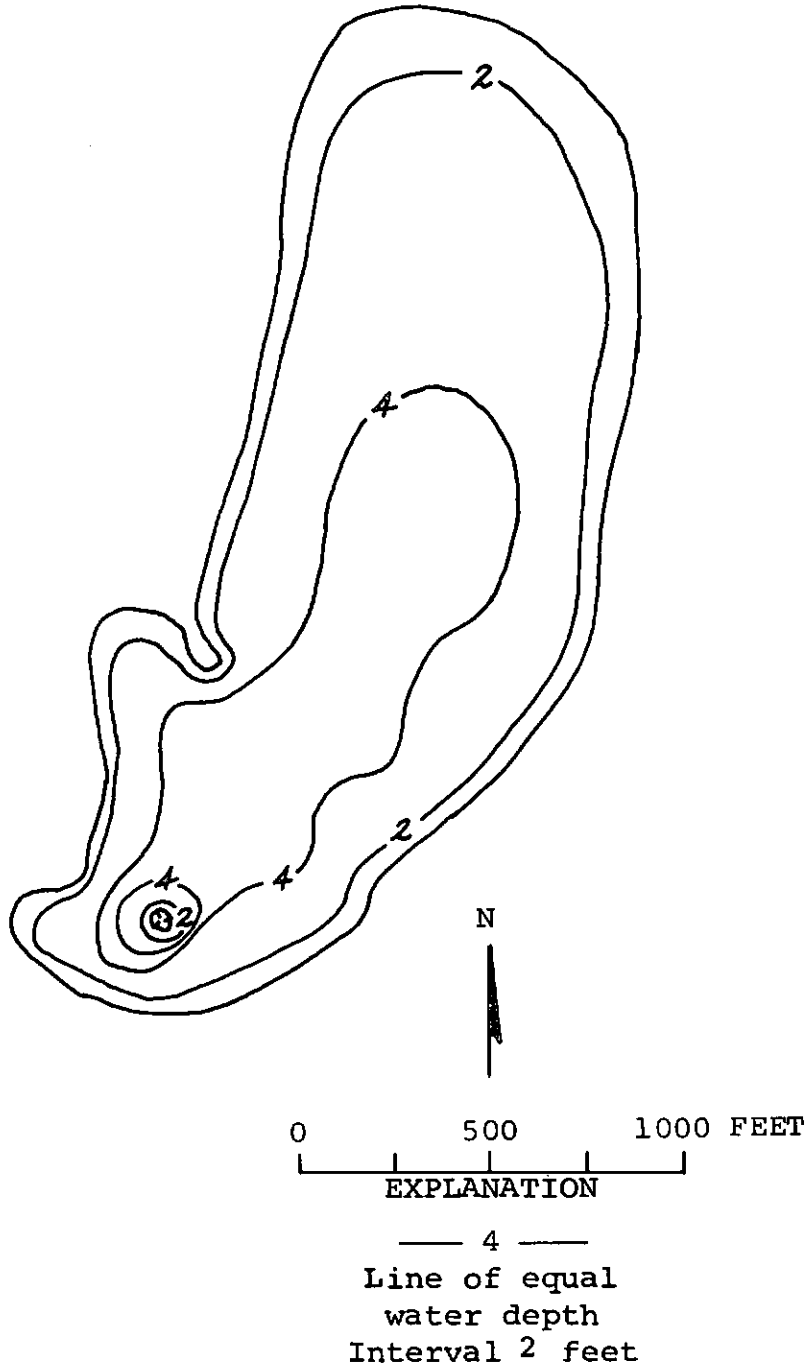
SAMPLE SITE	1	
DATE	6/24/74	
TIME	1425	1430
DEPTH (FT)	2.	3.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.02	0.02
TOTAL AMMONIA (N)	0.29	0.34
TOTAL ORGANIC NITROGEN (N)	2.8	2.8
TOTAL PHOSPHORUS (P)	0.77	0.76
TOTAL ORTHOPHOSPHATE (P)	0.65	0.65
SPECIFIC CONDUCTANCE (MICROMHOS)	2200	2200
WATER TEMPERATURE (DEG C)	23.7	23.4
COLOR (PLATINUM-COBALT UNITS)	--	--
SECCHI-DISC VISIBILITY (FT)	4	
DISSOLVED OXYGEN	3.4	3.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	6/24/74
TIME	1440
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

THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION IN SPITE OF THE FACT THAT IT OCCASIONALLY DRIES UP IN SUMMER. THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (CATTAIL, WATER SHIELD, AND SEDGE). THE VERY DARK COLOR OF THE WATER PRECLUDED DETERMINATIONS OF COLOR.



Willow Lake, Spokane County. From
U.S. Geological Survey, June 13, 1974.

Willow Lake, Spokane County. July 25, 1974. Approx. scale 1:4800.

WOODS LAKE SPOKANE COUNTY

LATITUDE 47*45'53" LONGITUDE 117*44'28" T26N-R40E-10
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.40 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2419. FT		
LAKE AREA	35. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	270. ACRE-FT		
MEAN DEPTH	8. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	11. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.72	AGRICULTURAL	86 %
BOTTOM SLOPE	0.80 %	FOREST OR UNPRODUCTIVE	0 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	14 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

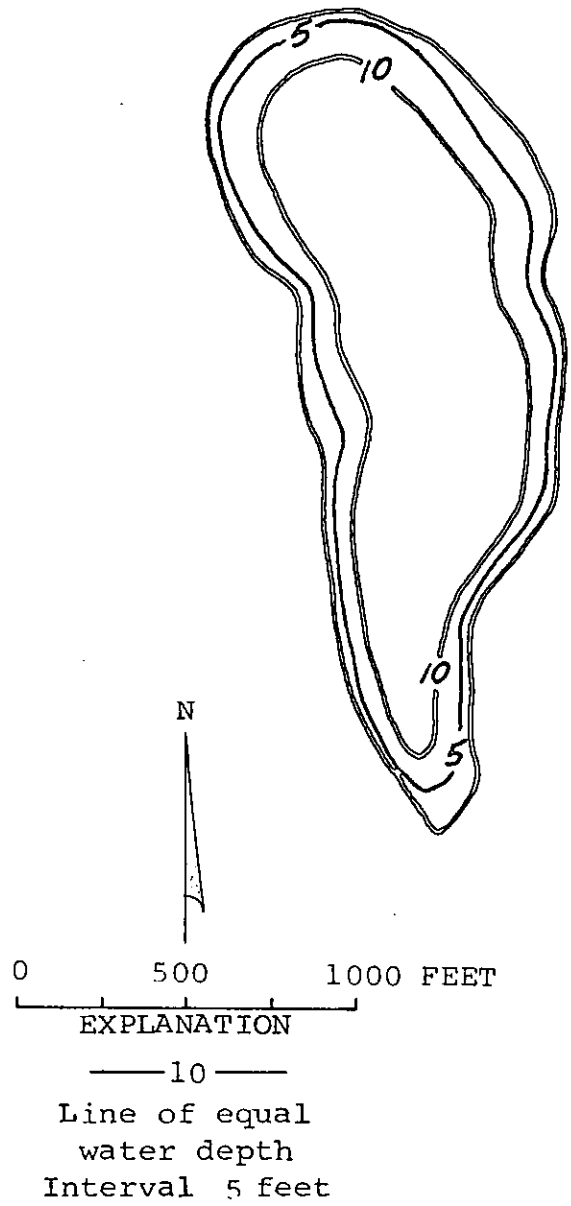
SAMPLE SITE	1	
DATE	7/ 2/74	
TIME	1230	1235
DEPTH (FT)	2.	7.
TOTAL NITRATE (N)	0.03	0.01
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.08	0.31
TOTAL ORGANIC NITROGEN (N)	4.7	4.5
TOTAL PHOSPHORUS (P)	1.2	1.2
TOTAL ORTHOPHOSPHATE (P)	1.0	1.1
SPECIFIC CONDUCTANCE (MICROMHOS)	2000	2000
WATER TEMPERATURE (DEG C)	21.0	19.5
COLOR (PLATINUM-COBALT UNITS)	60	60
SECCHI-DISC VISIBILITY (FT)	3	
DISSOLVED OXYGEN	9.0	4.6

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

DATE	7/ 2/74
TIME	1200
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 LITTORAL BOTTOM IS SILT AND MUCK. AN ALGAL BLOOM WAS OBSERVED.



Woods Lake, Spokane County. From Washington Department of Game, January 1949.

Woods Lake, Spokane County. July 25, 1974. Approx. scale 1:12,000.

BLACK LAKE STEVENS COUNTY

LATITUDE 48*33'23" LONGITUDE 117*37'23" T35N-R41E-3
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.90 SQ MI	RESIDENTIAL DEVELOPMENT	34 %
ALTITUDE	3701. FT		
LAKE AREA	70. ACRES	NUMBER OF NEARSHORE HOMES	29
LAKE VOLUME	1900. ACRE-FT		
MEAN DEPTH	27. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	45. FT		
SHORELINE LENGTH	2.0 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.59	AGRICULTURAL	0 %
BOTTOM SLOPE	2.3 %	FOREST OR UNPRODUCTIVE	88 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	12 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

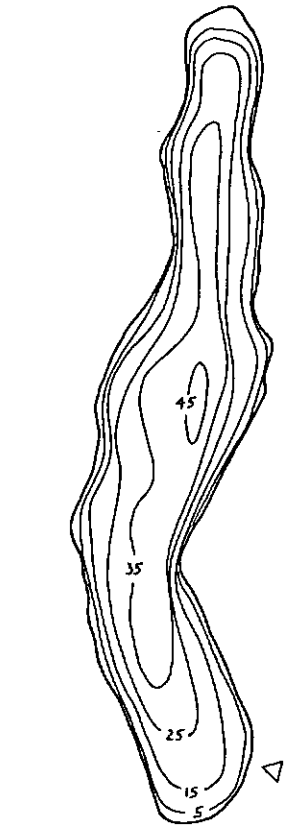
SAMPLE SITE	1	
DATE	7/ 8/74	
TIME	1800	1805
DEPTH (FT)	3.	30.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.24
TOTAL ORGANIC NITROGEN (N)	0.20	0.16
TOTAL PHOSPHORUS (P)	0.009	0.024
TOTAL ORTHOPHOSPHATE (P)	0.002	0.005
SPECIFIC CONDUCTANCE (MICROMHOS)	31	37
WATER TEMPERATURE (DEG C)	19.0	6.5
COLOR (PLATINUM-COBALT UNITS)	10	20
SECCHI-DISC VISIBILITY (FT)	12	
DISSOLVED OXYGEN	8.2	0.4

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

DATE	7/ 8/74
TIME	1810
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	--
FECAL COLIFORM, MEAN (COL./100ML)	--

REMARKS

RECREATIONAL USE OF THE LAKE IS HEAVY. THE FECAL-COLIFORM BACTERIA COLONIES FROM ONE SAMPLE WERE TOO NUMEROUS TO COUNT. THE LITTORAL BOTTOM IS SILT AND MUCK.



N

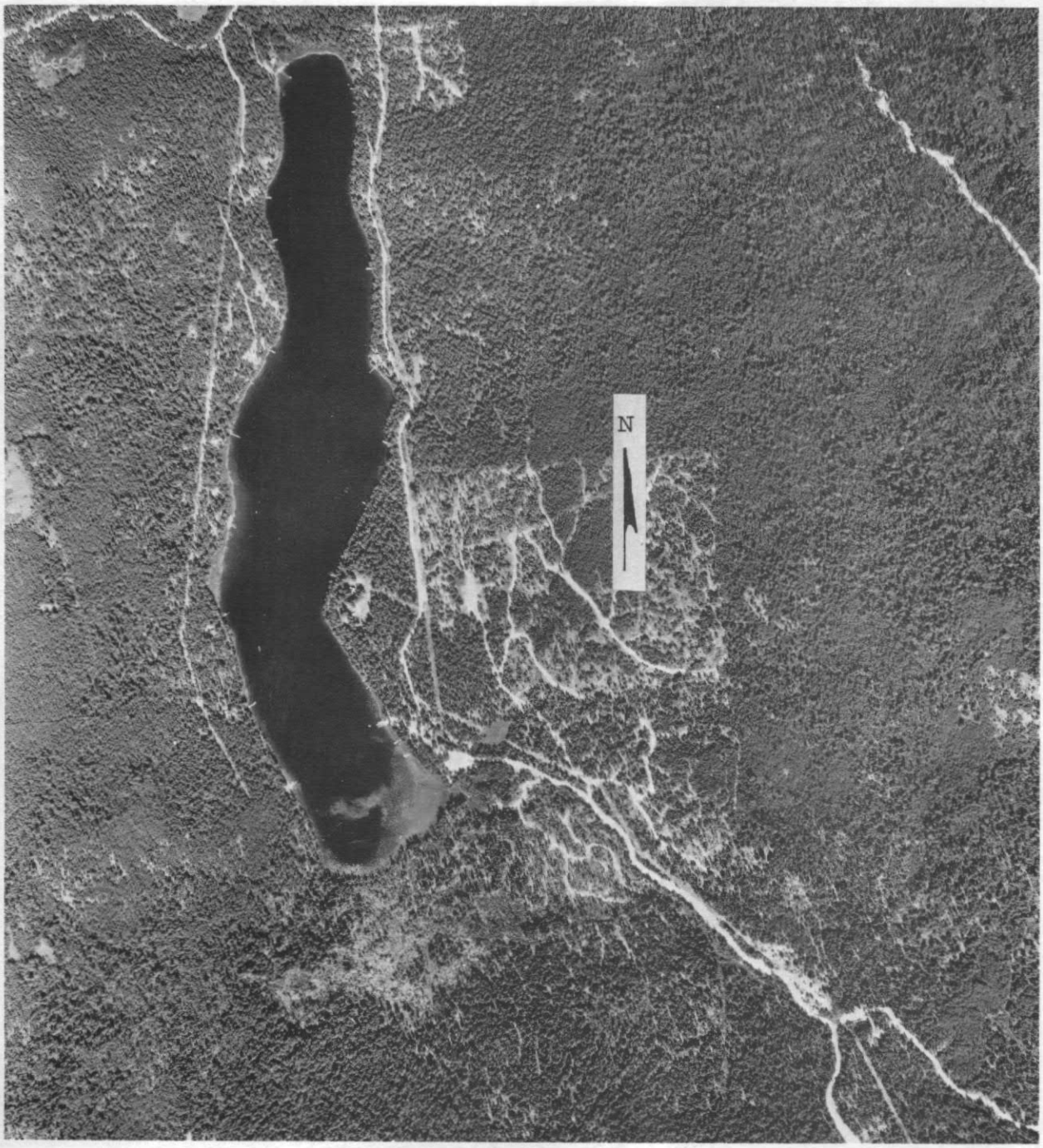
0 1000 2000 FEET

EXPLANATION

15

Line of equal
water depth
Interval 10 feet

Black Lake, Stevens County. From Washington Department of Game, March 31, 1949.



Black Lake, Stevens County. August 16, 1970. Approx. scale 1:12,000.

CEDAR LAKE STEVENS COUNTY

LATITUDE 48°56'42" LONGITUDE 117°35'37" T40N-R41E-26
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.09 SQ MI	RESIDENTIAL DEVELOPMENT	5 %
ALTITUDE	2135. FT		
LAKE AREA	52. ACRES	NUMBER OF NEARSHORE HOMES	3
LAKE VOLUME	1300. ACRE-FT		
MEAN DEPTH	24. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	28. FT		
SHORELINE LENGTH	1.1 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.86	AGRICULTURAL	8 %
BOTTOM SLOPE	1.6 %	FOREST OR UNPRODUCTIVE	88 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	4 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

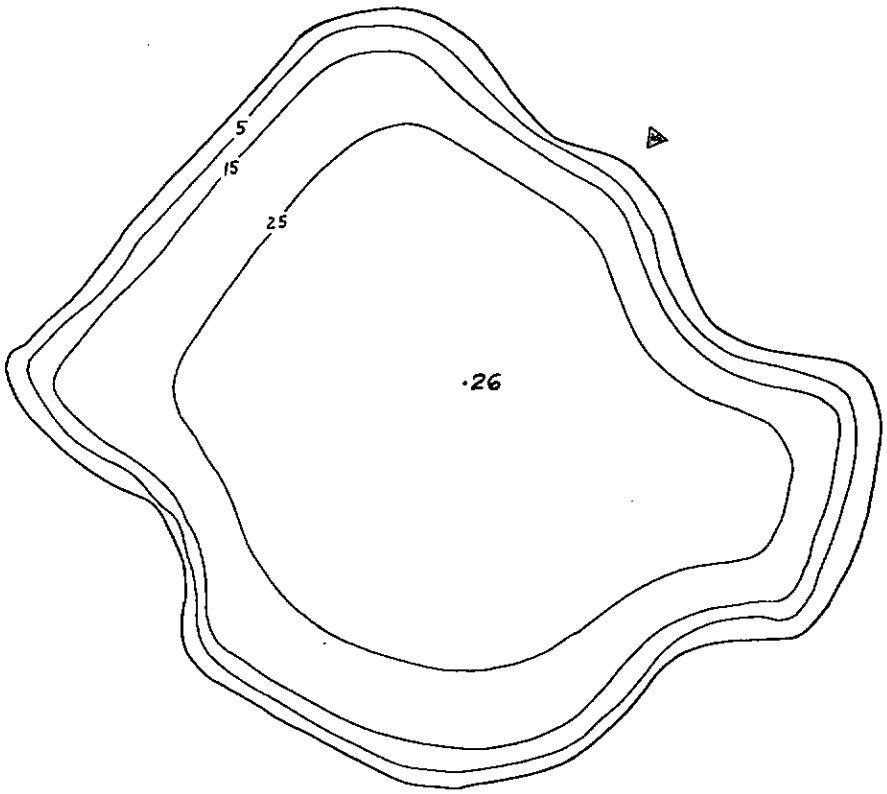
SAMPLE SITE	1	
DATE	7/12/74	
TIME	1220	2525
DEPTH (FT)	3.	20.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.12	0.78
TOTAL ORGANIC NITROGEN (N)	0.50	1.5
TOTAL PHOSPHORUS (P)	0.034	0.20
TOTAL ORTHOPHOSPHATE (P)	0.005	0.049
SPECIFIC CONDUCTANCE (MICROMHOS)	460	550
WATER TEMPERATURE (DEG C)	18.5	7.9
COLOR (PLATINUM-COBALT UNITS)	25	130
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	7.4	0.0

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

DATE	7/12/74
TIME	1237
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 AND MUCK AND THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (RUSHES AND CATTAIL).



