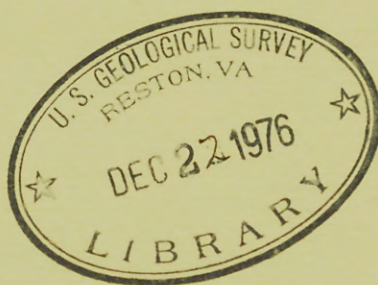


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LAKES OF OREGON

VOLUME 4

Clackamas County



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*" . . . a more lovely country nature has never provided
for her virtuous sons and daughters than I here traveled
through."*

Lt. Neil M. Howison

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OPEN-FILE REPORT ... 1976

LAKES OF OREGON

VOLUME 4

Clackamas County

By

M. V. Shulters

Prepared by
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

in cooperation with the
OREGON STATE WATER RESOURCES DEPARTMENT

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UNITED STATES DEPARTMENT OF THE INTERIOR
THOMAS S. KLEPPE, *Secretary*

Geological Survey

V. E. McKelvey, *Director*

Water Resources Division

Joseph S. Cragwall, Jr., *Chief Hydrologist*

William H. Robinson, *Regional Hydrologist, Western Region*

Oregon District

Stanley F. Kapustka, *District Chief*

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Hiking to Mirror Lake

Introduction

An inventory of lakes and reservoirs of Oregon is essential for a complete evaluation of the total surface-water supply of the State and to provide a basis for answering questions about Oregon's lakes. Much of the information on lakes and reservoirs previously collected by Federal and State agencies has never been published. Those data were compiled and used as a basis for collecting additional information. This report provides information for use by city, county, and State planning groups as well as for sportsmen, tourists, and others interested in preserving the recreational value of Oregon's lakes.

Because of the large number of lakes and reservoirs in Oregon, a single report covering the State would be bulky. Therefore, the lake information is being issued in several volumes on a county or multicounty basis. Volume 1, released in 1973, covered Clatsop, Columbia, and Tillamook Counties; volume 2 (1974) included Benton, Lincoln, and Polk Counties; and volume 3 (1975) included Hood River, Multnomah, Washington, and Yamhill Counties. Clackamas County was selected for volume 4. (See figure 1.)

In addition to office compilation of existing data, each lake was visited. Most visits were made in summer or early fall when lakes were most accessible and when water temperature and biological activity were near maximum.

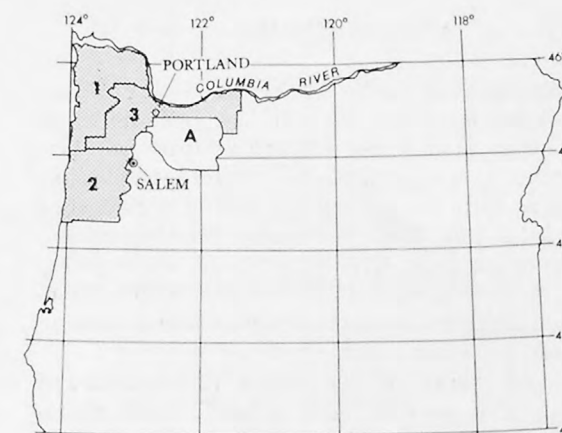


Figure 1. — Index map of Oregon showing locations of (A) Clackamas County and areas covered in volumes 1, 2, and 3.

CRITERIA USED FOR DESIGNATING LAKES

There are no commonly accepted criteria for distinguishing among lakes, ponds, pools, sloughs, and other water bodies. In general, any lake with a surface area greater than 5 acres (20,000 m²) is included in this inventory. A few smaller water bodies are included because of their popularity or because they exhibit some unusual characteristics. A good example is Little Crater Lake (p. 46), which is only 0.2 acre (800 m²) but is a popular attraction because of its beauty and unusual origin. Natural ephemeral lakes are not included nor are manmade ponds several acres in size that are used solely for stock water. Therefore, the inclusion of lakes in this report is based primarily on size and on the author's judgment of their actual or potential use.

Natural lakes, as well as manmade ponds and reservoirs, all form and disappear with surprising frequency. Maps may not show all the lakes in a given area nor do they indicate recent changes. Some large lakes shrink into several small ones during the dry season, and the process is reversed when the rains come. Named lakes in Clackamas County that did not meet the criteria for inclusion in this report are listed on page 9.

RESERVOIRS

A steadily increasing number of reservoirs are being constructed in Oregon. Because many of these are not shown on the latest maps, their existence had to be determined from other sources, and some that qualify for inclusion in this report may have been missed.

ACKNOWLEDGMENTS

This report was prepared by the Geological Survey, Water Resources Division, in cooperation with the Oregon State Water Resources Department. Several other agencies contributed much time and effort searching their files and reports for data that could be included in this report. The Oregon State Department of Environmental Quality provided water-quality data, and the Oregon State Fish and Wildlife Commission furnished bathymetric maps, information on lake use, and other valuable data.

Special thanks are due Stanley F. Kapustka and John Friday for their help in taking aerial photographs of the individual lakes.

Explanation of Terms

Information for each lake included in this report has been grouped under several general terms. Most of the numerical information is given in English units; water-quality data are reported in metric units. Factors for converting between English and metric units are given in table 1.

**Table 1.—FACTORS FOR CONVERTING
ENGLISH UNITS TO INTERNATIONAL
SYSTEM (SI) UNITS**

Multiply English units	By	To obtain SI units
Feet (ft)	0.3048	Metres (m)
Miles (mi)	1.609	Kilometres (km)
Acres	4047	Square metres (m ²)
	.4047	Square hectometres (hm ²) ^{1/}
	.004047	Square kilometres (km ²)
Square miles (mi ²)	2.590	Square kilometres (km ²)
Acre-feet (acre-ft)	1233	Cubic metres (m ³)
	1.233x10 ⁻³	Cubic hectometres (hm ³)
	1.233x10 ⁻⁶	Cubic kilometres (km ³)
Cubic feet per second (ft ³ /s)	.02832	Cubic metres per second (m ³ /s)

^{1/} One hectometre is equal to 100 metres.

An explanation of terms used on the individual lake sheets, with comments on their significance and on accuracy of the data, follows:

Identification number.—The identification number in parentheses preceding the lake name, is used only for identifying the lake on the county map. (See figure 4.) Within the county, lakes are listed in alphabetical order and numbered serially.

Survey date.—The survey date, in the upper right-hand corner of the page, gives the date the lake was visited by the Geological Survey field party. Most of the field data, including water-quality data, depth soundings, and observations of inflow and outflow, were obtained during this visit. Separate dates are shown where specific data were collected at a time other than the survey date.

Location.—Latitude, longitude, township, range, and section were determined from U.S. Geological Survey quadrangle maps (topographic series; see p. 10), with the largest scale map available for the lake area given by name and size; for example, Molalla 7½-minute quadrangle map. The latitude and longitude identifies the point of surface-water outflow, or if there is no outflow, the southernmost tip of the lake. Direction and distance, rounded to the nearest one-half mile (see table 1), from prominent landmarks, such as towns, roads, or rivers, are included to aid in rapid, easy location. In some instances, a lake is not shown or named on the topographic map and is so indicated.

Drainage basin.—The smallest well-known river basin in which the lake is located is shown first; the major drainage system is listed in parentheses following the basin. For example, the Sandy River is the smallest well-known river basin in which Bull Run Lake (p. 20) is located, and it is part of the major drainage system known as the Lower Columbia River basin; therefore, the drainage basin is reported as Sandy River (Lower Columbia River). For a few lakes, the major drainage system is the smallest well-known basin. An example of this is Sevcik Pond (p. 62), which is in the Willamette River basin. A lake that contributes no outflow to the basin cited is reported as "noncontributing."