N

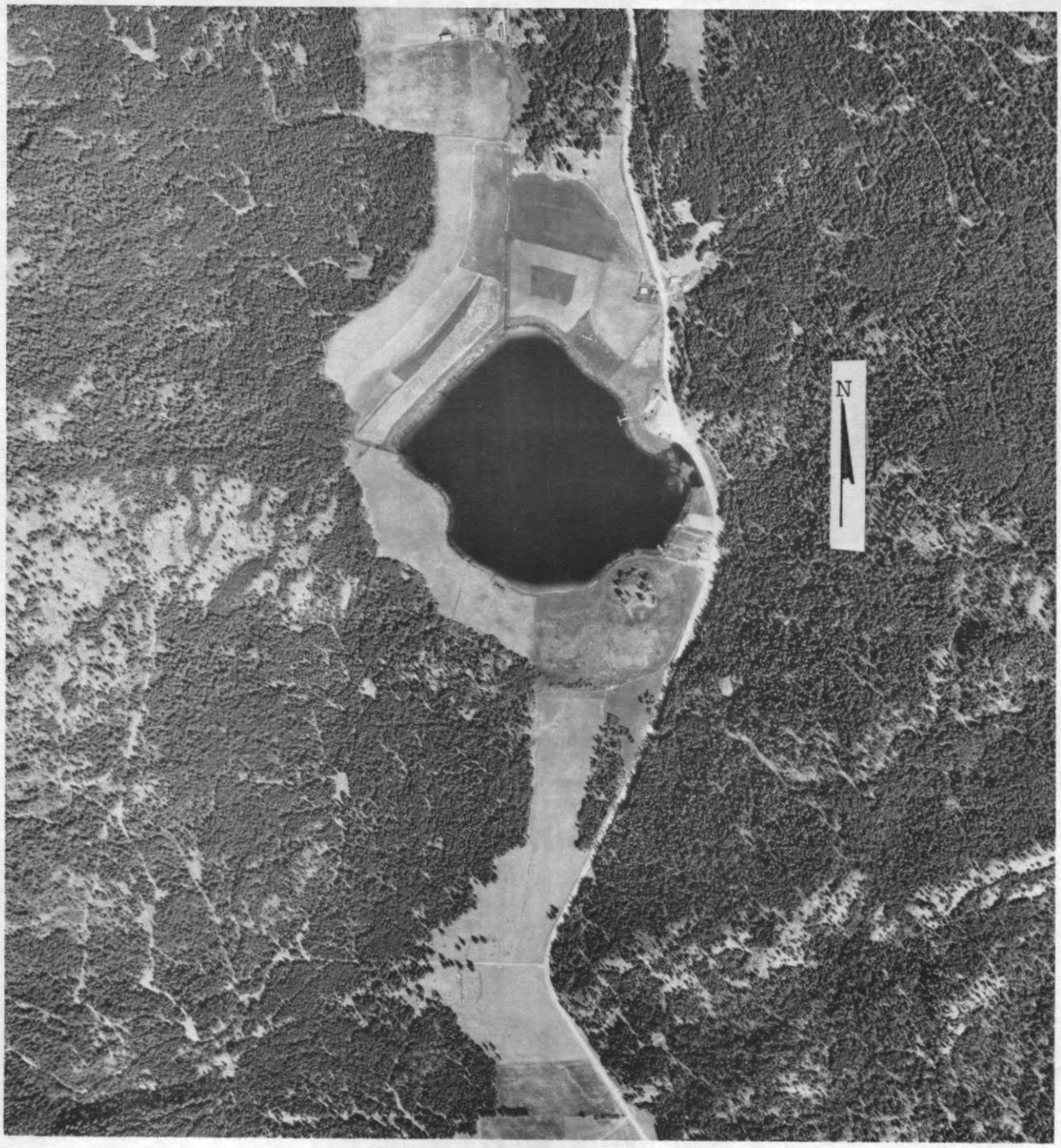
0 500 1000 FEET

EXPLANATION

—— 15 ——

Line of equal
water depth
Interval 10 feet

Cedar Lake, Stevens County. From Washington Department of Game, April 1, 1949.



Cedar Lake, Stevens County. August 16, 1970. Approx. scale 1:12,000.

CLARK LAKE STEVENS COUNTY

LATITUDE 48*13'25" LONGITUDE 118* 8'17" T32N-R37E-34
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	5.44 SQ MI	RESIDENTIAL DEVELOPMENT	5 %
ALTITUDE	1900. FT		
LAKE AREA	27. ACRES	NUMBER OF NEARSHORE HOMES	2
LAKE VOLUME	760. ACRE-FT		
MEAN DEPTH	28. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	39. FT		
SHORELINE LENGTH	0.71 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.73	AGRICULTURAL	26 %
BOTTOM SLOPE	3.2 %	FOREST OR UNPRODUCTIVE	73 %
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)

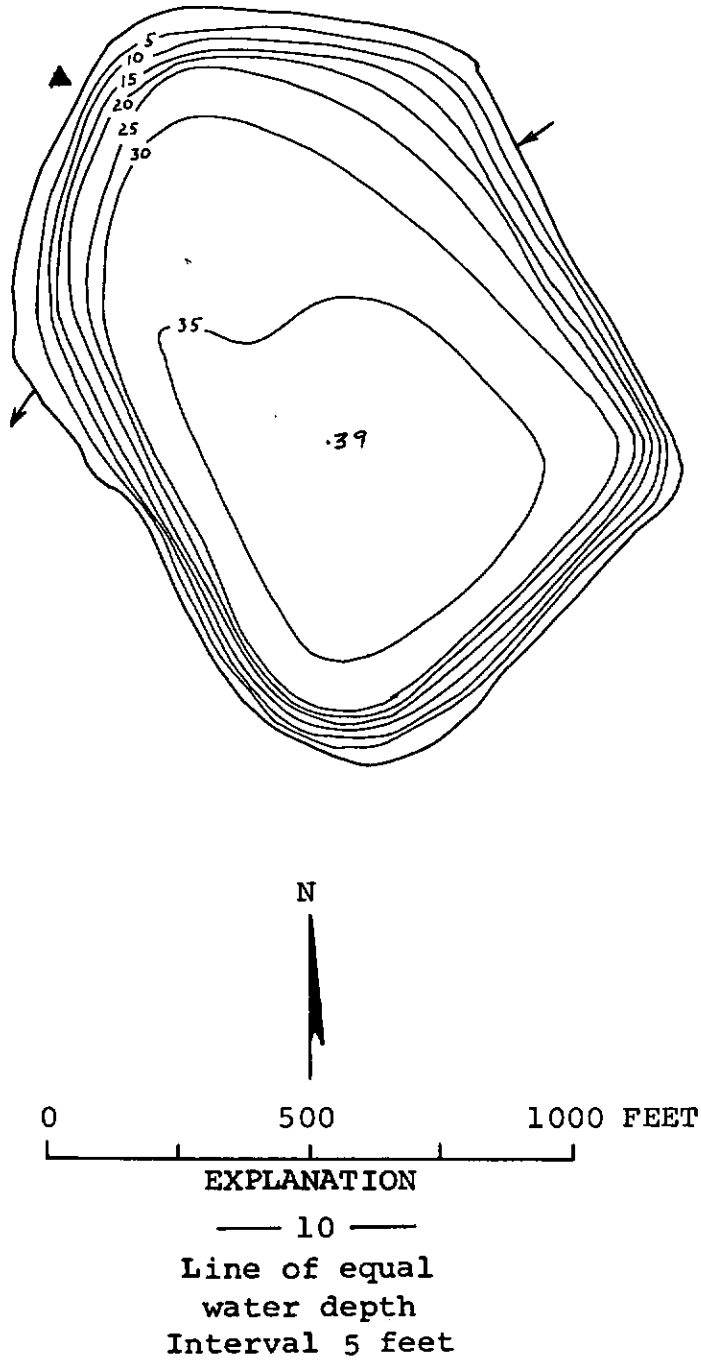
SAMPLE SITE	1	
DATE	7/11/74	
TIME	1530	1535
DEPTH (FT)	3.	33.
TOTAL NITRATE (N)	0.12	0.04
TOTAL NITRITE (N)	0.01	0.01
TOTAL AMMONIA (N)	0.08	1.1
TOTAL ORGANIC NITROGEN (N)	0.23	0.40
TOTAL PHOSPHORUS (P)	0.011	0.12
TOTAL ORTHOPHOSPHATE (P)	0.003	0.016
SPECIFIC CONDUCTANCE (MICROMHOS)	400	400
WATER TEMPERATURE (DEG C)	19.8	7.2
COLOR (PLATINUM-COBALT UNITS)	0	5
SECCHI-DISC VISIBILITY (FT)	21	
DISSOLVED OXYGEN	8.4	1.4

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

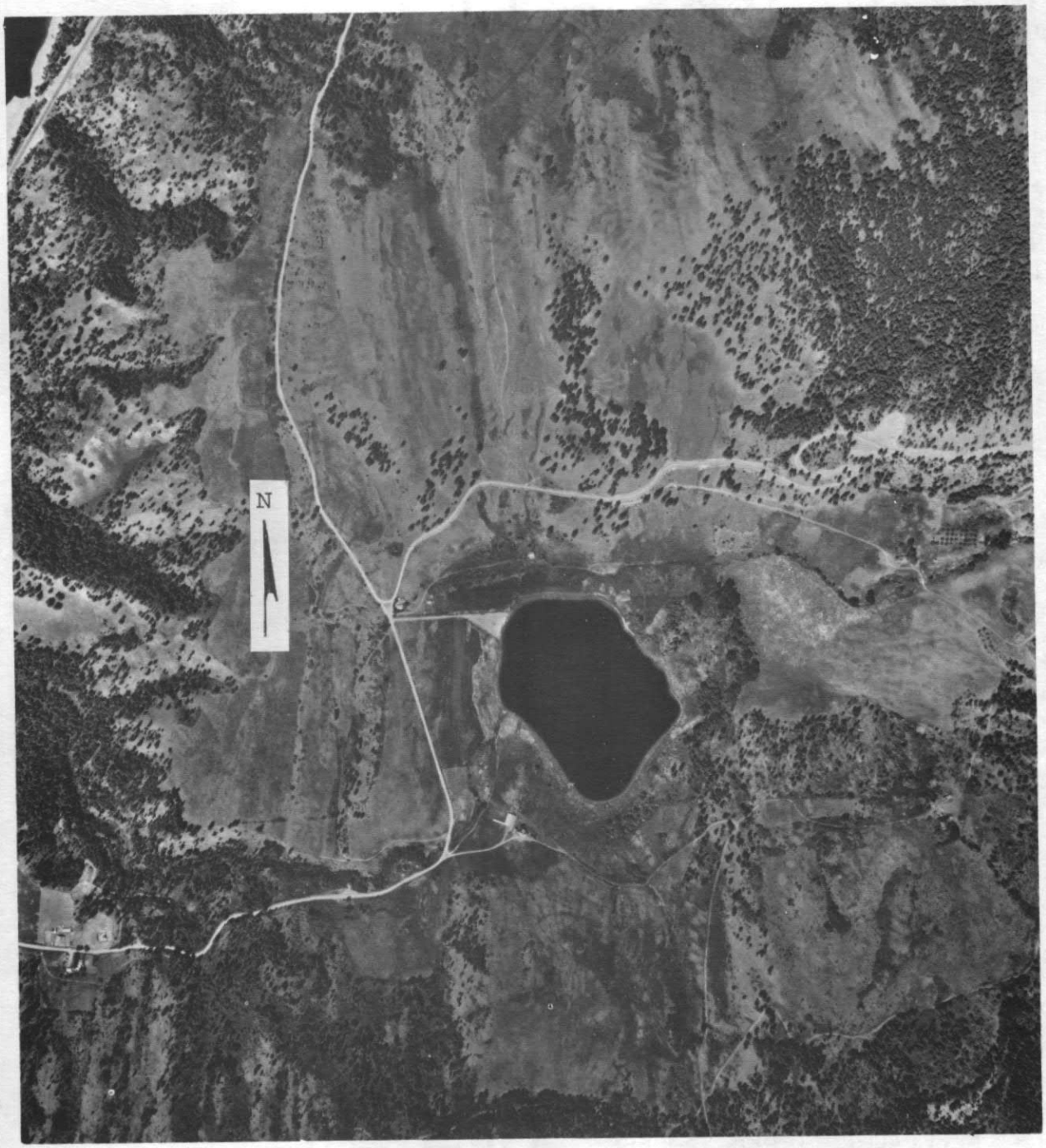
DATE	7/11/74
TIME	1530
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	1

REMARKS

THE LITTORAL BOTTOM IS SILT AND MUCK AND LOCALLY COVERED WITH DENSE BEDS OF SUBMERSED AQUATIC PLANTS (CHARA). THE SHORELINE IS MARSHY AND WAS COMPLETELY COVERED WITH EMERSED AQUATIC PLANTS (SEDGE AND CATTAIL)



Clark Lake, Stevens County. From Washington Department of Game, August 4, 1946.



Clark Lake, Stevens County. June 21, 1970. Approx. scale 1:12,000.

DEEP LAKE STEVENS COUNTY

LATITUDE 48*51' 1" LONGITUDE 117*36'54" T39N-R41E-34
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	48.1 SQ MI	RESIDENTIAL DEVELOPMENT	48 %
ALTITUDE	2025. FT		
LAKE AREA	210. ACRES	NUMBER OF NEARSHORE HOMES	48
LAKE VOLUME	7200. ACRE-FT		
MEAN DEPTH	34. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	49. FT		
SHORELINE LENGTH	3.5 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.70	AGRICULTURAL	3 %
BOTTOM SLOPE	1.4 %	FOREST OR UNPRODUCTIVE	96 %
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)

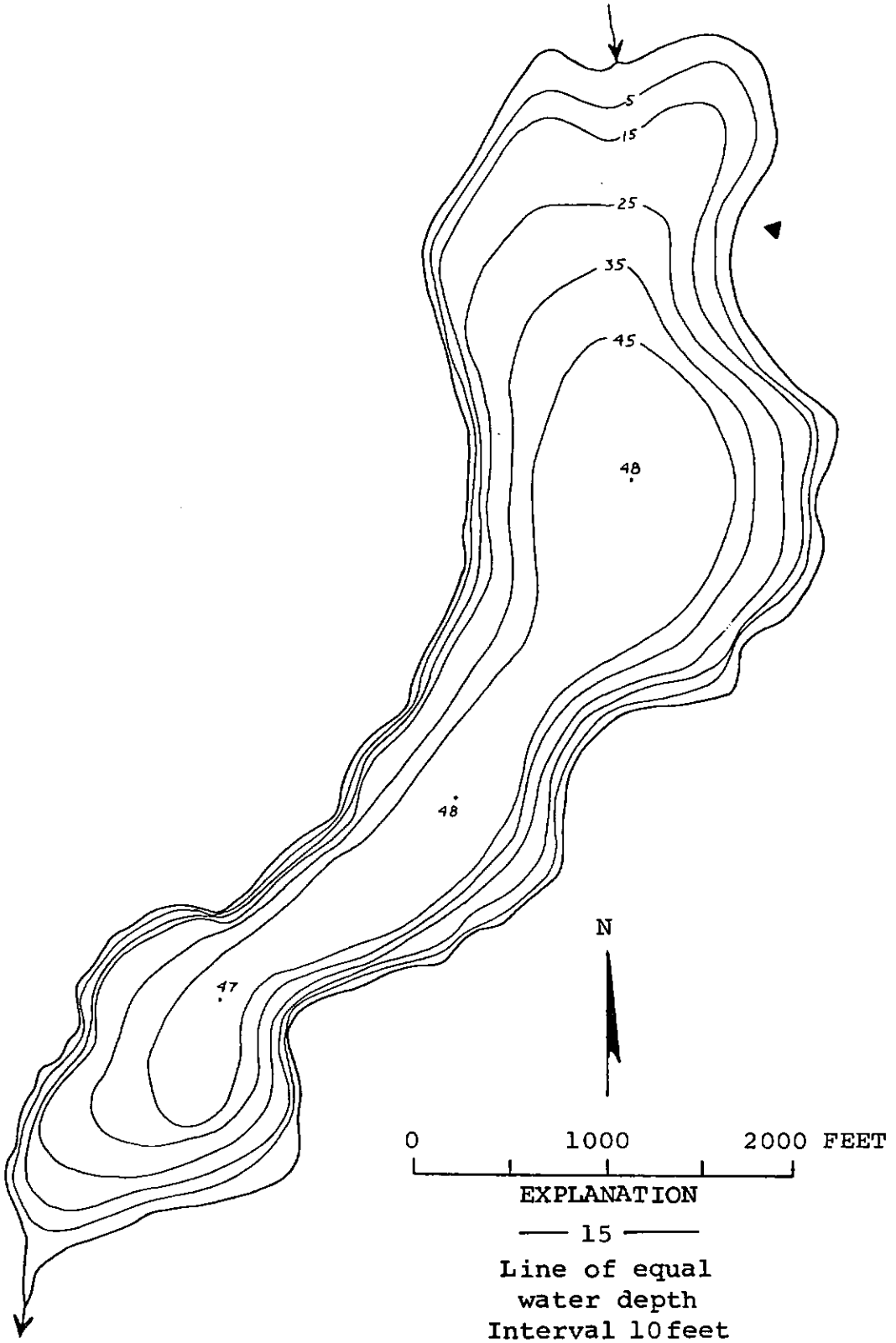
SAMPLE SITE	1	
DATE	7/12/74	
TIME	1340	1345
DEPTH (FT)	3.	43.
TOTAL NITRATE (N)	0.01	0.10
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.07	0.14
TOTAL ORGANIC NITROGEN (N)	0.10	0.14
TOTAL PHOSPHORUS (P)	0.011	0.095
TOTAL ORTHOPHOSPHATE (P)	0.002	0.066
SPECIFIC CONDUCTANCE (MICROMHOS)	265	440
WATER TEMPERATURE (DEG C)	16.8	6.2
COLOR (PLATINUM-COBALT UNITS)	10	10
SECCHI-DISC VISIBILITY (FT)	18	
DISSOLVED OXYGEN	9.6	0.1

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

DATE	7/12/74
TIME	1357
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 AN ENLARGEMENT OF NORTH FORK DEEP CREEK. FLOATING AND SUBMERGED LOGS WERE OBSERVED ALONG THE SHORELINE. RECREATIONAL USE OF THE LAKE IS HEAVY.



Deep Lake, Stevens County. From Washington Department of Game, January 23, 1948.

Deep Lake, Stevens County. August 16, 1970. Approx. scale 1:12,000.