Drainage area.—The surface-drainage area, in square miles (mi^2), is the area that contributes water to the lake. These areas were delineated on U.S. Geological Survey topographic maps and measured by planimeter. Drainage areas for some lakes were classified as indeterminate because either the surface-drainage area cannot be accurately delineated or the inflow consists primarily of precipitation and ground water.

Surface area.—The surface areas of lakes, in acres, were obtained from several sources. Published reports were an important source of information; however, most surface areas were measured by planimeter on aerial photographs. Because the surface area of many lakes varies widely, depending on the surface elevation and time of year, areas shown in this report are intended only to describe the general size of the lake. Reservoir areas are generally taken from construction drawings and represent normal pool.

Surface elevation.—A single elevation, in feet (ft) above mean sea level, estimated from the best available topographic maps or other source, is shown for each lake. In addition, other information, such as the actual water-surface elevation on the survey date, may be included if available.

Volume.—Lake volume, in acre-feet (acre-ft), was obtained by computing and then summing the volume of each stratum of water between successive contours on the bathymetric map. Each volume was computed using a standard equation incorporating the areas within both the upper and lower contours of the stratum being computed and the vertical distance between them. Reservoir capacity was generally determined from construction drawings and represent normal pool. Because volume can vary widely between seasons and from year to year, volume figures reported are intended to illustrate only the relative size of the lakes. Where data were not adequate to compute volume, it is reported as "not determined."

Inflow.—Information pertaining to the surface inflow, including the name of a stream or streams and direction of flow, is given. Although many lakes receive inflow from several streams, inflow generally could not be measured because the lakes were visited during the low-flow season. Where a rate is reported for inflow, it generally was estimated by computing cross-sectional area of the channel and by timing drift. The rate of inflow, where it was measured or estimated, is reported in cubic feet per second (ft^3/s). Inflow from direct precipitation on the lake or from ground-water seepage was neither measured nor estimated.

Outflow.—Generally, surface outflow is confined to one channel. All available information pertaining to it, including the name of the stream and general direction of outflow, is given. Some lakes have no visible outflow, and the water loss other than that from evaporation and transpiration is by ground-water outflow. Where possible, surface outflows were estimated, but no attempt was made to identify nor to determine ground-water outflow.

Use.—Information on recreational use of the lakes and their surrounding areas, whether private or public, was obtained from other publications, by observation, and from local residents.

Remarks.—Useful information that is not easily classified under the above headings is listed under REMARKS. Topics that might be included in this section are:

1. Descriptive information.
2. Directions or access.
3. Water rights.
4. Qualifying statements.
5. References that provide additional information pertaining to the lake are indicated by numbers from the list of references (p. 10).
6. Agencies furnishing bathymetric data.

Bathymetric map.—Depth contours on the map were made from soundings taken on the SURVEY DATE or from bathymetry furnished by some other agency. Soundings were made by the U.S. Geological Survey field party, using either a sounding line or a recording-chart fathometer, and should be considered approximate. Depths are reported in feet and can be converted readily to metres using a conversion factor (see table 1) or the feet-metre scale on the dissolved oxygen-temperature grid. Agencies that supplied depth data are cited.

The sampling site (symbol ▼) of each lake is shown on the bathymetric map, as are marshes and other features. Aerial photographs were used to estimate the horizontal scale, which is meant to represent relative size only. Inflow and outflow streams are shown graphically by direction and location.

Water-Quality Data

The water-quality data reported in this volume were collected at the time indicated on the SURVEY DATE. Most of the quality data were determined from samples collected 1 foot (0.3 m) below the water surface at the sampling site shown on the bathymetric map. Dissolved oxygen, temperature, pH, and conductivity were measured at various depths.

The percentage of cloud cover is given as an indicator of the amount of direct sunlight reaching the lake at the time of sampling. Increasing light intensity in the presence of chlorophyll-bearing aquatic plants increases photosynthetic activity which, in turn, produces more dissolved oxygen and increases the pH of the water in the lighted (trophogenic) zone.

Sampling sites are generally near the deepest part of each lake and are considered to be reasonably

representative of the physical and chemical characteristics of the entire lake. Some of the larger lakes or those occupying irregular basins were sampled at several sites.

Data on alkalinity, hardness, dissolved solids, and dissolved oxygen are reported in milligrams per litre (mg/l). One milligram per litre is a weight of 1 milligram of the particular constituent dissolved in 1 litre of water. At the low concentrations given in this report, 1 mg/l is equivalent to 1 ppm (part per million) used in some water-quality reports.

Chemical analyses were made of waters from several lakes to determine concentrations of major ions in solution, plus iron, nitrogen, phosphorus, and silica (table 2). The report "Water-quality criteria, 1972," prepared for the Environmental Protection Agency (1972), gives limits for each constituent recommended for public water supplies and other uses. All the plant nutrients, with the exception of nitrogen and phosphorus, are usually sufficiently abundant so as not to limit plant growth. Silica (SiO_2) forms the basis of the skeletal structure of an important group of algae, the diatoms, and can be depleted rapidly by a large diatom population. During periods of thermal stratification, the chemical characteristics of water in the hypolimnion can differ significantly from the warmer water in the oxygen-rich epilimnion. (See fig. 3.)

Table 2. — Chemical analyses of waters from selected lakes

Lake	Date of collection	Milligrams per litre														Conductivity	pH
		Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrite + Nitrate (as N)	Orthophosphorus (as P)	Dissolved Solids	Hardness		
Bull Run Lake ¹ (p. 20)	9-11-73	7.7	—	—	1.0	0.1	6	0	0.5	0.9	—	—	—	14	4.8	19	6.8
Bull Run Reservoir No. 2 ¹ (p.22)	10- 2-74	10.1	—	—	1.5	.2	11	0	2.4	.4	—	—	—	33	7.9	32	6.8
Deardorff Reservoir (p. 27)	9-19-75	9.4	6.7	2.5	3.8	.7	35	0	2.4	1.9	0.0	0.01	0.00	45	27	55	7.9
Emerald Lake (p. 31)	7- 9-75	5.2	1.6	0.5	1.1	.3	8	0	.7	.6	.1	.01	.00	14	6	14	6.8
Goodfellow Lake ¹ (p. 35)	8-27-73	4.2	—	—	2.0	.0	5	0	.6	1.7	—	—	—	11	2.8	17	6.7
Hickman Lake ¹ (p. 36)	9-12-67	7.5	—	—	.4	.1	6	0	5.4	1.0	—	—	—	24	9.2	22	6.7
Kinzel Lake (p. 41)	9-16-75	19	7.1	3.0	3.8	.3	1	0	32	1.2	.1	.00	.00	67	30	84	4.9
Little Crater Lake (p. 46)	7-18-75	16	7.2	2.7	2.3	.6	42	0	.7	.6	.0	.00	.00	51	29	65	8.2
Sevcik Pond (p. 62)	7-30-75	19	16	7.2	9.0	2.0	76	0	1.7	15	.1	.15	.00	108	70	165	7.2
Shellrock Lake (p. 63)	8-12-75	3.7	2.0	.5	1.0	.1	9	0	.8	.5	.0	.01	.00	13	7	14	7.4

¹ Analysis by Oregon State Department of Environmental Quality.



Collecting water-quality data

Water samples were analyzed at the U.S. Geological Survey central laboratory in Salt Lake City, using the methods described by Brown, Skougstad, and Fishman (1970).