DEER LAKE STEVENS COUNTY

LATITUDE 48* 6'28" LONGITUDE 117*36'18" T30N-R41E-11
COLVILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	18.2 SQ MI	RESIDENTIAL DEVELOPMENT	82 %
ALTITUDE	2474. FT		
LAKE AREA	1100. ACRES	NUMBER OF NEARSHORE HOMES	358
LAKE VOLUME	57000. ACRE-FT		
MEAN DEPTH	52. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	75. FT		
SHORELINE LENGTH	8.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.9	RESIDENTIAL SUBURBAN	4 %
DEVELOPMENT OF VOLUME	0.69	AGRICULTURAL	4 %
BOTTOM SLOPE	0.96 %	FOREST OR UNPRODUCTIVE	82 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	10 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

SAMPLE SITE	1	
DATE	8/15/72	
TIME	1205	1207
DEPTH (FT)	3.	69.
DISSOLVED NITRATE (N)	0.05	0.04
DISSOLVED NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.02	0.06
TOTAL ORGANIC NITROGEN (N)	0.34	0.78
TOTAL PHOSPHORUS (P)	0.010	0.012
DISSOLVED ORTHOPHOSPHATE (P)	0.004	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	78	81
WATER TEMPERATURE (DEG C)	21.2	6.5
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	22	
DISSOLVED OXYGEN	8.4	1.5

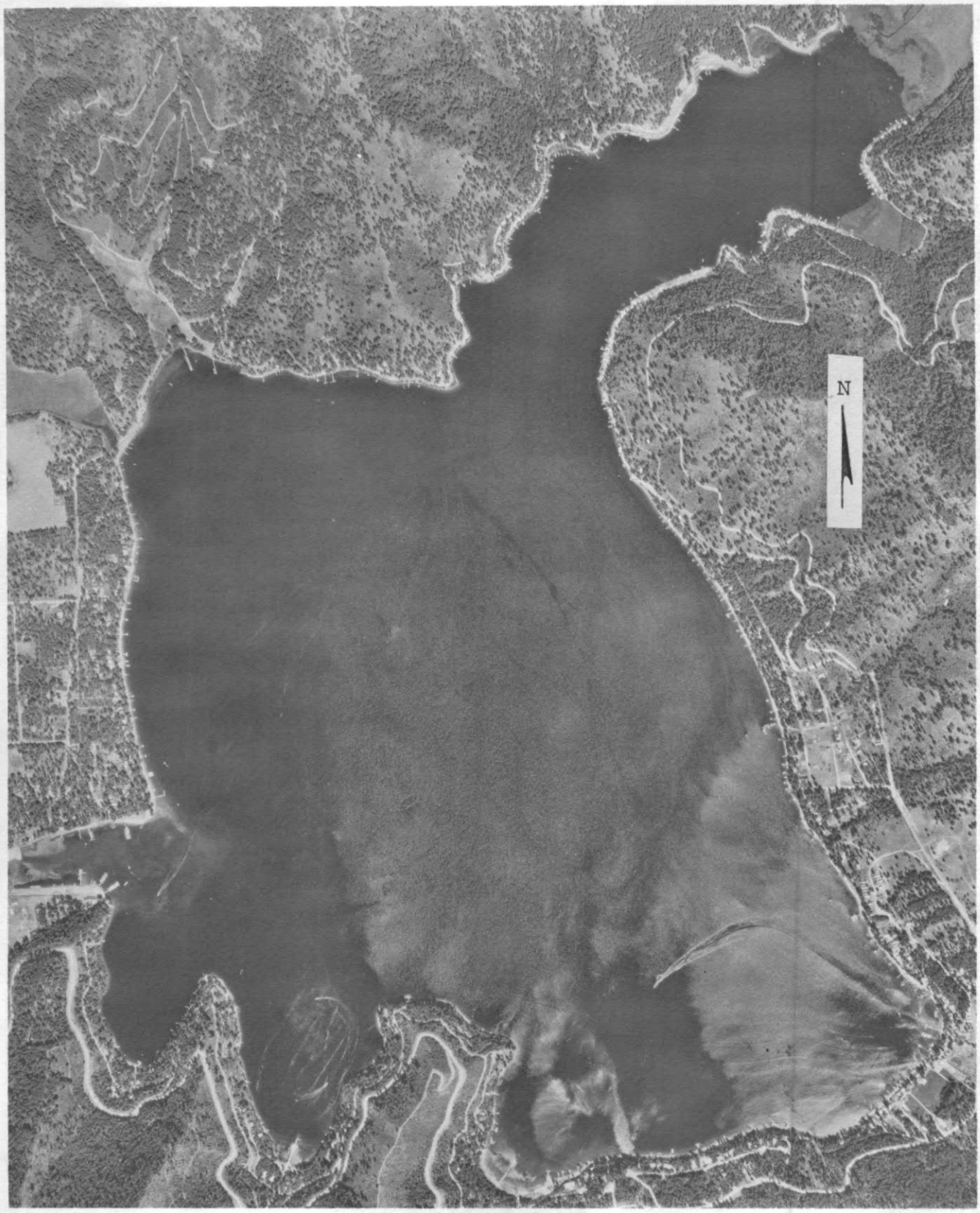
LAKE SHORELINE COVERED BY EMERSED PLANTS	26- 50 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	8/15/72
TIME	1030
NUMBER OF FECAL COLIFORM SAMPLES	5
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE LAKE ADJOINS A MARSH ON THE NORTHEAST SIDE. THERE ARE SEVERAL RESORTS AND RECREATIONAL USE OF THE LAKE IS HEAVY. IN 1972 THE U.S.GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE AUGUST 15, 1972. THE U.S.G.S. HAS MONITORED THE LAKE STAGE SINCE 1952. THE WATER QUALITY OF DEER LAKE WAS DESCRIBED BY BISHOP (1973).

Deer Lake, Stevens County. From Washington Department of Game, February 22, 1955.



Deer Lake, Stevens County. August 10, 1972. Approx. scale 1:15,000.

DILLY LAKE STEVENS COUNTY

LATITUDE 48*47'22" LONGITUDE 118* 2'54" T38N-R37E-13
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.65 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2175. FT		
LAKE AREA	20. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	520. ACRE-FT		
MEAN DEPTH	26. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	46. FT		
SHORELINE LENGTH	0.80 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.56	AGRICULTURAL	43 %
BOTTOM SLOPE	4.4 %	FOREST OR UNPRODUCTIVE	52 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	5 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

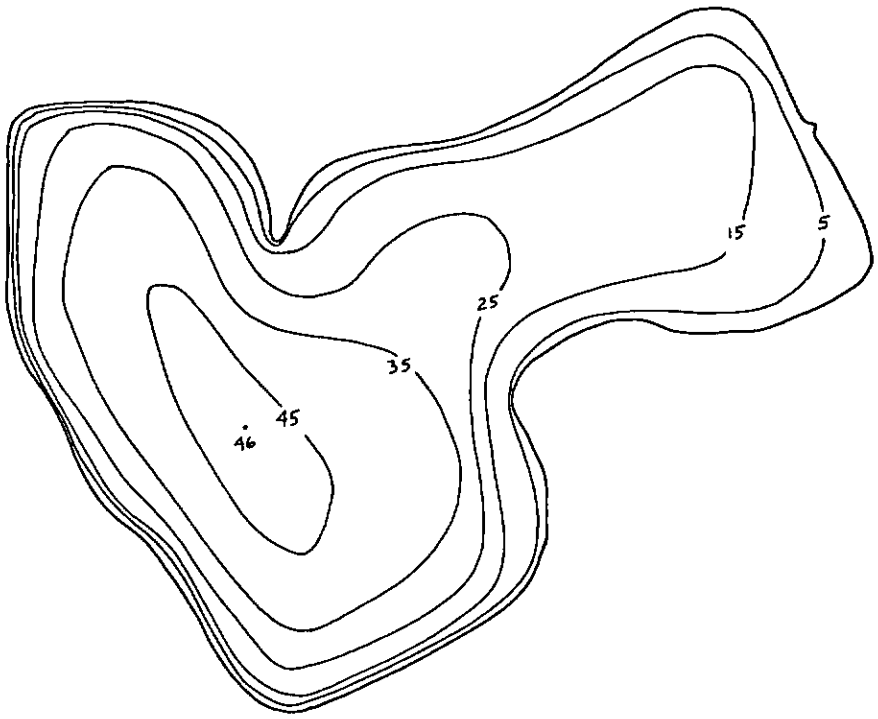
SAMPLE SITE	1	
DATE	7/10/74	
TIME	1630	1635
DEPTH (FT)	3.	26.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.13	0.98
TOTAL ORGANIC NITROGEN (N)	0.87	1.0
TOTAL PHOSPHORUS (P)	0.012	0.025
TOTAL ORTHOPHOSPHATE (P)	0.001	0.007
SPECIFIC CONDUCTANCE (MICROMHOS)	740	850
WATER TEMPERATURE (DEG C)	21.0	7.0
COLOR (PLATINUM-COBALT UNITS)	5	5
SECCHI-DISC VISIBILITY (FT)	15	
DISSOLVED OXYGEN	8.1	0.3

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	7/10/74
TIME	1630
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 THE EASTERNMOST OF THE GLASGO LAKES COMPLEX AND IS ALMOST COMPLETELY SURROUNDED BY MARSH. THE LITTORAL BOTTOM IS SILT AND MUCK AND THE SHORELINE WAS COMPLETELY COVERED WITH DENSE BEDS OF EMERSED AQUATIC PLANTS (SEDGE AND CATTAIL).



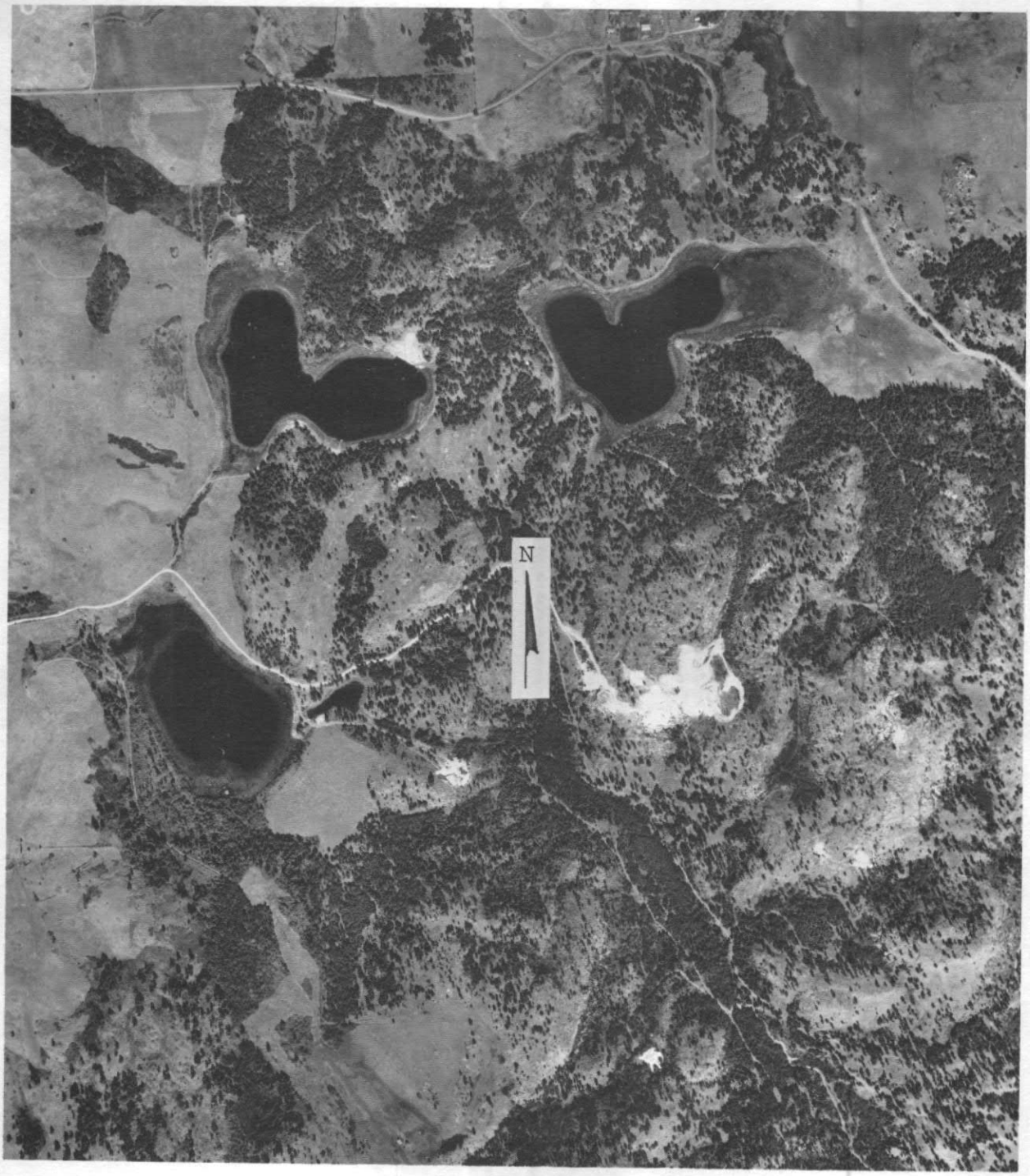
N

0 500 1000 FEET

EXPLANATION

— 15 —
Line of equal
water depth
Interval 10 feet

Dilly Lake, Stevens County. From Washington Department of Game, August 4, 1946.



Dilly Lake, Stevens County. August 15, 1970. Approx. scale 1:12,000.

FALLS, LITTLE LAKE STEVENS COUNTY

LATITUDE 47°49'47" LONGITUDE 117°55' 5" T27N-R39E-20
SPOKANE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	6280. SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1362. FT		
LAKE AREA	250. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME (EST.)	4300. ACRE-FT		
MEAN DEPTH (EST.)	17. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	31. FT		
SHORELINE LENGTH	9.6 MI	NOT DETERMINED	
SHORELINE CONFIGURATION	4.3		
DEVELOPMENT OF VOLUME	0.55		
BOTTOM SLOPE	0.83 %		
BASIN GEOLOGY	SED./META.		
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

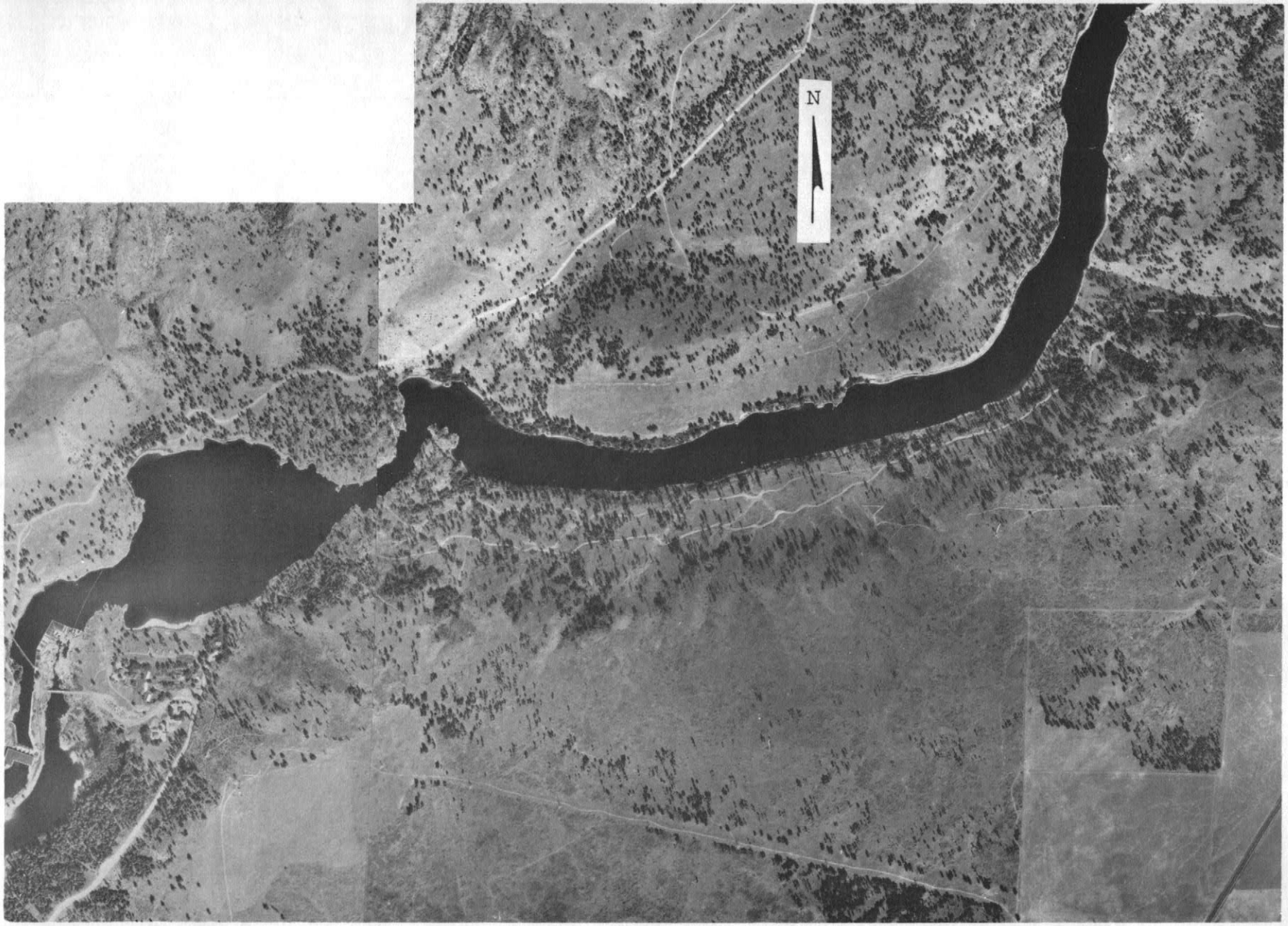
SAMPLE SITE	1	
DATE	6/28/74	
TIME	1245	1250
DEPTH (FT)	3.	28.
TOTAL NITRATE (N)	0.09	0.09
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.09	0.08
TOTAL ORGANIC NITROGEN (N)	0.12	0.06
TOTAL PHOSPHORUS (P)	0.029	0.025
TOTAL ORTHOPHOSPHATE (P)	0.008	0.016
SPECIFIC CONDUCTANCE (MICROMHOS)	60	58
WATER TEMPERATURE (DEG C)	18.0	18.1
COLOR (PLATINUM-COBALT UNITS)	5	10
SECCHI-DISC VISIBILITY (FT)	4	
DISSOLVED OXYGEN	10.8	10.8

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

DATE	6/28/74
TIME	1322
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	10
FECAL COLIFORM, MAXIMUM (COL./100ML)	13
FECAL COLIFORM, MEAN (COL./100ML)	11

REMARKS

THE LAKE WAS FORMED BY A DAM ON THE SPOKANE RIVER AND IS ON THE STEVENS-LINCOLN COUNTY BOUNDARY. VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED. THE DO CONCENTRATION WAS HIGH THROUGHOUT THE ENTIRE WATER COLUMN. THE VOLUME AND MEAN DEPTH ARE ESTIMATED. LAND USE WAS NOT DETERMINED BECAUSE OF THE SIZE OF THE DRAINAGE AREA.



Falls, Little Lake, Stevens County. gust 5, 1970. Approx. scale 1:12,000.