To help those unfamiliar with the technical terms and the measurements made in this study, the methods used and the significance of the variables measured are reviewed briefly for each quality parameter.

pH.—The pH of a solution is a measure of the effective hydrogen-ion activity. The range of pH values is from 0 to 14; solutions in the range of 0 to 7 are considered to be acidic, and those in the range of 7 to 14 are considered to be alkaline. At a pH of 7, water is neither acidic nor alkaline, but is a neutral solution. The pH scale is logarithmic, so that a change of one pH unit represents a ten-fold change in hydrogen-ion activity.

The pH of lake water may be altered through photosynthesis and respiration by waterborne plants, as well as by other activities. The uptake of carbon dioxide during photosynthesis increases the pH of the water, whereas the release of carbon dioxide during respiration decreases the pH value.

On some lakes, profiles of pH were taken with a portable pH meter, but only surface and bottom, 1 foot (0.3 m) above lake bottom, values are reported. On the remaining lakes, pH determinations were made only on water samples collected 1 foot (0.3 m) below the water surface of the lake. The pH was determined as soon as possible after collection.

Conductivity.—Specific conductance, or conductivity, is a measure of the ability of water to conduct an electrical current and is expressed as micromhos per centimetre at 25°C (Celsius). The specific conductance is low for pure water, but increases as water becomes more mineralized. Hence,

specific conductance is related to the concentration of ionized minerals in the water. In this report, specific conductance was measured for samples taken at various depths, but only surface and bottom values are reported.

Alkalinity.—Alkalinity is the capacity of water to neutralize an acid by means of chemical buffering. In natural waters, alkalinity is caused primarily by the presence of bicarbonate, carbonate, or hydroxide ions. For this study, alkalinity is reported in milligrams per litre as CaCO_3 (calcium carbonate) and was determined by titrating the samples with 0.01639 N sulfuric acid to a pH of 4.5.

Total hardness.—Historically, water has been classified as “hard” or “soft” depending on how readily the water produces a lather when mixed with soap. For this study, hardness values are reported in milligrams per litre as CaCO_3 . Any water with hardness of less than 60 mg/l as CaCO_3 is considered to be soft on an arbitrary scale used by the Geological Survey.

Dissolved solids.—Dissolved solids was determined by evaporating a known quantity of filtered water at 180°C and weighing the residue. The U.S. Public Health Service (1962) has established a recommended limit of 500 mg/l of dissolved solids for drinking water supplies, although this limit may be exceeded if no better water is available. Commonly, the numerical value for dissolved solids (milligrams per litre) is about two-thirds the specific conductance value in micromhos). However, in the low range of conductivity values found in many parts of Oregon, either proportionately high silica concentrations or abundant organic material may contribute significantly to the dissolved-solids content, causing a higher value than might be expected by comparison with conductivity readings.

Dissolved-oxygen profile.—The concentration of dissolved oxygen in water is a function of the temperature and salinity of the water and of the partial pressure of atmospheric oxygen in contact with the water. Oxygen solubility is inversely related to the water temperature and salinity. The warmer the water the less oxygen it will contain. The oxygen concentration in water is continually being altered by life processes such as photosynthesis and respiration and by complex chemical reactions. In lakes at low altitude, such as those in the Willamette Valley where atmospheric pressure is high, more oxygen is in solution than at equivalent temperatures in lakes at higher altitudes.

Although dissolved-oxygen values in this report represent only one group of observations, they will provide a guide for evaluating the suitability of a lake for fish life and other fresh-water organisms. A generalization based on thousands of field determinations on inland waters (Welch, 1952) states that "dissolved oxygen at levels of 3 ppm [mg/l] or lower should be regarded as hazardous to lethal [for fish] under average stream and lake conditions; and that 5 ppm [mg/l] or more of dissolved oxygen should be present in waters, if conditions are to be favorable for freshwater fishes." This statement, which applies mainly to warm-water fish, assumes that other vital requirements are held within their proper limits. The combined influence of dissolved oxygen and temperature on rainbow trout is illustrated in figure 2, which is patterned after figure 11 in a report by Smith and Bella (1973).

Temperature profile.—Temperature, which varies in lakes with depth and time of year, is the most important controlling factor in the aquatic environment. Life processes, chemical-reaction rates, and many physical events occur only within definite temperature ranges. Because the density of fresh water is primarily a function of temperature, layering of water of equal temperature (homothermal) often occurs in lakes. Fresh water reaches its maximum density at 3.98°C and is less dense either above or below this temperature. Generally during the summer, a warm, oxygen-rich, circulating layer of water, the epilimnion (upper layer), is separated from the cooler, oxygen-poor hypolimnion (deep layer) water by a zone called the metalimnion, which is characterized by rapid changes in temperature and oxygen with increasing depth. The plane of maximum rate of decrease in temperature within the metalimnion (transition layer) is termed the "thermocline" (fig. 3). Temperature profiles for the lakes depict this stratification. In late fall, as the surface waters begin to cool, the stable stratification condition that has developed during the warm summer months begins to break down, the lake soon becomes homothermal from top to bottom. This is the fall turnover period. If the water continues to cool below 3.98°C, a reverse stratification will occur with colder water overlying water several degrees warmer. This is the winter stratification period. After another mixing period or turnover in the spring, the entire process begins again. These temperature variations in lakes influence the suitability of a lake for uses such as recreation, fish production (see fig. 2), and public water supplies.

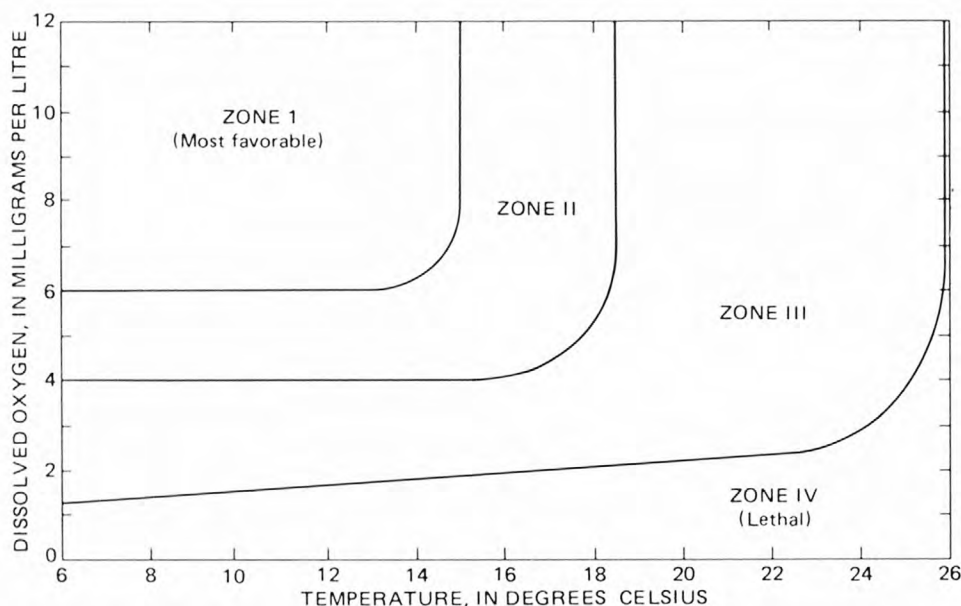


Figure 2.—Livability zones for rainbow trout based on combinations of dissolved oxygen and temperature. (Adapted from Smith and Bella, 1973, p. 129.)