FOURMILE (RAINBOW) LAKE STEVENS COUNTY

LATITUDE 48*13'48" LONGITUDE 117*50'19" T32N-R39E-36
COLVILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.20 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2560. FT		
LAKE AREA	26. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	760. ACRE-FT		
MEAN DEPTH	29. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	72. FT		
SHORELINE LENGTH	0.91 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.41	AGRICULTURAL	0 %
BOTTOM SLOPE	6.0 %	FOREST OR UNPRODUCTIVE	80 %
BASIN GEOLOGY	IGNEOUS	LAKE SURFACE	20 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

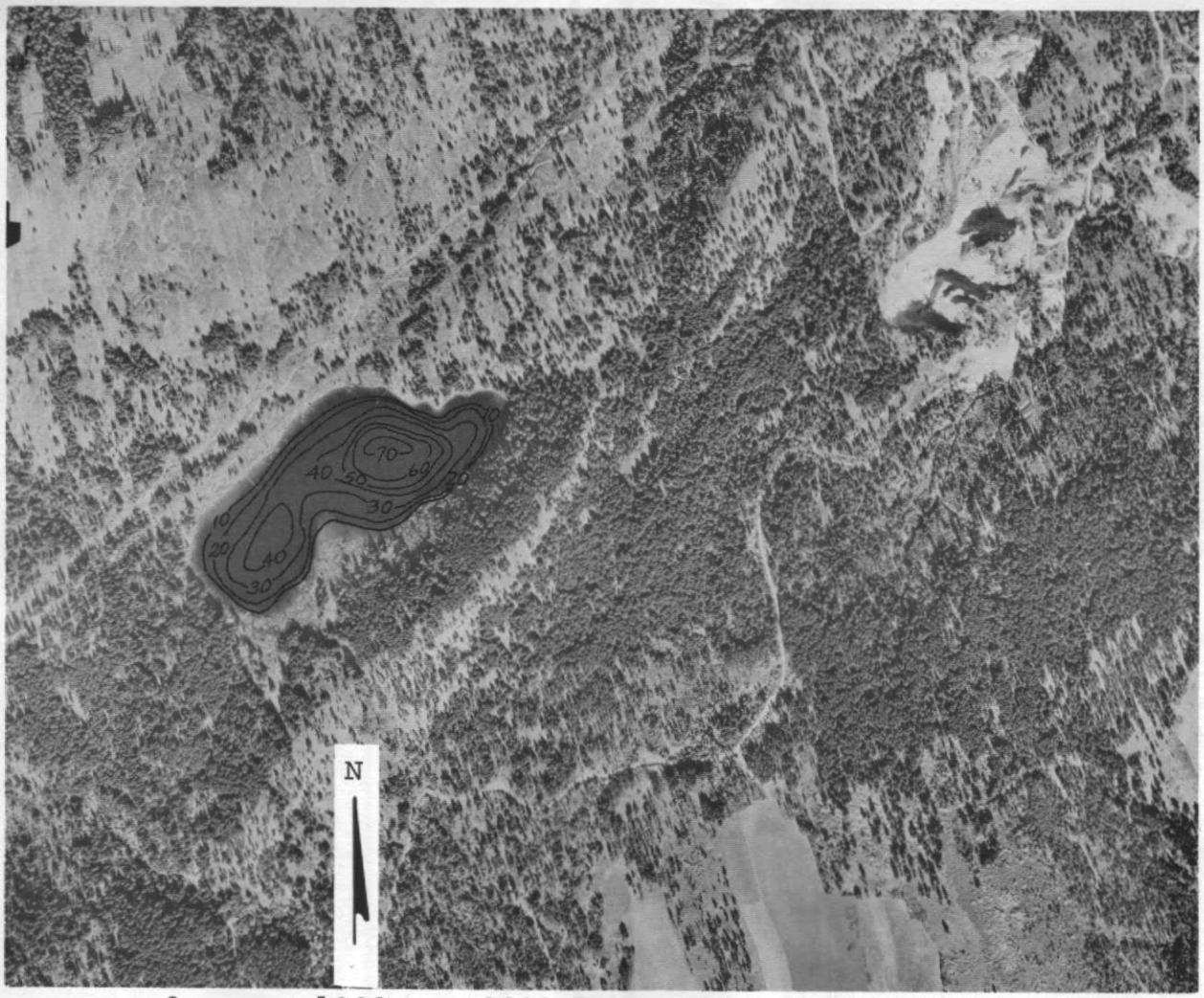
WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

SAMPLE SITE	1	
DATE	7/ 8/74	
TIME	1110	1115
DEPTH (FT)	3.	62.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	0.80
TOTAL ORGANIC NITROGEN (N)	0.37	0.18
TOTAL PHOSPHORUS (P)	0.007	0.035
TOTAL ORTHOPHOSPHATE (P)	0.002	0.008
SPECIFIC CONDUCTANCE (MICROMHOS)	170	230
WATER TEMPERATURE (DEG C)	20.3	4.6
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	19	
DISSOLVED OXYGEN	8.9	0.0
LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %	
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %	

DATE	7/ 8/74
TIME	1132
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

THE ALGAL DENSITY WAS MEDERATELY HIGH. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE LITTORAL BOTTOM IS MUCK AND THE ENTIRE SHORELINE WAS COVERED WITH THINLY SCATTERED EMERSED AQUATIC PLANTS (SEDGE).



Fourmile (Rainbow) Lake, Stevens County. Bathymetric map from U.S. Geological Survey, September 16, 1974. Aerial photo, September 26, 1970.

GILLETTE LAKE STEVENS COUNTY

LATITUDE 48*36'43" LONGITUDE 117*32'35" T36N-R42E-20
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	14.9 SQ MI	RESIDENTIAL DEVELOPMENT	30 %
ALTITUDE	3147. FT		
LAKE AREA	47. ACRES	NUMBER OF NEARSHORE HOMES	19
LAKE VOLUME	1600. ACRE-FT		
MEAN DEPTH	34. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	85. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	1 %
DEVELOPMENT OF VOLUME	0.39	AGRICULTURAL	0 %
BOTTOM SLOPE	5.4 %	FOREST OR UNPRODUCTIVE	95 %
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)

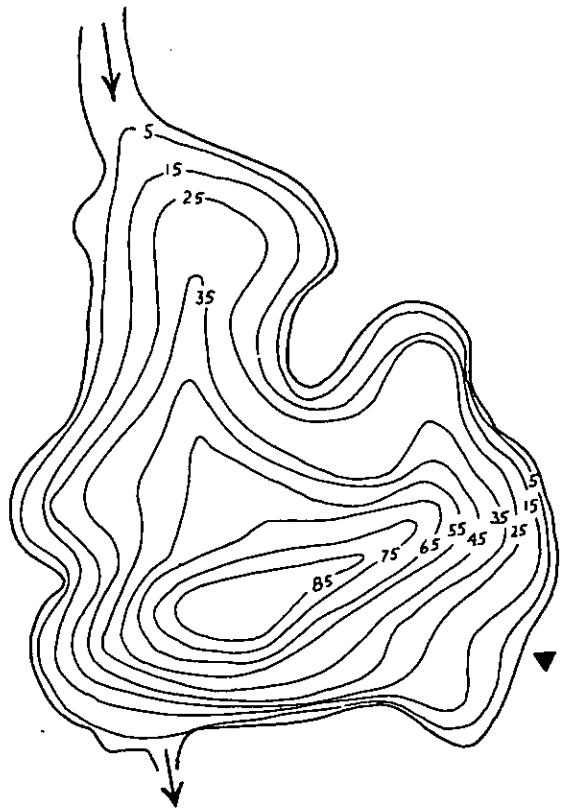
SAMPLE SITE	1	
DATE	8/16/72	
TIME	1255	1305
DEPTH (FT)	3.	79.
DISSOLVED NITRATE (N)	0.04	0.07
DISSOLVED NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.04	7.4
TOTAL ORGANIC NITROGEN (N)	0.65	1.6
TOTAL PHOSPHORUS (P)	0.017	0.32
DISSOLVED ORTHOPHOSPHATE (P)	0.003	0.15
SPECIFIC CONDUCTANCE (MICROMHOS)	58	260
WATER TEMPERATURE (DEG C)	21.0	5.1
COLOR (PLATINUM-COBALT UNITS)	5	140
SECCHI-DISC VISIBILITY (FT)	13	
DISSOLVED OXYGEN	8.3	0.2

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	8/16/72
TIME	1050
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	1
FECAL COLIFORM, MAXIMUM (COL./100ML)	5
FECAL COLIFORM, MEAN (COL./100ML)	3

REMARKS

THE FOURTH LAKE IN THE LITTLE PEND OREILLE CHAIN OF LAKES. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. IN 1972 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE SEPTEMBER 27, 1972.



Gillette Lake, Stevens County. From Washington Department of Game, March 13, 1950.

Gillette Lake, Stevens County. August 10, 1972. Approx. scale 1:12,000.

HATCH LAKE STEVENS COUNTY

LATITUDE 48°29'20" LONGITUDE 117°48'11" T35N-R40E-31
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.50 SQ MI	RESIDENTIAL DEVELOPMENT	5 %
ALTITUDE	2141. FT		
LAKE AREA	34. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	540. ACRE-FT		
MEAN DEPTH	16. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	34. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.47	AGRICULTURAL	52 %
BOTTOM SLOPE	2.5 %	FOREST OR UNPRODUCTIVE	44 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	4 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

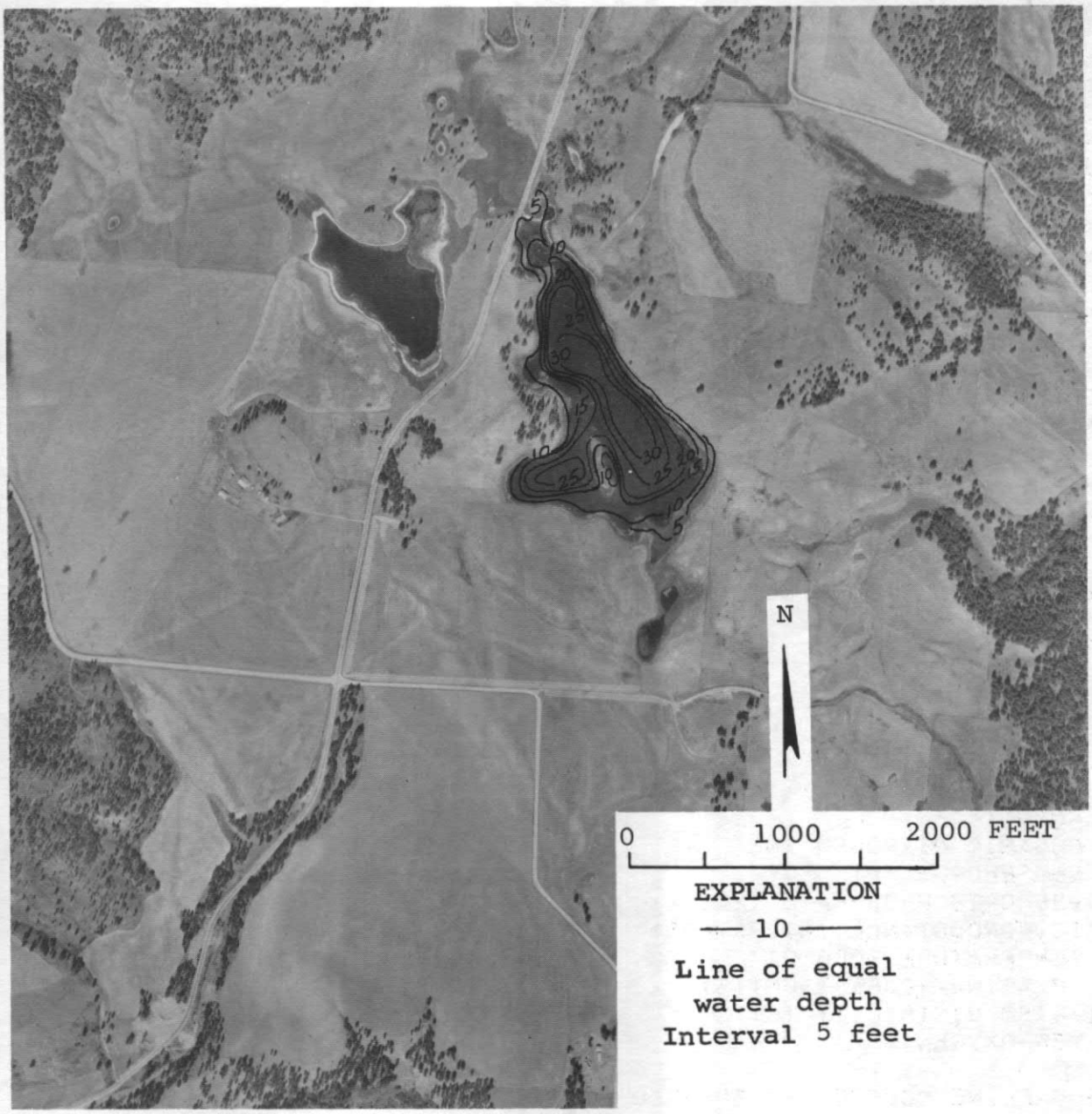
SAMPLE SITE	1	
DATE	7/ 8/74	
TIME	1330	1335
DEPTH (FT)	3.	26.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.05	0.78
TOTAL ORGANIC NITROGEN (N)	0.51	0.72
TOTAL PHOSPHORUS (P)	0.035	0.088
TOTAL ORTHOPHOSPHATE (P)	0.006	0.018
SPECIFIC CONDUCTANCE (MICROMHOS)	580	650
WATER TEMPERATURE (DEG C)	21.8	11.2
COLOR (PLATINUM-COBALT UNITS)	5	15
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	8.6	0.4

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

DATE	7/ 8/74
TIME	1330
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

FLOATING LOGS AND DEBRIS WERE OBSERVED ALONG THE SHORELINE. HYDORGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE LITTORAL BOTTOM IS SILT AND SAND.



Hatch Lake, Stevens County. Bathymetric map from
U.S. Geological Survey, July 29, 1974.
Aerial photo, August 5, 1970.

HERITAGE LAKE STEVENS COUNTY

LATITUDE 48°37'47" LONGITUDE 117°31'54" T36N-R42E-8
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	10.2 SQ MI	RESIDENTIAL DEVELOPMENT	17 %
ALTITUDE	3147. FT		
LAKE AREA	73. ACRES	NUMBER OF NEARSHORE HOMES	14
LAKE VOLUME	750. ACRE-FT		
MEAN DEPTH	10. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	17. FT		
SHORELINE LENGTH	2.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.3	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.61	AGRICULTURAL	0 %
BOTTOM SLOPE	0.85 %	FOREST OR UNPRODUCTIVE	98 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	2 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

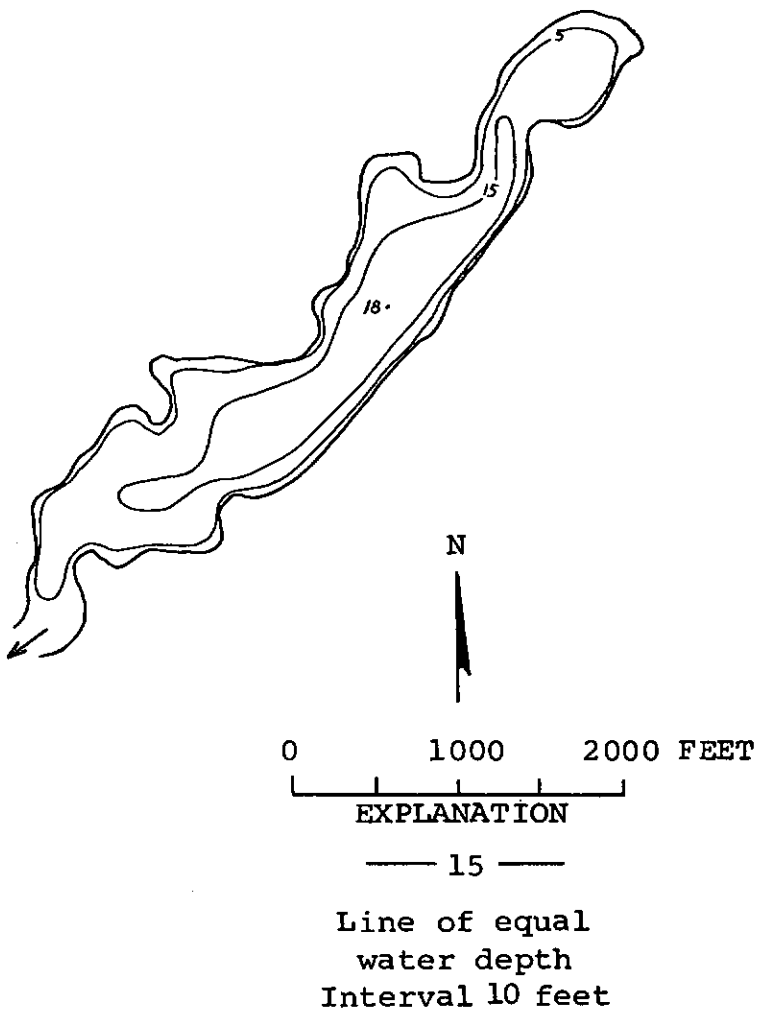
SAMPLE SITE	1	
DATE	8/16/72	
TIME	1006	1015
DEPTH (FT)	3.	12.
DISSOLVED NITRATE (N)	0.04	0.04
DISSOLVED NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.06	0.33
TOTAL ORGANIC NITROGEN (N)	0.44	0.65
TOTAL PHOSPHORUS (P)	0.025	0.033
DISSOLVED ORTHOPHOSPHATE (P)	0.003	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	54	54
WATER TEMPERATURE (DEG C)	20.1	18.3
COLOR (PLATINUM-COBALT UNITS)	15	20
SECCHI-DISC VISIBILITY (FT)	10	
DISSOLVED OXYGEN	7.5	2.2

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

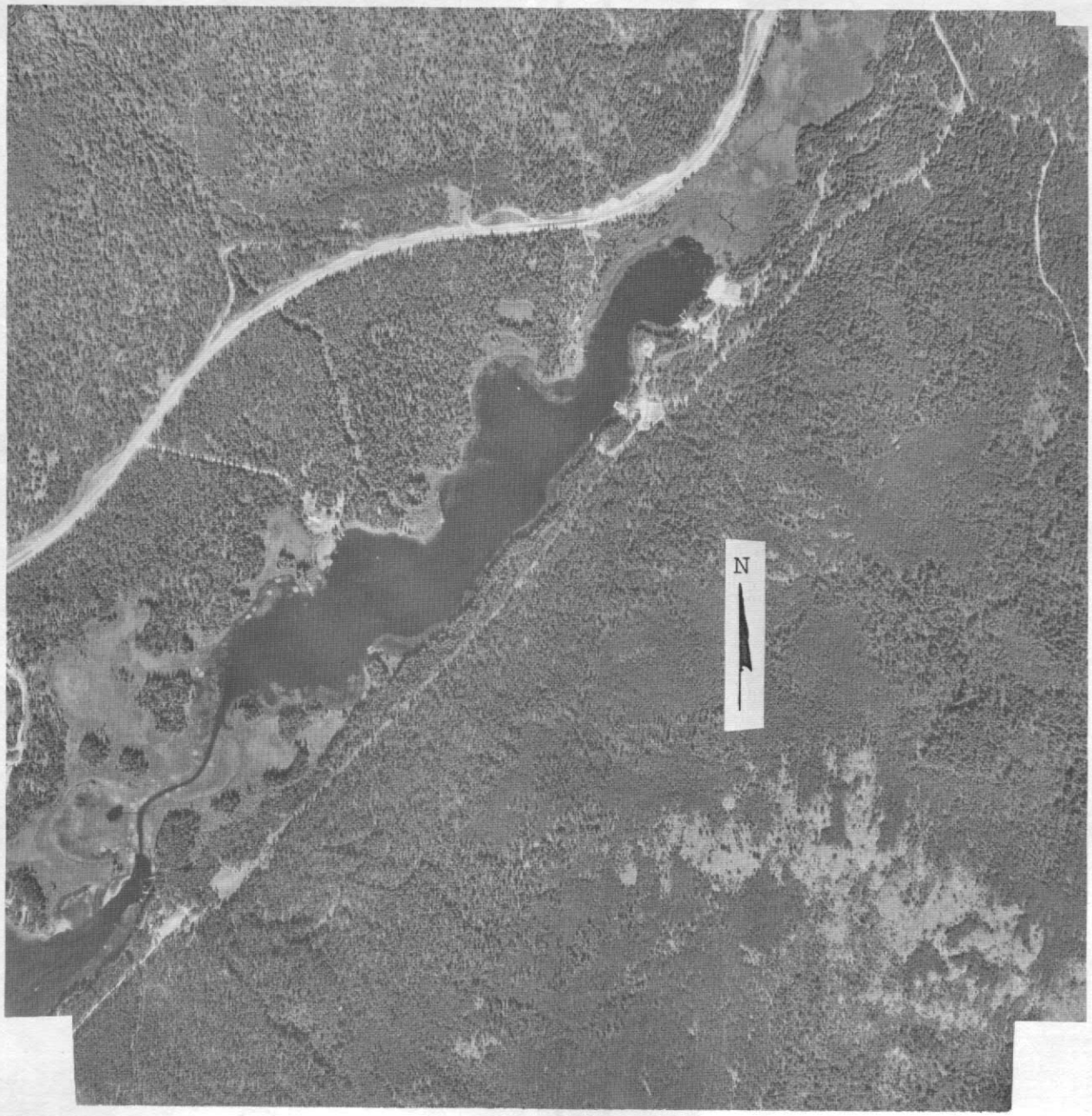
DATE	8/16/72
TIME	1020
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE SECOND LAKE IN THE LITTLE PEND OREILLE CHAIN OF LAKES. THE LITTORAL BOTTOM IS A MIXTURE OF SAND AND MUCK. IN 1972 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE AUGUST 16, 1972.



Heritage Lake, Stevens County. From Washington Department of Game, March 11, 1950.



Heritage Lake, Stevens County. August 8, 1972. Approx. scale 1:14,000.

JUMPOFF JOE LAKE STEVENS COUNTY

LATITUDE 48* 8'22" LONGITUDE 117*41'50" T31N-R40E-36
COLVILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	15.3 SQ MI	RESIDENTIAL DEVELOPMENT	19 %
ALTITUDE	2031. FT		
LAKE AREA	110. ACRES	NUMBER OF NEARSHORE HOMES	17
LAKE VOLUME	1400. ACRE-FT		
MEAN DEPTH	13. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	25. FT		
SHORELINE LENGTH	1.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.52	AGRICULTURAL	8 %
BOTTOM SLOPE	1.0 %	FOREST OR UNPRODUCTIVE	90 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	2 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

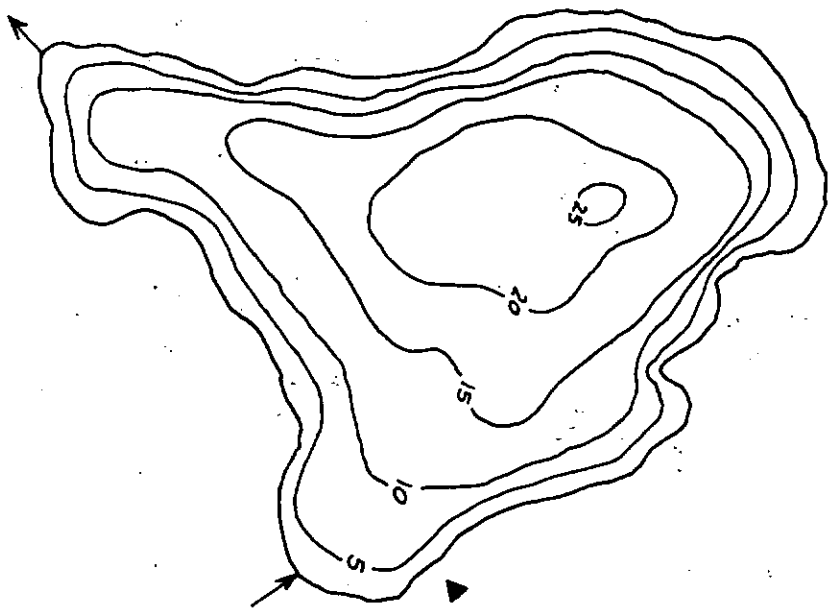
SAMPLE SITE	1	
DATE	7/ 8/74	
TIME	1355	1400
DEPTH (FT)	3.	18.
TOTAL NITRATE (N)	0.01	0.11
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.04
TOTAL ORGANIC NITROGEN (N)	0.21	0.16
TOTAL PHOSPHORUS (P)	0.014	0.019
TOTAL ORTHOPHOSPHATE (P)	0.002	0.004
SPECIFIC CONDUCTANCE (MICROMHOS)	270	280
WATER TEMPERATURE (DEG C)	20.3	16.5
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	12	
DISSOLVED OXYGEN	11.6	12.6

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

DATE	7/ 8/74
TIME	1404
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 ALGAL DENSITY WAS MODERATELY HIGH. THE LITTORAL BOTTOM IS MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (WATER MILFOIL, PONDWEED, COONTAIL, AND ELODEA). RECREATIONAL USE OF THE LAKE IS HEAVY. THE U.S. GEOLOGICAL SURVEY HAS MONITORED THE LAKE STAGE SINCE 1961.



N

0 1000 2000 FEET

EXPLANATION

—— 10 ——

Line of equal
water depth
Interval 5 feet

Jumpoff Joe Lake, Stevens County. From
Washington Department of Game, date unknown.

Jumpoff Joe Lake, Stevens County. August 15, 1970. Approx. scale 1:12,000.

LEO LAKE STEVENS COUNTY

LATITUDE 48*38'46" LONGITUDE 117*30' 6" T36N-R42E-4
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	2.94 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3165. FT		
LAKE AREA	43. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	740. ACRE-FT		
MEAN DEPTH	17. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	37. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.46	AGRICULTURAL	0 %
BOTTOM SLOPE	2.4 %	FOREST OR UNPRODUCTIVE	97 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	3 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

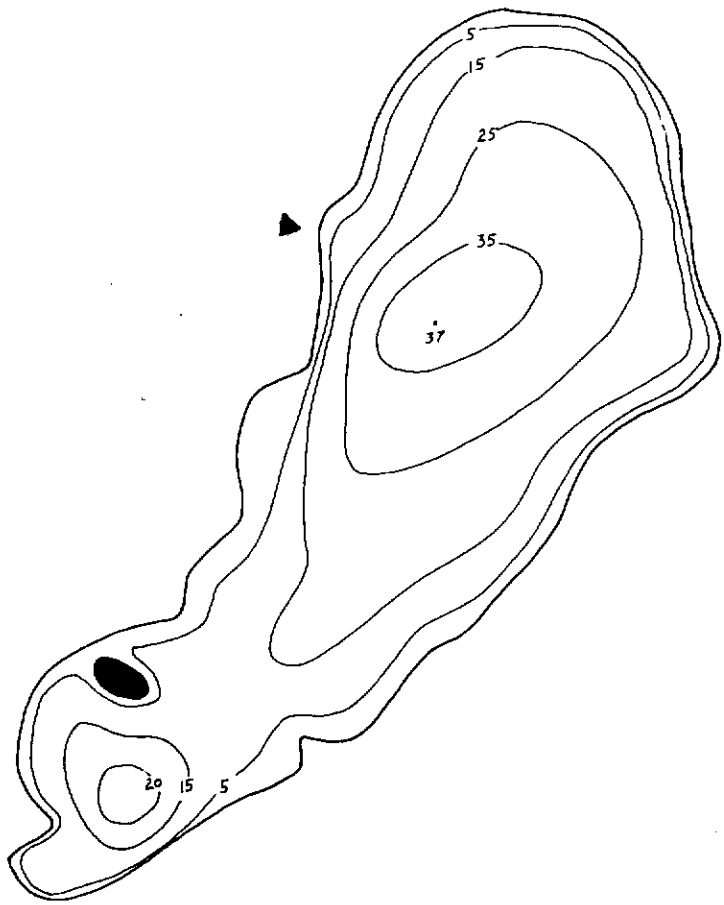
SAMPLE SITE	1	
DATE	8/16/72	
TIME	2030	2040
DEPTH (FT)	3.	29.
DISSOLVED NITRATE (N)	0.05	0.06
DISSOLVED NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.05	0.41
TOTAL ORGANIC NITROGEN (N)	0.34	0.27
TOTAL PHOSPHORUS (P)	0.025	0.13
DISSOLVED ORTHOPHOSPHATE (P)	0.002	0.026
SPECIFIC CONDUCTANCE (MICROMHOS)	52	87
WATER TEMPERATURE (DEG C)	20.2	7.5
COLOR (PLATINUM-COBALT UNITS)	20	30
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	8.5	0.2

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	8/16/72
TIME	2030
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

THE FIRST LAKE IN THE LITTLE PEND OREILLE CHAIN OF LAKES. THE LITTORAL BOTTOM IS MUCK. IN 1972 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE SEPTEMBER 26, 1972.



N

0 500 1000 FEET

EXPLANATION

— 15 —

Line of equal
water depth
Interval 10 feet

Leo Lake, Stevens County. From Washington Department of Game, March 14, 1950.

Leo Lake, Stevens County. August 10, 1972. Approx. scale 1:7200.

LOON LAKE STEVENS COUNTY

LATITUDE 48* 3'20" LONGITUDE 117*38'30" T30N-R41E-33
COLVILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	14.1 SQ MI	RESIDENTIAL DEVELOPMENT	85 %
ALTITUDE	2381. FT		
LAKE AREA	1100. ACRES	NUMBER OF NEARSHORE HOMES	450
LAKE VOLUME	52000. ACRE-FT		
MEAN DEPTH	46. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	100. FT		
SHORELINE LENGTH	7.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.7	RESIDENTIAL SUBURBAN	4 %
DEVELOPMENT OF VOLUME	0.46	AGRICULTURAL	13 %
BOTTOM SLOPE	5.4 %	FOREST OR UNPRODUCTIVE	71 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	12 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

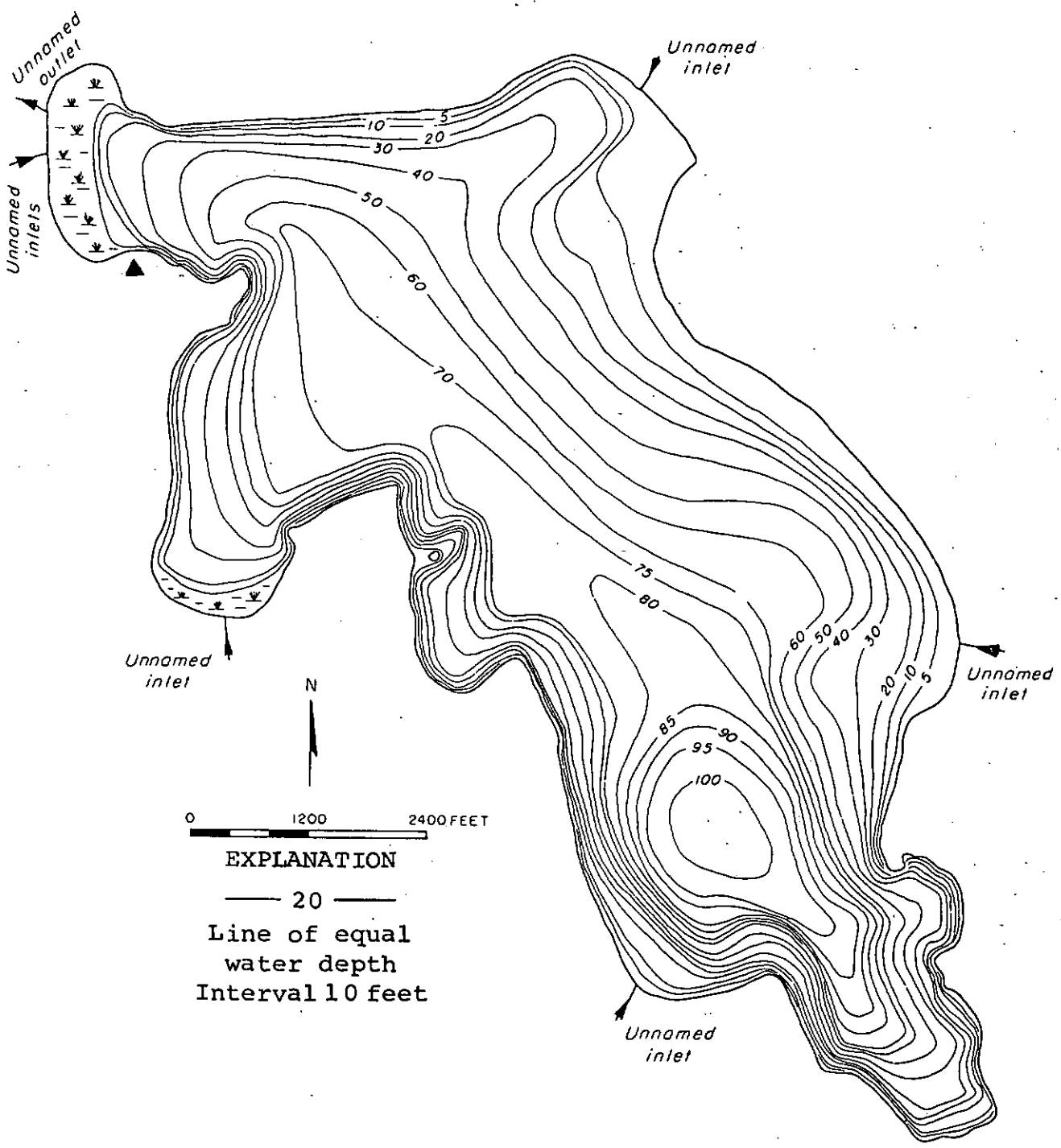
SAMPLE SITE	1	
DATE	7/19/71	
TIME	900	905
DEPTH (FT)	6.	92.
DISSOLVED NITRATE (N)	0.07	0.07
TOTAL NITRITE (N)	--	--
TOTAL AMMONIA (N)	0.00	0.02
TOTAL ORGANIC NITROGEN (N)	--	--
TOTAL PHOSPHORUS (P)	0.010	0.010
DISSOLVED ORTHOPHOSPHATE (P)	0.000	0.010
SPECIFIC CONDUCTANCE (MICROMHOS)	138	152
WATER TEMPERATURE (DEG C)	21.8	4.7
COLOR (PLATINUM-COBALT UNITS)	--	--
SECCHI-DISC VISIBILITY (FT)	25	
DISSOLVED OXYGEN	9.0	0.9

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

DATE	7/ 2/74
TIME	1400
NUMBER OF FECAL COLIFORM SAMPLES	7
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

A NATURAL LAKE THAT IS REGULATED BY A GATE AT THE OUTLET. THE WATER IS USED FOR IRRIGATION PURPOSES. THERE ARE SEVERAL RESORTS AND RECREATIONAL USE OF THE LAKE IS HEAVY. IN 1971 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE DO CONCENTRATION WAS RELATIVELY HIGH THROUGHOUT THE ENTIRE WATER COLUMN. VALUES FOR COLOR, NITRITE, AND ORGANIC NITROGEN WERE NOT RECORDED. THE PLANT SURVEY WAS MADE SEPTEMBER 28, 1971. THE WATER QUALITY OF LOON LAKE WAS DESCRIBED BY BISHOP (1973). THE U.S.G.S. HAS MONITORED THE LAKE STAGE SINCE 1950.



Loon Lake, Stevens County. From Washington Department of Game, February 14, 1955.

Loon Lake, Stevens County. August 10, 1972. Approx. scale 1:18,000.

MISSION LAKE STEVENS COUNTY

LATITUDE 48*37'22" LONGITUDE 118* 1' 6" T36N-R38E-15
COLVILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.11 SQ MI	RESIDENTIAL DEVELOPMENT	14 %
ALTITUDE	2050. FT		
LAKE AREA	26. ACRES	NUMBER OF NEARSHORE HOMES	2
LAKE VOLUME	120. ACRE-FT		
MEAN DEPTH	4. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	11. FT		
SHORELINE LENGTH	1.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.9	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.41	AGRICULTURAL	19 %
BOTTOM SLOPE	0.92 %	FOREST OR UNPRODUCTIVE	77 %
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)

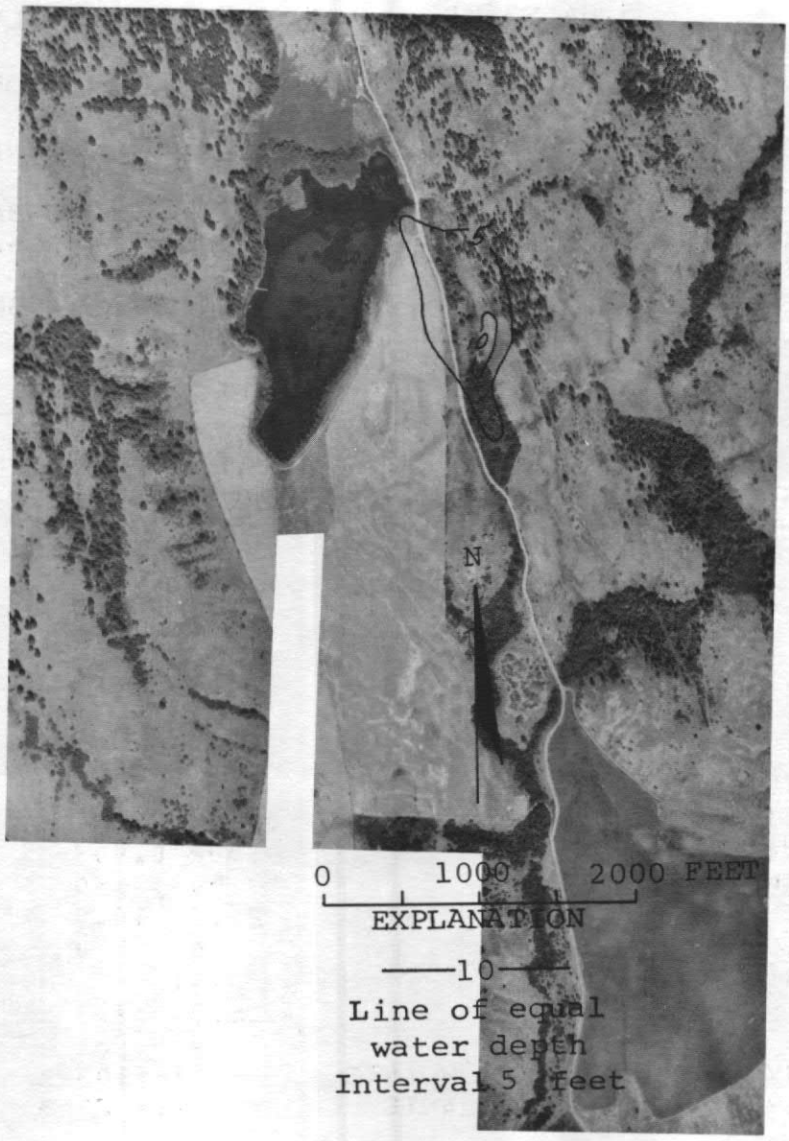
SAMPLE SITE	1	
DATE	7/10/74	
TIME	1800	1805
DEPTH (FT)	2.	5.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.06	0.04
TOTAL ORGANIC NITROGEN (N)	0.60	0.66
TOTAL PHOSPHORUS (P)	0.027	0.019
TOTAL ORTHOPHOSPHATE (P)	0.002	0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	720	720
WATER TEMPERATURE (DEG C)	20.5	20.5
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	> 7	
DISSOLVED OXYGEN	9.0	9.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	7/10/74
TIME	1800
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	3
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	5

REMARKS

THE LAKE ADJOINS MARSH ON THE NORTH SIDE. FLOATING LOGS AND DEBRIS WERE OBSERVED ALONG THE SHORELINE. THE LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (PONDWEED AND CHARA). THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS(CATTAIL AND SEDGE).