Trillium Lake

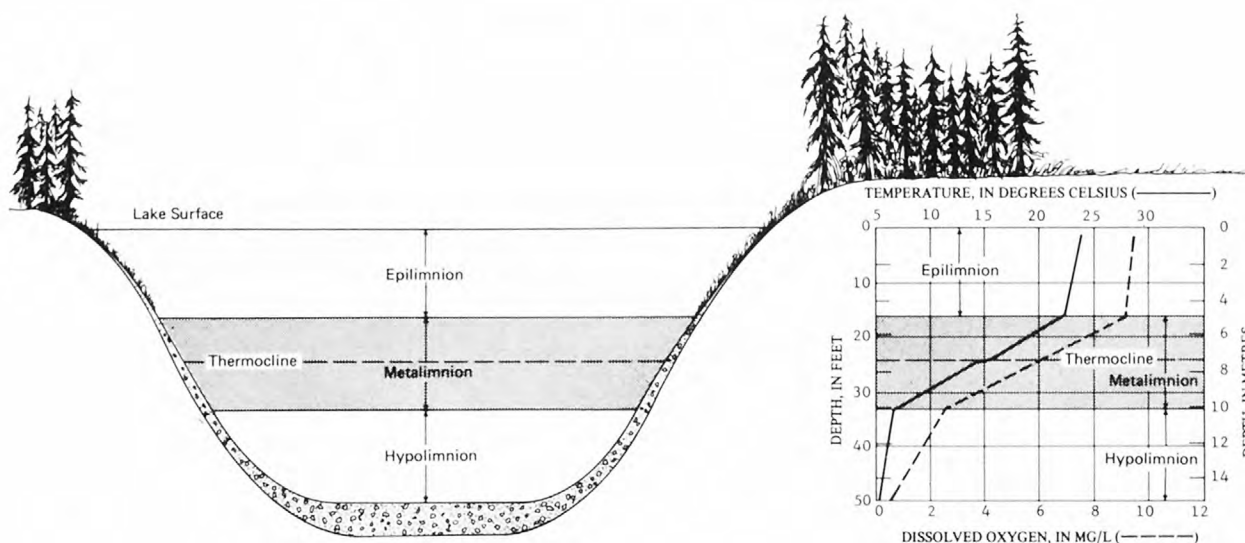


Figure 3.—Idealized thermal stratification during summer in a lake in the North Temperate Zone.

For most lakes, the temperatures listed were probably close to the maximum for the year when sampled. However, temperatures at other times may vary considerably from these, depending on weather conditions, inflow, lake depth, etc. For most lakes, temperature was plotted against depth, and a solid line was drawn on the graph between the plotted points.

Temperatures are reported in degrees Celsius ($^{\circ}\text{C}$), which can be converted to degrees Fahrenheit ($^{\circ}\text{F}$) using the following table:

$^{\circ}\text{C}$	$^{\circ}\text{F}$	$^{\circ}\text{C}$	$^{\circ}\text{F}$	$^{\circ}\text{C}$	$^{\circ}\text{F}$
0	32	10	50	20	68
1	34	11	52	21	70
2	36	12	54	22	72
3	37	13	55	23	73
4	39	14	57	24	75
5	41	15	59	25	77
6	43	16	61	26	79
7	45	17	63	27	81
8	46	18	64	28	82
9	48	19	66	29	84

Transparency.—Transparency, or penetration of light, refers to the depth to which light can penetrate through water. Because photosynthesis can occur only to depths where sufficient light is available, transparency is one of the more important parameters that govern the biological activity of a lake.

Transparency measurements were made by lowering a 20-centimetre Secchi disc on a graduated line, noting the depth beneath the water surface at which it disappeared, then lifting the plate and noting the depth at which it reappeared. The average of the two readings gives the reported transparency depth and has been calculated to be in the region of 5 percent light transmittance (Reid, 1961). Depths are reported to the nearest 0.1 metre. These measurements provide comparative information on the transparency of water in the various lakes.

Color.—Color value is determined by a comparison of the water with standardized colored-glass discs and is reported in platinum-cobalt (Pt-Co) units. Water color in lakes generally results from the decomposition of vegetation, which gives the water a brown, tea-like color.