Mission Lake, Stevens County. Bathymetric map from U.S. Geological Survey, July 29, 1974. Aerial photo, August 5, 1970.

NELSON LAKE

STEVENS COUNTY

LATITUDE 48*10'27" LONGITUDE 117*34'18" T31N-R41E-24
COLVILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	3.84 SQ MI	RESIDENTIAL DEVELOPMENT	3 %
ALTITUDE	2760. FT		
LAKE AREA	28. ACRES	NUMBER OF NEARSHORE HOMES	1
LAKE VOLUME	330. ACRE-FT		
MEAN DEPTH	12. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	18. FT		
SHORELINE LENGTH	0.87 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.2	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.65	AGRICULTURAL	2 %
BOTTOM SLOPE	1.4 %	FOREST OR UNPRODUCTIVE	96 %
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)

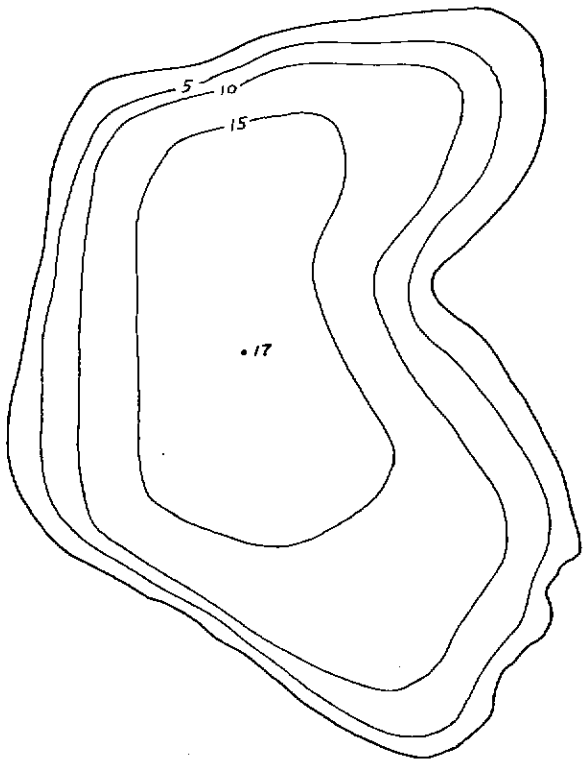
SAMPLE SITE	1	
DATE	7/ 8/74	
TIME	1600	1605
DEPTH (FT)	3.	13.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	0.07
TOTAL ORGANIC NITROGEN (N)	0.14	0.13
TOTAL PHOSPHORUS (P)	0.011	0.011
TOTAL ORTHOPHOSPHATE (P)	0.002	0.003
SPECIFIC CONDUCTANCE (MICROMHOS)	50	50
WATER TEMPERATURE (DEG C)	20.0	18.5
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	16	
DISSOLVED OXYGEN	8.0	7.7

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	7/ 8/74
TIME	1618
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

THE LITTORAL BOTTOM IS SILT AND MUCK AND THE ENTIRE SHORELINE WAS COVERED WITH DENSE BEDS OF EMERSED AQUATIC PLANTS (WATER SHIELD, CATTAIL, AND YELLOW LILY).



N

0 500 1000 FEET

EXPLANATION

10

Line of equal
water depth
Interval 5 feet

Nelson Lake, Stevens County. From Washington Department of Game, January 13, 1947.

Nelson Lake, Stevens County. August 4, 1970. Approx. scale 1:12,000.

NEWBELL LAKE STEVENS COUNTY

LATITUDE 48* 3'18" LONGITUDE 118*11' 0" T30N-R37E-32
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	0.84 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1980. 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	28. FT		
SHORELINE LENGTH	0.76 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.42	AGRICULTURAL	48 %
BOTTOM SLOPE	2.4 %	FOREST OR UNPRODUCTIVE	48 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	4 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

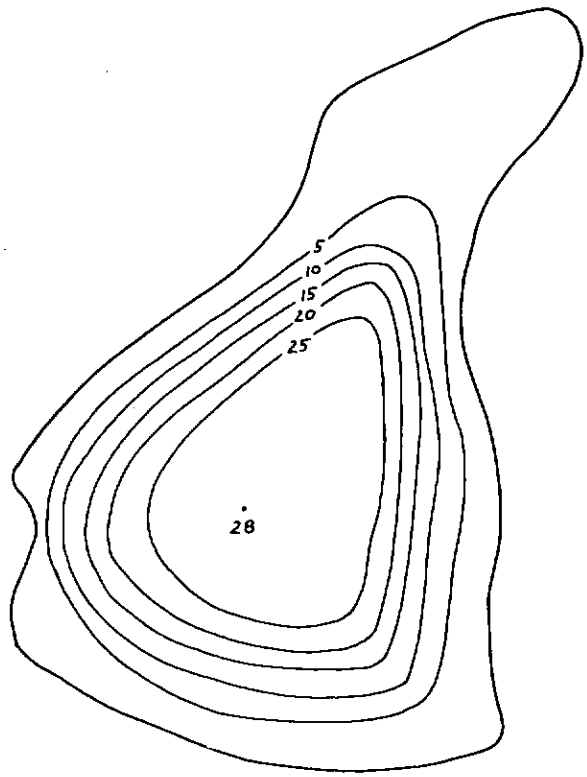
SAMPLE SITE	1	
DATE	7/11/74	
TIME	1430	1435
DEPTH (FT)	3.	20.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.19	0.41
TOTAL ORGANIC NITROGEN (N)	1.1	1.2
TOTAL PHOSPHORUS (P)	0.098	0.22
TOTAL ORTHOPHOSPHATE (P)	0.048	0.17
SPECIFIC CONDUCTANCE (MICROMHOS)	440	460
WATER TEMPERATURE (DEG C)	19.0	10.5
COLOR (PLATINUM-COBALT UNITS)	20	30
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	5.4	0.4

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

DATE	7/11/74
TIME	1400
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

THE LAKE SUPPORTS A LARGE WATERFOWL POPULATION. THE LITTORAL BOTTOM IS SILT AND MUCK AND THE ENTIRE SHORELINE WAS COVERED WITH DENSE BEDS OF EMERSED AQUATIC PLANTS (CATTAIL AND SEDGE).



N

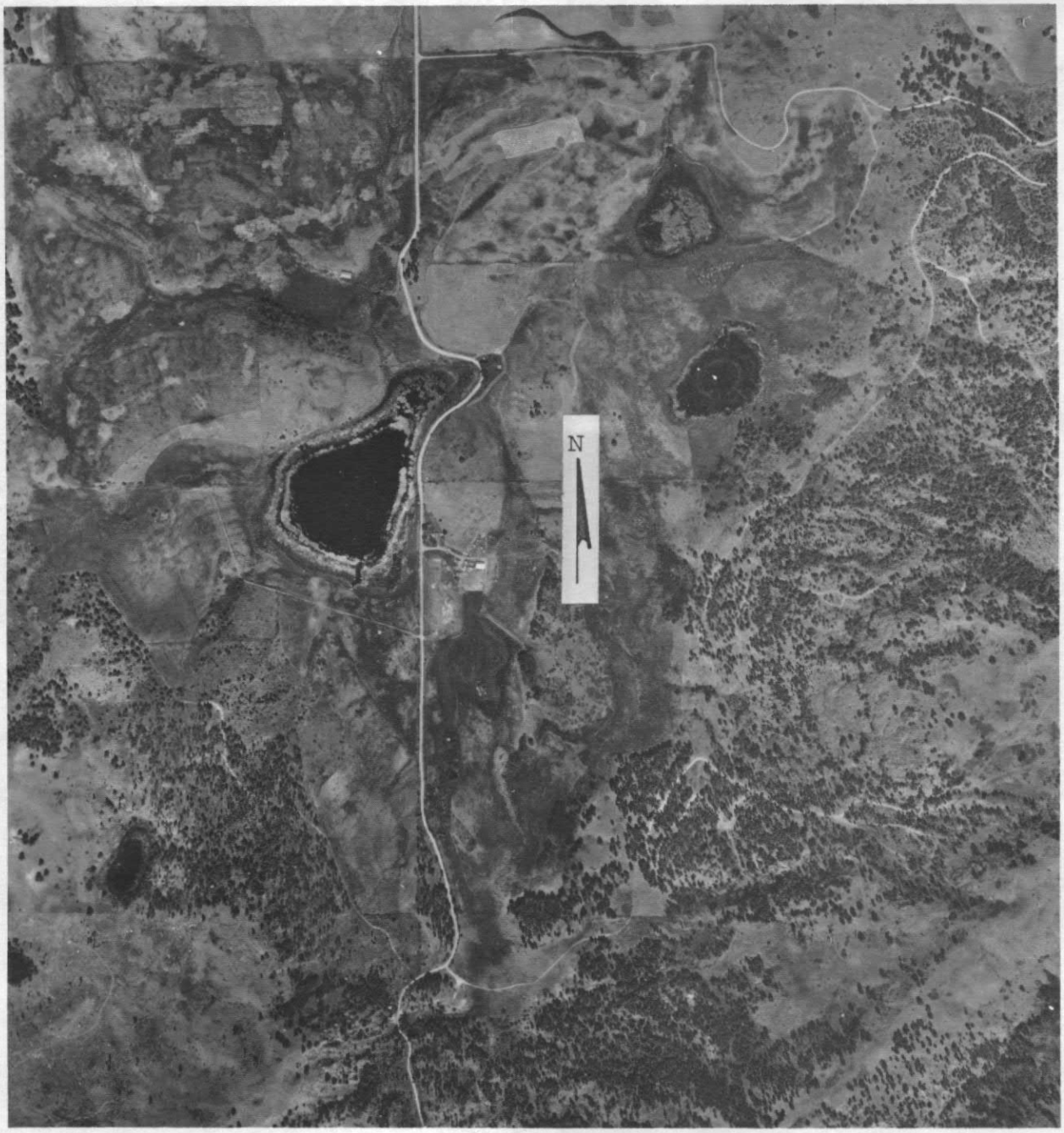
0 500 1000 FEET

EXPLANATION

— 10 —

Line of equal
water depth
Interval 5 feet

Newbell Lake, Stevens County. From Washington Department of Game, February 10, 1951.



Newbell Lake, Stevens County. June 21, 1970. Approx. scale 1:12,000.

PERKINS LAKE STEVENS COUNTY

LATITUDE 48*47'17" LONGITUDE 118* 3'31" T38N-R37E-13
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.23 SQ MI	RESIDENTIAL DEVELOPMENT	4 %
ALTITUDE	2250. FT		
LAKE AREA	23. ACRES	NUMBER OF NEARSHORE HOMES	3
LAKE VOLUME	630. ACRE-FT		
MEAN DEPTH	28. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	45. FT		
SHORELINE LENGTH	0.87 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.3	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.61	AGRICULTURAL	53 %
BOTTOM SLOPE	4.0 %	FOREST OR UNPRODUCTIVE	44 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	3 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	--

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

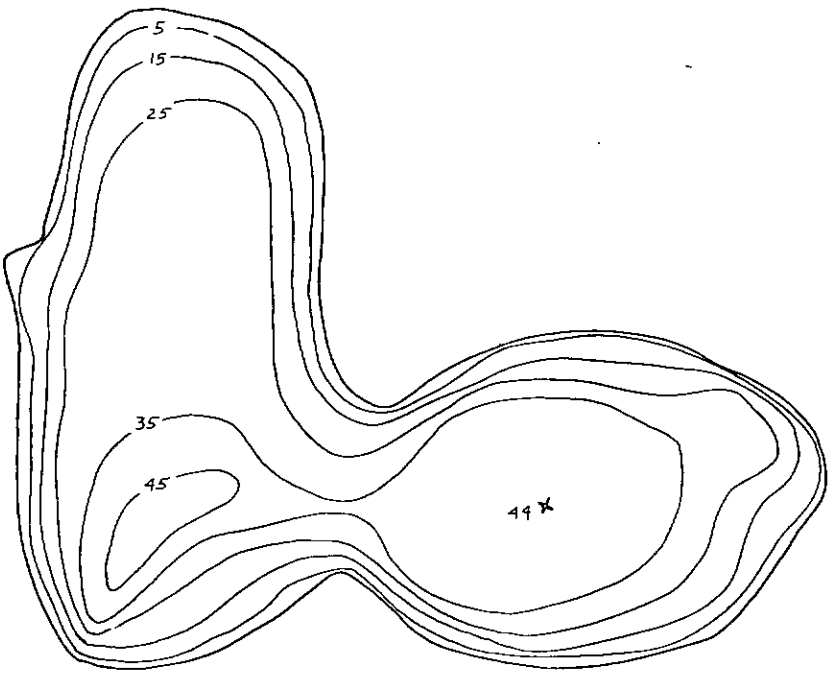
SAMPLE SITE	1	
DATE	7/10/74	
TIME	1530	1535
DEPTH (FT)	3.	39.
TOTAL NITRATE (N)	0.09	0.00
TOTAL NITRITE (N)	0.03	0.01
TOTAL AMMONIA (N)	0.13	1.3
TOTAL ORGANIC NITROGEN (N)	0.82	0.60
TOTAL PHOSPHORUS (P)	0.014	0.064
TOTAL ORTHOPHOSPHATE (P)	0.003	0.010
SPECIFIC CONDUCTANCE (MICROMHOS)	500	700
WATER TEMPERATURE (DEG C)	21.5	5.2
COLOR (PLATINUM-COBALT UNITS)	5	5
SECCHI-DISC VISIBILITY (FT)	8	
DISSOLVED OXYGEN	9.0	0.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	7/10/74
TIME	1530
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 LAKE IS PART OF THE GLASGO LAKES COMPLEX AND IS STABILIZED BY A SMALL DAM. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE LITTORAL BOTTOM IS MUCK AND THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (CATTAIL AND SEDGE).



Perkins Lake, Stevens County. From Washington Department of Game, August 1, 1946.

Perkins Lake, Stevens County. August 15, 1970. Approx. scale 1:12,000.

PIERRE LAKE STEVENS COUNTY

LATITUDE 48*53'51" LONGITUDE 118* 8'14" T39N-R37E-8
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	26.8 SQ MI	RESIDENTIAL DEVELOPMENT	1 %
ALTITUDE	2005. FT		
LAKE AREA	110. ACRES	NUMBER OF NEARSHORE HOMES	4
LAKE VOLUME	3000. ACRE-FT		
MEAN DEPTH	28. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	75. FT		
SHORELINE LENGTH	2.9 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	2.0	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.38	AGRICULTURAL	3 %
BOTTOM SLOPE	3.1 %	FOREST OR UNPRODUCTIVE	96 %
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)

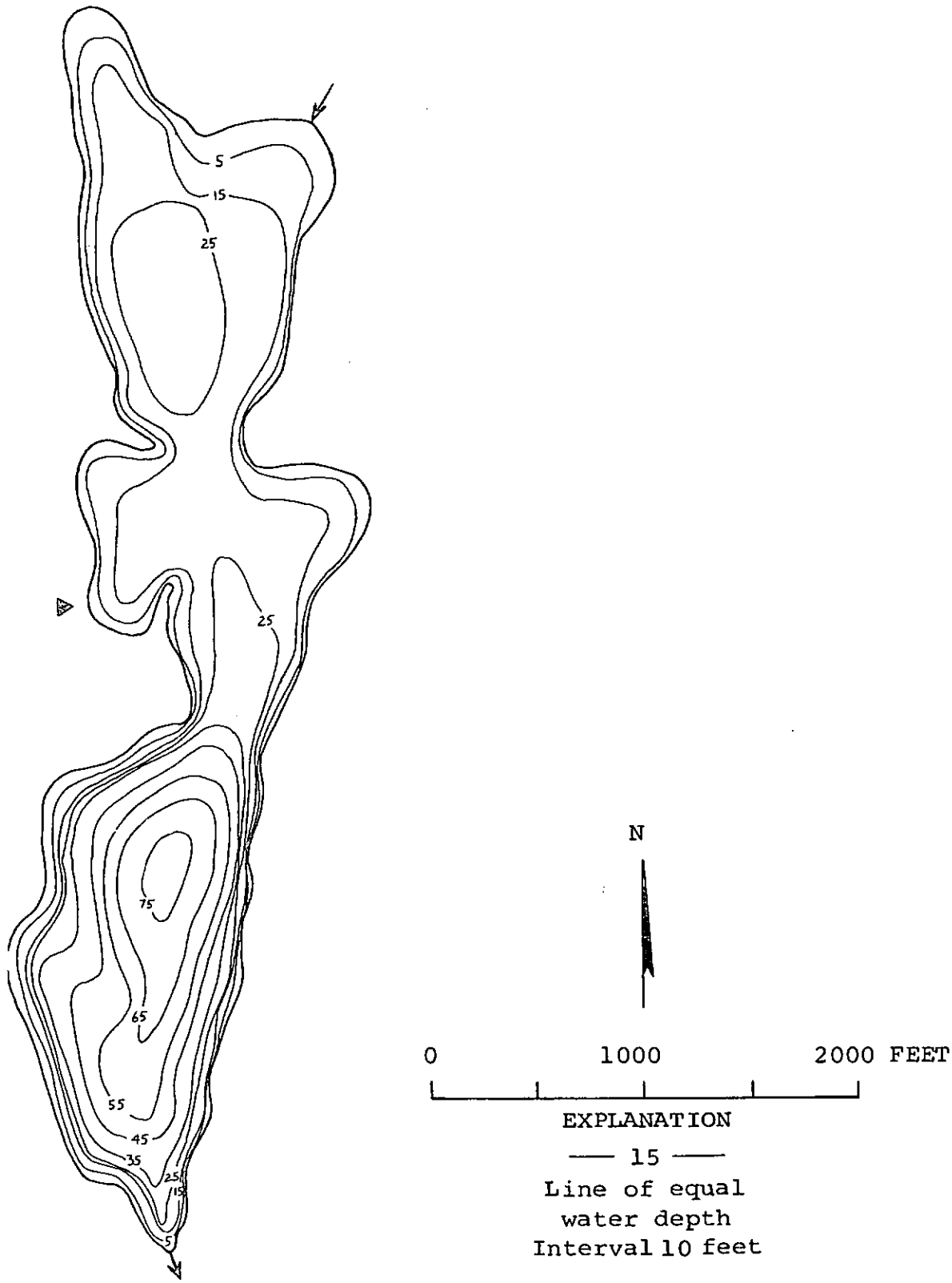
SAMPLE SITE	1	
DATE	8/17/72	
TIME	1050	1100
DEPTH (FT)	3.	69.
DISSOLVED NITRATE (N)	0.02	0.03
DISSOLVED NITRITE (N)	0.01	0.00
TOTAL AMMONIA (N)	0.17	1.9
TOTAL ORGANIC NITROGEN (N)	0.26	2.2
TOTAL PHOSPHORUS (P)	0.011	0.24
DISSOLVED ORTHOPHOSPHATE (P)	0.004	0.18
SPECIFIC CONDUCTANCE (MICROMHOS)	340	420
WATER TEMPERATURE (DEG C)	20.5	6.0
COLOR (PLATINUM-COBALT UNITS)	10	20
SECCHI-DISC VISIBILITY (FT)	20	
DISSOLVED OXYGEN	9.0	0.2

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

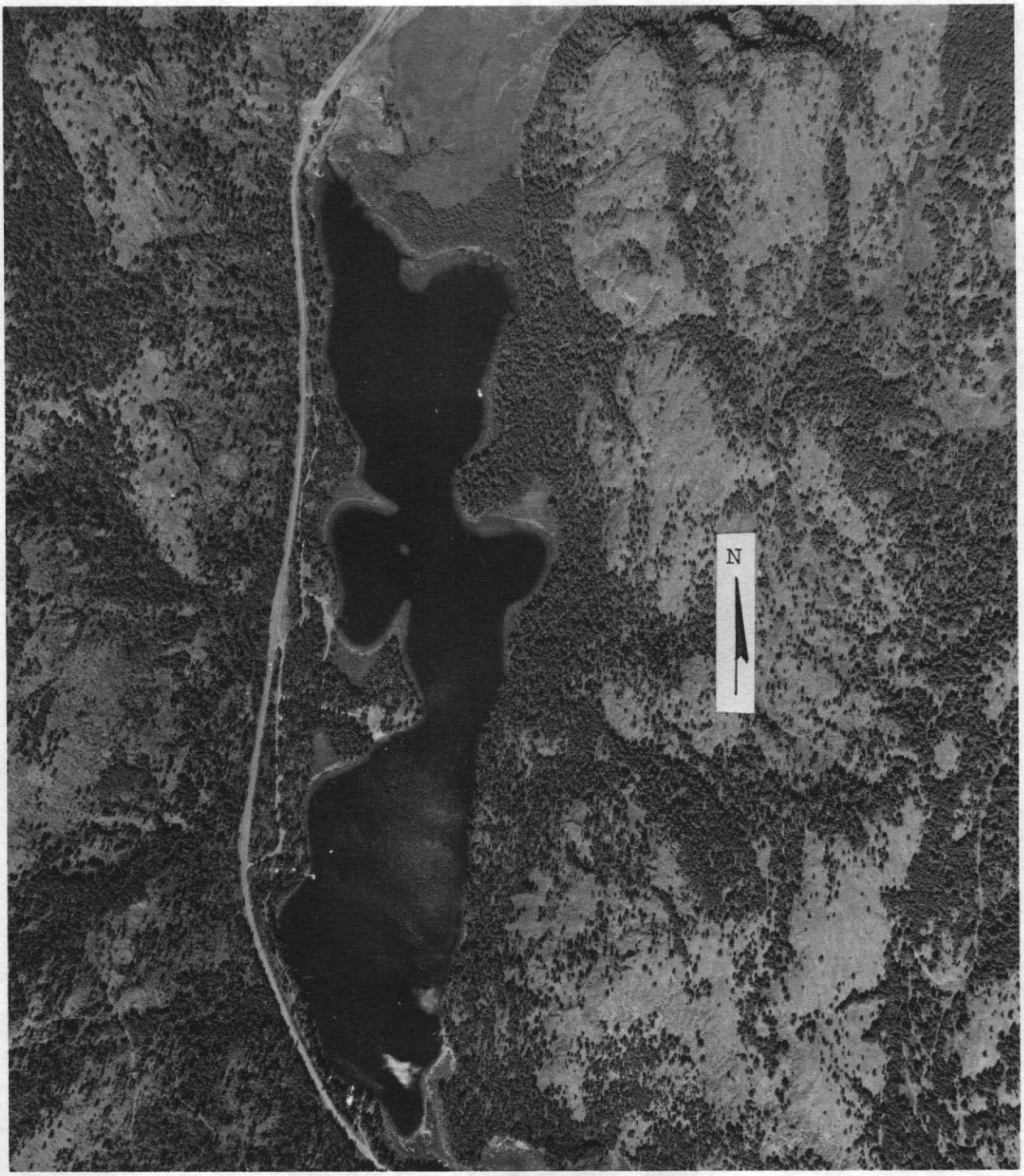
DATE	8/17/72
TIME	1113
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

REMARKS

THE ALGAL DENSITY WAS MODERATELY HIGH. THE LITTORAL BOTTOM IS MUCK. IN 1972 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE AUGUST 17, 1972.



Pierre Lake, Stevens County. From Washington Department of Game, January 13, 1947.



Pierre Lake, Stevens County. August 10, 1972. Approx. scale 1:9600.

RYAN LAKE STEVENS COUNTY

LATITUDE 48*46'53" LONGITUDE 118* 3'31" T38N-R37E-24
COLUMBIA RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.45 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	2190. FT		
LAKE AREA	26. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	560. ACRE-FT		
MEAN DEPTH	21. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	56. FT		
SHORELINE LENGTH	0.80 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.38	AGRICULTURAL	6 %
BOTTOM SLOPE	4.7 %	FOREST OR UNPRODUCTIVE	91 %
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)

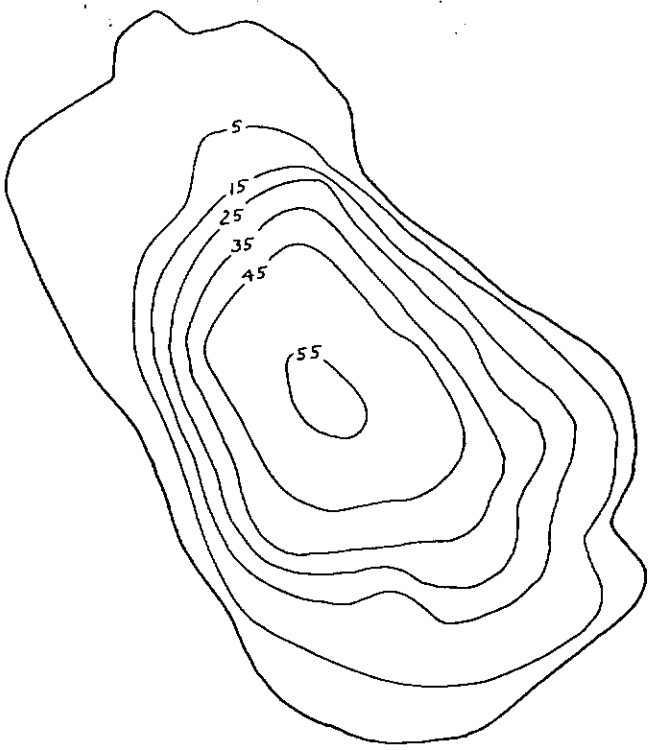
SAMPLE SITE	1	
DATE	7/10/74	
TIME	1330	1335
DEPTH (FT)	3.	46.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.10	2.3
TOTAL ORGANIC NITROGEN (N)	1.0	0.90
TOTAL PHOSPHORUS (P)	0.019	0.30
TOTAL ORTHOPHOSPHATE (P)	0.002	0.22
SPECIFIC CONDUCTANCE (MICROMHOS)	440	650
WATER TEMPERATURE (DEG C)	21.8	4.8
COLOR (PLATINUM-COBALT UNITS)	0	10
SECCHI-DISC VISIBILITY (FT)	19	
DISSOLVED OXYGEN	8.0	0.2

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

DATE	7/10/74
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

THE SOUTHERNMOST LAKE OF THE GLASGO LAKES COMPLEX. FLOATING AND SUBMERGED LOGS WERE OBSERVED ALONG THE SHORELINE AND HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE LITTORAL BOTTOM IS SILT.



N

0 200 1000 FEET

EXPLANATION

— 15 —

Line of equal
water depth
Interval 10 feet

Ryan Lake, Stevens County. From Washington Department of Game, August 3, 1946.

Ryan Lake, Stevens County. August 15, 1970. Approx. scale 1:12,000.

SHERRY LAKE STEVENS COUNTY

LATITUDE 48°36'24" LONGITUDE 117°32'36" T36N-R42E-20
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	15.3 SQ MI	RESIDENTIAL DEVELOPMENT	57 %
ALTITUDE	3147. FT		
LAKE AREA	25. ACRES	NUMBER OF NEARSHORE HOMES	18
LAKE VOLUME	720. ACRE-FT		
MEAN DEPTH	29. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	85. FT		
SHORELINE LENGTH	0.78 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	1 %
DEVELOPMENT OF VOLUME	0.34	AGRICULTURAL	0 %
BOTTOM SLOPE	7.2 %	FOREST OR UNPRODUCTIVE	95 %
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)

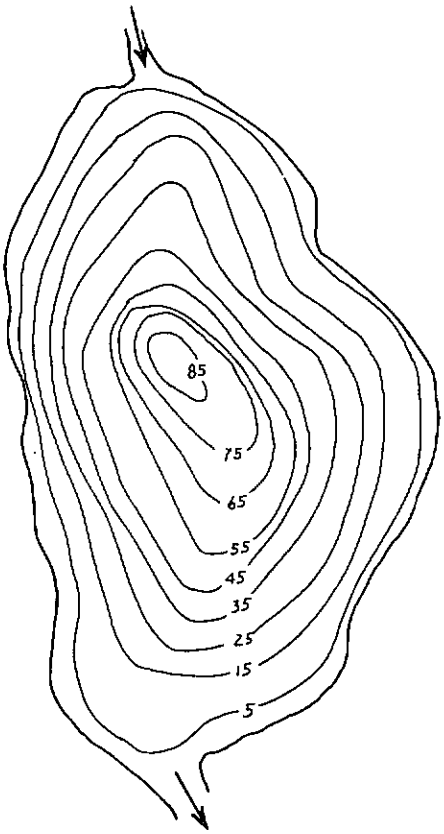
SAMPLE SITE	1	
DATE	8/16/72	
TIME	1605	1615
DEPTH (FT)	3.	79.
DISSOLVED NITRATE (N)	0.03	0.02
DISSOLVED NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.13	2.3
TOTAL ORGANIC NITROGEN (N)	0.33	1.0
TOTAL PHOSPHORUS (P)	0.029	0.82
DISSOLVED ORTHOPHOSPHATE (P)	0.003	0.59
SPECIFIC CONDUCTANCE (MICROMHOS)	70	170
WATER TEMPERATURE (DEG C)	21.0	5.1
COLOR (PLATINUM-COBALT UNITS)	15	55
SECCHI-DISC VISIBILITY (FT)	16	
DISSOLVED OXYGEN	8.4	0.2

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

DATE	8/16/72
TIME	1103
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFORM, MAXIMUM (COL./100ML)	9
FECAL COLIFOPM, MEAN (COL./100ML)	5

REMARKS

THE FIFTH LAKE IN THE LITTLE PEND OREILLE CHAIN OF LAKES. IN 1972 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE PLANT SURVEY WAS MADE SEPTEMBER 27, 1972.



N

0 500 1000 FEET

EXPLANATION

—— 15 ——
Line of equal
water depth
Interval 10 feet

Sherry Lake, Stevens County. From Washington Department of Game, March 14, 1950.

Sherry Lake, Stevens County. August 10, 1972. Approx. scale 1:12,000.

STARVATION LAKE STEVENS COUNTY

LATITUDE 48*29'24" LONGITUDE 117*42'27" T35N-R40E-36
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	3.00 SQ MI	RESIDENTIAL DEVELOPMENT	10 %
ALTITUDE	2375. FT		
LAKE AREA	30. ACRES	NUMBER OF NEARSHORE HOMES	4
LAKE VOLUME	230. ACRE-FT		
MEAN DEPTH	8. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	14. FT		
SHORELINE LENGTH	0.88 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.55	AGRICULTURAL	15 %
BOTTOM SLOPE	1.1 %	FOREST OR UNPRODUCTIVE	83 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	2 %
INFLOW	PERENNIAL		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

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

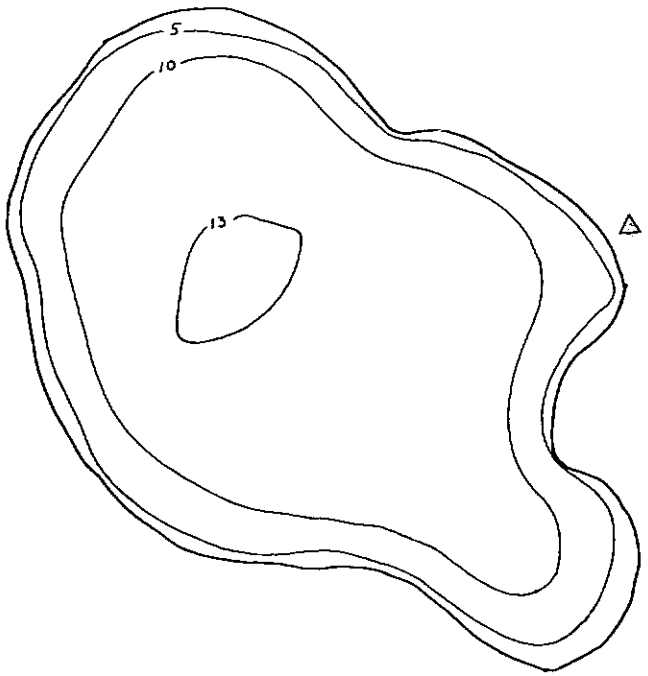
SAMPLE SITE	1	
DATE	7/ 8/74	
TIME	1500	1505
DEPTH (FT)	3.	10.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.08	0.06
TOTAL ORGANIC NITROGEN (N)	0.64	0.57
TOTAL PHOSPHORUS (P)	0.058	0.048
TOTAL ORTHOPHOSPHATE (P)	0.020	0.018
SPECIFIC CONDUCTANCE (MICROMHOS)	390	390
WATER TEMPERATURE (DEG C)	21.2	21.2
COLOR (PLATINUM-COBALT UNITS)	5	5
SECCHI-DISC VISIRILITY (FT)	>13	
DISSOLVED OXYGEN	8.8	8.8

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	7/ 8/74
TIME	1500
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	6
FECAL COLIFORM, MEAN (COL./100ML)	2

REMARKS

THE ALGAL DENSITY WAS MODERATELY HIGH. THE LAKE IS PERIODICALLY AERATED TO RAISE DO LEVELS. THE LITTORAL BOTTOM IS SILT AND MUCK. THE LAKE BOTTOM WAS COMPLETELY COVERED WITH SUBMERSED AQUATIC PLANTS (CHARA). THE ENTIRE SHORELINE WAS COVERED WITH DENSE BEDS OF EMERSED AQUATIC PLANTS (YELLOW LILY, SEDGE, AND CATTAIL).



N

0 500 1000 FEET

EXPLANATION

—— 10 ——
Line of equal
water depth
Interval 5 feet

Starvation Lake, Stevens County. From Washington Department of Game, January 28, 1947.

Starvation Lake, Stevens County. August 15, 1970. Approx. scale 1:12,000.

THOMAS LAKE STEVENS COUNTY

LATITUDE 48*37' 7" LONGITUDE 117*32'39" T36N-R42E-18
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	12.7 SQ MI	RESIDENTIAL DEVELOPMENT	74 %
ALTITUDE	3147. FT		
LAKE AREA	170. ACRES	NUMBER OF NEARSHORE HOMES	66
LAKE VOLUME	4000. ACRE-FT		
MEAN DEPTH	23. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	55. FT		
SHORELINE LENGTH	3.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.8	RESIDENTIAL SUBURBAN	1 %
DEVELOPMENT OF VOLUME	0.42	AGRICULTURAL	0 %
BOTTOM SLOPE	1.8 %	FOREST OR UNPRODUCTIVE	95 %
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)

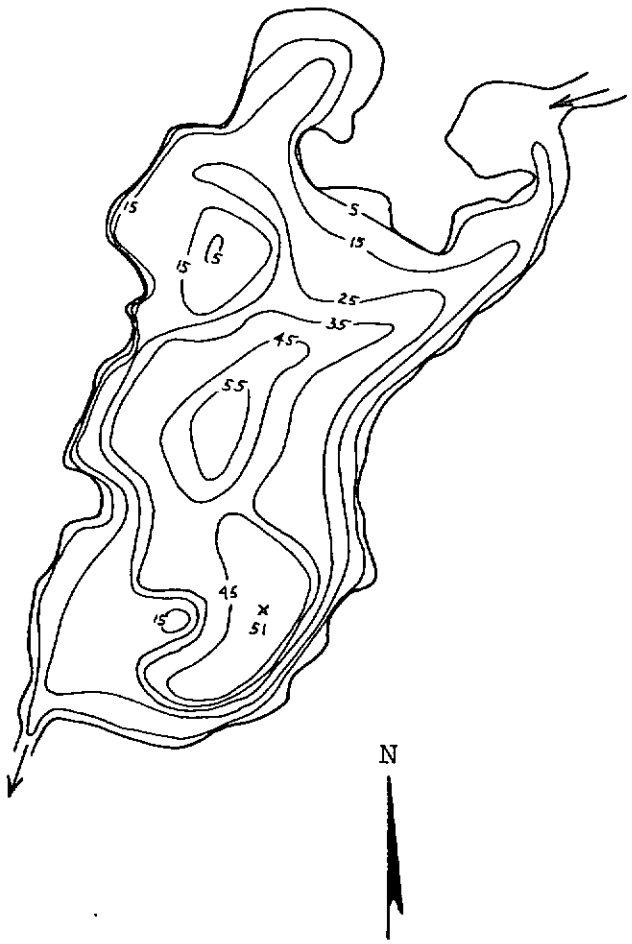
SAMPLE SITE	1	
DATE	8/16/72	
TIME	1430	1440
DEPTH (FT)	3.	46.
DISSOLVED NITRATE (N)	0.05	0.04
DISSOLVED NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.08	0.18
TOTAL ORGANIC NITROGEN (N)	0.92	0.17
TOTAL PHOSPHORUS (P)	0.027	0.081
DISSOLVED ORTHOPHOSPHATE (P)	0.001	0.030
SPECIFIC CONDUCTANCE (MICROMHOS)	53	65
WATER TEMPERATURE (DEG C)	21.0	6.5
COLOR (PLATINUM-COBALT UNITS)	10	50
SECCHI-DISC VISIBILITY (FT)	14	
DISSOLVED OXYGEN	8.1	0.2

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

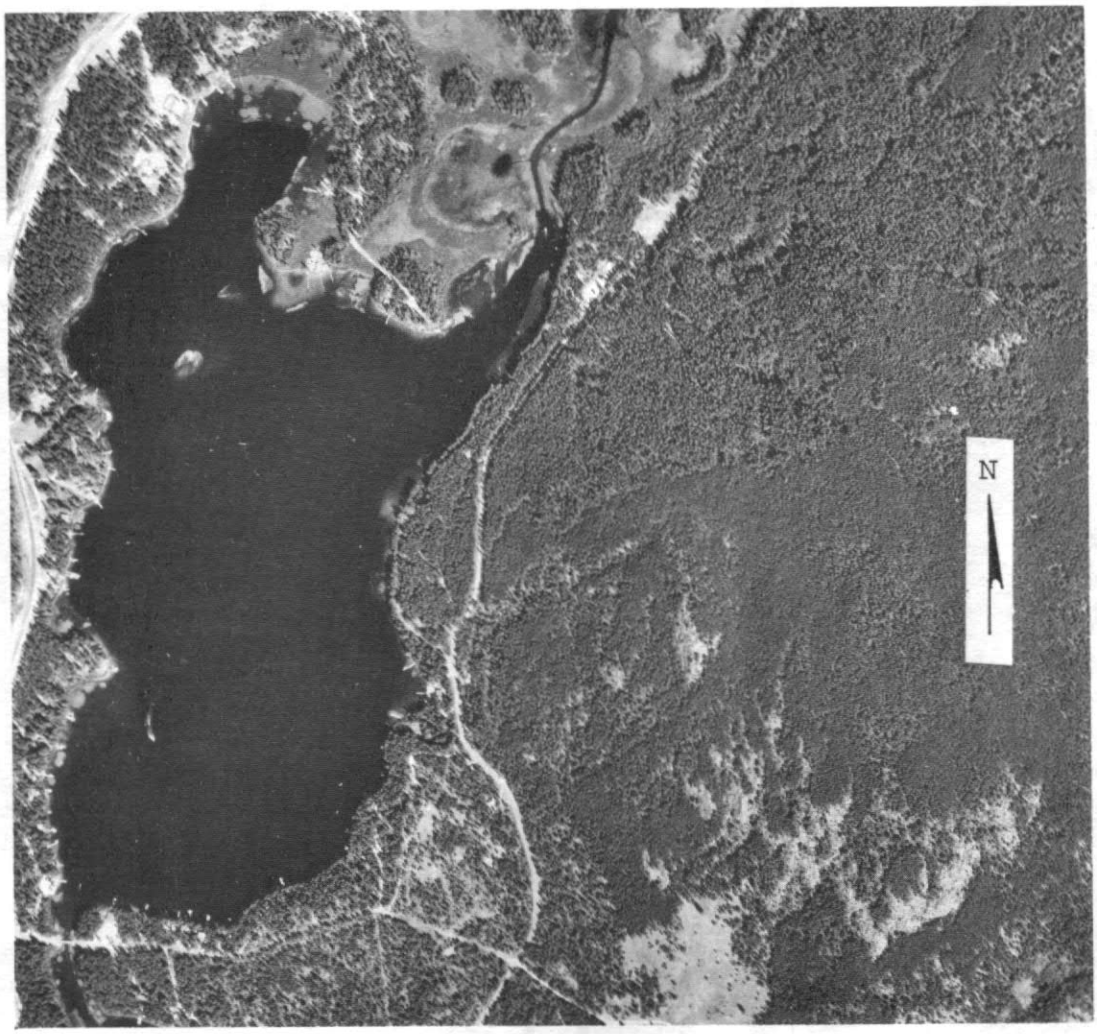
DATE	8/16/72
TIME	1040
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	2
FECAL COLIFOPM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	4

REMARKS

THE THIRD LAKE IN THE LITTLE PEND OREILLE CHAIN OF LAKES. IN 1972 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE FOUR TIMES. THE PLANT SURVEY WAS MADE AUGUST 16, 1972.



Thomas Lake, Stevens County. From Washington Department of Game, March 11, 1950.



Thomas Lake, Stevens County. August 16, 1970. Approx. scale 1:12,000.

TWIN (SPRUCE) LAKE STEVENS COUNTY

LATITUDE 48°34' 9" LONGITUDE 117°38'47" T35N-R41E-4
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	1.00 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	3727. FT		
LAKE AREA	41. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	620. ACRE-FT		
MEAN DEPTH	15. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	30. FT		
SHORELINE LENGTH	1.4 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.6	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.50	AGRICULTURAL	0 %
BOTTOM SLOPE	2.0 %	FOREST OR UNPRODUCTIVE	94 %
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/ 8/74	
TIME	1700	1705
DEPTH (FT)	3.	16.
TOTAL NITRATE (N)	0.00	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.07	0.08
TOTAL ORGANIC NITROGEN (N)	0.38	0.24
TOTAL PHOSPHORUS (P)	0.022	0.016
TOTAL ORTHOPHOSPHATE (P)	0.006	0.005
SPECIFIC CONDUCTANCE (MICROMHOS)	30	30
WATER TEMPERATURE (DEG C)	19.8	8.2
COLOR (PLATINUM-COBALT UNITS)	20	25
SECCHI-DISC VISIBILITY (FT)	7	
DISSOLVED OXYGEN	7.8	1.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	7/ 8/74
TIME	1700
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	71
FECAL COLIFORM, MEAN (COL./100ML)	24

REMARKS

FLOATING LOGS AND DEBRIS WERE OBSERVED ALONG THE SHORELINE. THE LITTORAL BOTTOM IS SILT AND MUCK AND THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (YELLOW LILY AND SEDGE).

Twin (Spruce) Lake, Stevens County. Bathymetric map
from U.S. Geological Survey, July 29, 1974.
Aerial photo, August 16, 1970.

WAITTS LAKE STEVENS COUNTY

LATITUDE 48*11' 9" LONGITUDE 117*46'48" T31N-R40E-17
COLVILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	11.7 SQ MI	RESIDENTIAL DEVELOPMENT	52 %
ALTITUDE	1946. FT		
LAKE AREA	470. ACRES	NUMBER OF NEARSHORE HOMES	63
LAKE VOLUME	19000. ACRE-FT		
MEAN DEPTH	40. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	68. FT		
SHORELINE LENGTH	3.3 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	1 %
DEVELOPMENT OF VOLUME	0.59	AGRICULTURAL	14 %
BOTTOM SLOPE	1.3 %	FOREST OR UNPRODUCTIVE	79 %
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)

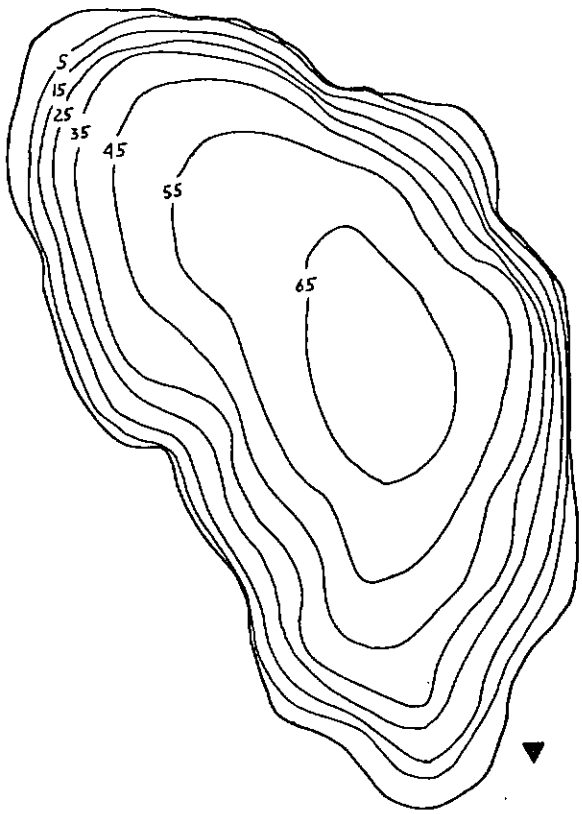
SAMPLE SITE	1	
DATE	7/ 8/74	
TIME	1245	1250
DEPTH (FT)	3.	66.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.00	0.01
TOTAL AMMONIA (N)	0.04	0.69
TOTAL ORGANIC NITROGEN (N)	0.31	0.51
TOTAL PHOSPHORUS (P)	0.017	0.26
TOTAL ORTHOPHOSPHATE (P)	0.002	0.21
SPECIFIC CONDUCTANCE (MICROMHOS)	280	340
WATER TEMPERATURE (DEG C)	21.0	4.5
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	15	
DISSOLVED OXYGEN	8.9	0.0

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

DATE	7/ 8/74
TIME	1302
NUMBER OF FECAL COLIFORM SAMPLES	4
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	17
FECAL COLIFORM, MEAN (COL./100ML)	8

REMARKS

AN IRRIGATION AND HYDROPOWER RESERVOIR FORMED BY A LOW DAM ABOUT 1927. THE ALGAL DENSITY WAS MODERATELY HIGH AND HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE LITTORAL BOTTOM IS SILT AND MUCK BUT VERY FEW SUBMERSED AQUATIC PLANTS WERE OBSERVED. THERE ARE SEVERAL RESORTS AND RECREATIONAL USE OF THE LAKE IS HEAVY. THE U.S. GEOLOGICAL SURVEY HAS MONITORED THE LAKE STAGE SINCE 1961.



N

0 2000 4000 FEET

EXPLANATION

— 15 —

Line of equal
water depth
Interval 10 feet

Waitts Lake, Stevens County. From Washington Department of Game, February 9, 1954.

Waitts Lake, Stevens County. June 21, 1970. Approx. scale 1:12,000.

WHITE MUD LAKE STEVENS COUNTY

LATITUDE 48°30'54" LONGITUDE 117°48'52" T35N-R40E-19
PEND OREILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	8.59 SQ MI	RESIDENTIAL DEVELOPMENT	6 %
ALTITUDE	2168. FT		
LAKE AREA	wrong (59.) ACRES	NUMBER OF NEARSHORE HOMES	3
LAKE VOLUME	1500. ACRE-FT		
MEAN DEPTH	26. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	78. FT		
SHORELINE LENGTH	1.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.5	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.33	AGRICULTURAL	24 %
BOTTOM SLOPE	4.3 %	FOREST OR UNPRODUCTIVE	75 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	1 %
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

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

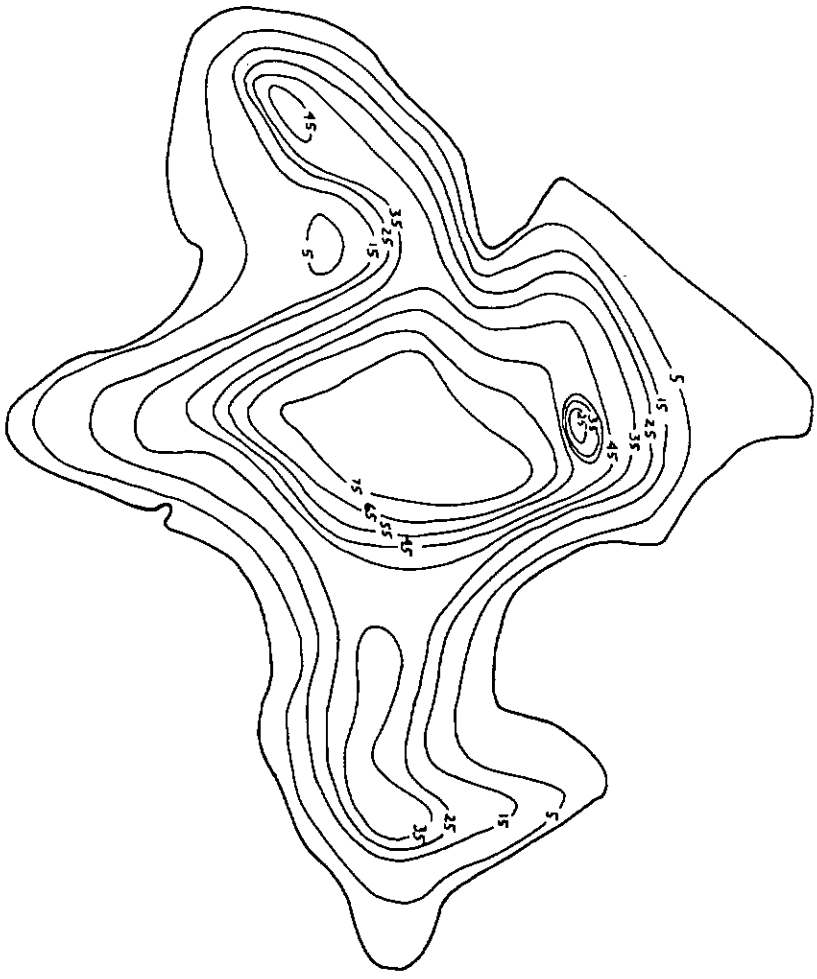
SAMPLE SITE	1	
DATE	7/ 8/74	
TIME	1200	1205
DEPTH (FT)	3.	30.
TOTAL NITRATE (N)	0.01	0.00
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.05	0.75
TOTAL ORGANIC NITROGEN (N)	0.40	0.75
TOTAL PHOSPHORUS (P)	0.014	0.086
TOTAL ORTHOPHOSPHATE (P)	0.002	0.052
SPECIFIC CONDUCTANCE (MICROMHOS)	580	1200
WATER TEMPERATURE (DEG C)	21.4	5.8
COLOR (PLATINUM-COBALT UNITS)	0	0
SECCHI-DISC VISIBILITY (FT)	18	
DISSOLVED OXYGEN	8.8	0.4

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

DATE	7/ 8/74
TIME	1100
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

THE LITTORAL BOTTOM IS SILT AND MUCK AND THE ENTIRE SHORELINE WAS COVERED WITH DENSE BEDS OF EMERSED AQUATIC PLANTS (SEDGE). THE U.S. GEOLOGICAL SURVEY MONITORED THE LAKE STAGE FROM 1961 TO 1966.



White Mud Lake, Stevens County. From
Washington Department of Game, March 8, 1952.

White Mud Lake, Stevens County. August 5, 1970. Approx. scale 1:12,000.

WILLIAMS LAKE STEVENS COUNTY

LATITUDE 48*45' 9" LONGITUDE 117*57'56" T38N-R38E-36
COLVILLE RIVER BASIN

PHYSICAL DATA		CULTURAL DATA	
DRAINAGE AREA	6.06 SQ MI	RESIDENTIAL DEVELOPMENT	0 %
ALTITUDE	1980. FT		
LAKE AREA	38. ACRES	NUMBER OF NEARSHORE HOMES	0
LAKE VOLUME	980. ACRE-FT		
MEAN DEPTH	26. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	47. FT		
SHORELINE LENGTH	0.98 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.1	RESIDENTIAL SUBURBAN	0 %
DEVELOPMENT OF VOLUME	0.54	AGRICULTURAL	5 %
BOTTOM SLOPE	3.2 %	FOREST OR UNPRODUCTIVE	94 %
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)

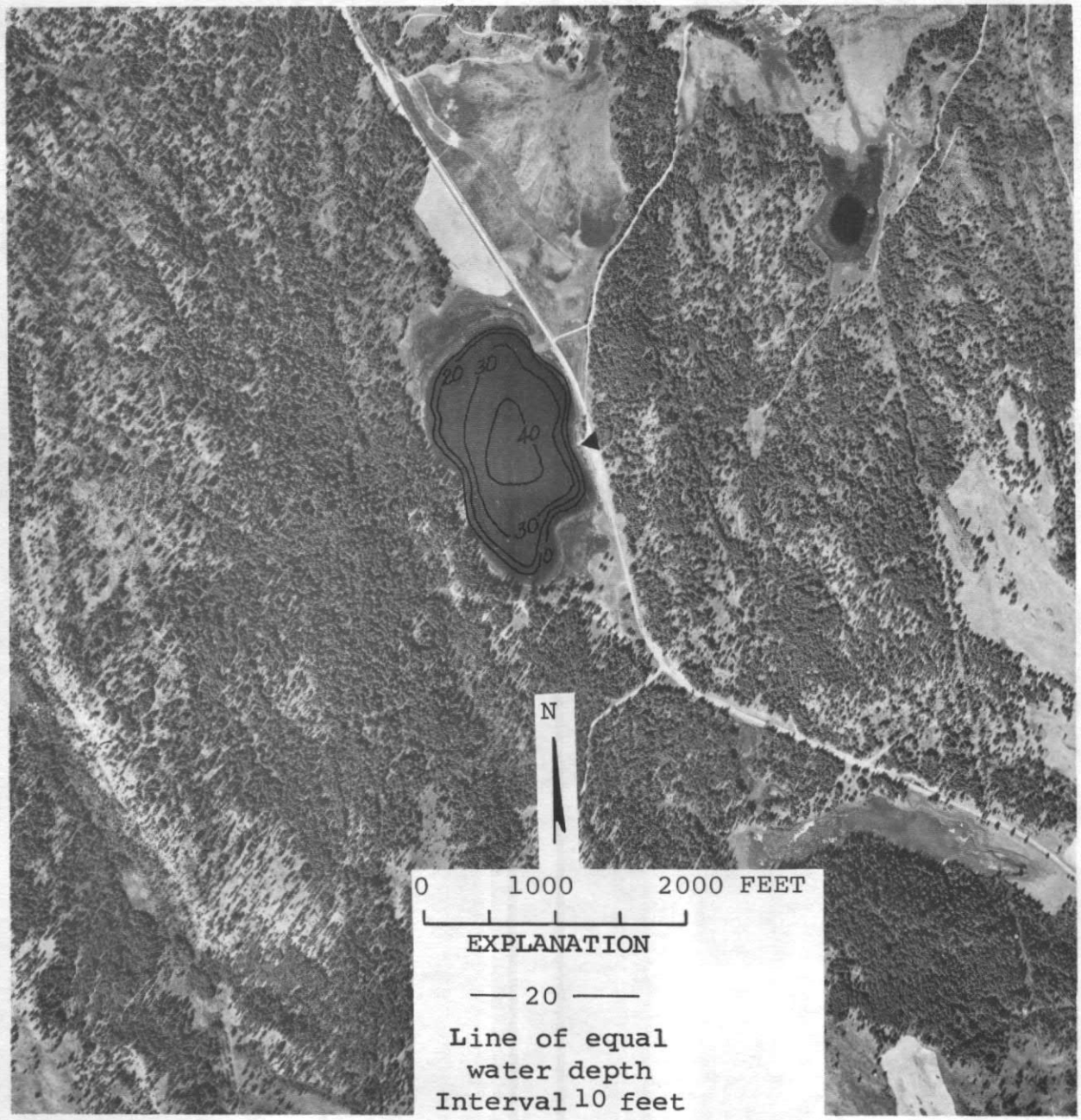
SAMPLE SITE	1	
DATE	7/10/74	
TIME	1030	1035
DEPTH (FT)	3.	43.
TOTAL NITRATE (N)	0.01	0.01
TOTAL NITRITE (N)	0.00	0.00
TOTAL AMMONIA (N)	0.03	1.6
TOTAL ORGANIC NITROGEN (N)	0.67	0.40
TOTAL PHOSPHORUS (P)	0.022	0.27
TOTAL ORTHOPHOSPHATE (P)	0.002	0.19
SPECIFIC CONDUCTANCE (MICROMHOS)	320	390
WATER TEMPERATURE (DEG C)	20.5	10.5
COLOR (PLATINUM-COBALT UNITS)	5	10
SECCHI-DISC VISIBILITY (FT)	11	
DISSOLVED OXYGEN	8.9	0.4

LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	7/10/74
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 LAKE IS PERIODICALLY AERATED TO RAISE DO LEVELS. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. THE LITTORAL BOTTOM IS SILT AND THE ENTIRE SHORELINE WAS COVERED WITH EMERSED AQUATIC PLANTS (SEDGE).



Williams Lake, Stevens County. Bathymetric map
from U.S. Geological Survey, July 29, 1974.
Aerial photo, August 4, 1970.

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