Coliform bacteria.—For this report, the fecal coliform bacteria group is defined as all organisms that produce blue colonies when grown on M-FC medium at $44.5^{\circ} \pm 0.2^{\circ}\text{C}$ within 24 hours (Slack and others, 1973). Because fecal coliforms are that part of the total coliform group that is present in the gut or feces of warmblooded animals, their presence may indicate recent and possibly dangerous contamination. The reporting unit is the number of colonies per 100 millilitre sample. If any coliform bacteria are indicated, the water should be considered to have disease-producing potential.

Other Named Lakes

Some Clackamas County lakes shown on the U.S. Geological Survey topographic maps were not studied because they did not meet the established criteria at the time of the survey. However, because at other times of the year these lakes might be of some importance and would therefore meet the criteria, they are listed alphabetically below.

Lake	Section	Township	Range
Beth Lake	8	8 S.	6 E.
Chautauqua Lake	17, 20	2 S.	2 E.
Clackamas Lake	36	5 S.	8½ E.
Clear Lake	14	5 S.	4 E.
Collins Lake	24	3 S.	8 E.
Cottonwood Meadow Lake ¹	28	5 S.	7 E.
Cripple Creek Lake ¹	19	5 S.	7 E.
Crystal Lake	29	1 S.	1 E.
Devils Lake	4	3 S.	8 E.
Dumbbell Lake	32	2 S.	8 E.
Enid Lake	13	3 S.	8 E.
Hidden Lake	12	3 S.	8 E.
High Lake	6	6 S.	6 E.
Lake Lenore	10	8 S.	6 E.
Lily Pad Lake	30	7 S.	6 E.
Pidgeon Lake	17, 18	2 S.	3 E.
Rainbow End Lake	5	2 S.	1 E.
Squaw Lakes	13, 14	4 S.	6 E.
Surprise Lake	27	5 S.	6 E.
Wind Lake	26	3 S.	8 E.

¹Name used by Oregon State Department of Fish and Wildlife; not named on topographic map.

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A State index showing topographic maps is available free on request to the Distribution Section, U.S. Geological Survey, Denver Federal Center, Lakewood, Colo. 80225. The index contains lists of special maps, addresses of local map reference libraries, local map dealers, and Federal map distribution centers. An order blank and detailed instructions for ordering maps are supplied with each index.

Clackamas County

Mirror Lake



Lakes of Clackamas County

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(6) Bull Frog Lake	19	(33) Mirror Lake	50
(7) Bull Run Lake	20	(34) Mitchell Reservoir	51
(8) Bull Run Reservoir No. 2	22	(35) North Fork Reservoir	52
(9) Burnt Lake	24	(36) Plaza Lake	54
(10) Cast Lake	25	(37) Pyramid Lake	55
(11) Cougar Lake	26	(38) River Forest Lake	56
(12) Deardorff Reservoir	27	(39) Rock Lake (Lower)	57
(13) Dinger Lake	28	(40) Rock Lake (Middle)	58
(14) Dobbies Lake	29	(41) Rose Reservoir	59
(15) Drescher Reservoir	30	(42) Roslyn Lake	60
(16) Emerald Lake	31	✓(43) Serene Lake	61
(17) Faraday Lake	32	(44) Sevcik Pond	62
✓(18) Frog Lake	33	(45) Shellrock Lake	63
(19) Frying Pan Lake	34	✓(46) Shining Lake	64
(20) Goodfellow Lake	35	✓(47) Skookum Lake	65
(21) Hickman Lake	36	(48) Summit Lake	66
(22) Hideaway Lake	37	✓(49) Surprise Lake	67
(23) Hillside Reservoir	38	(50) Teasel Creek Reservoir	68
✓(24) Huxley Lake	39	✓(51) Timber Lake	69
(25) Kellogg Lake	40	(52) Timothy Lake	70
(26) Kinzel Lake	41	(53) Trillium Lake	73
(27) Kylo Reservoir	42	(54) Veda Lake	74
		(55) Williams Lake	75

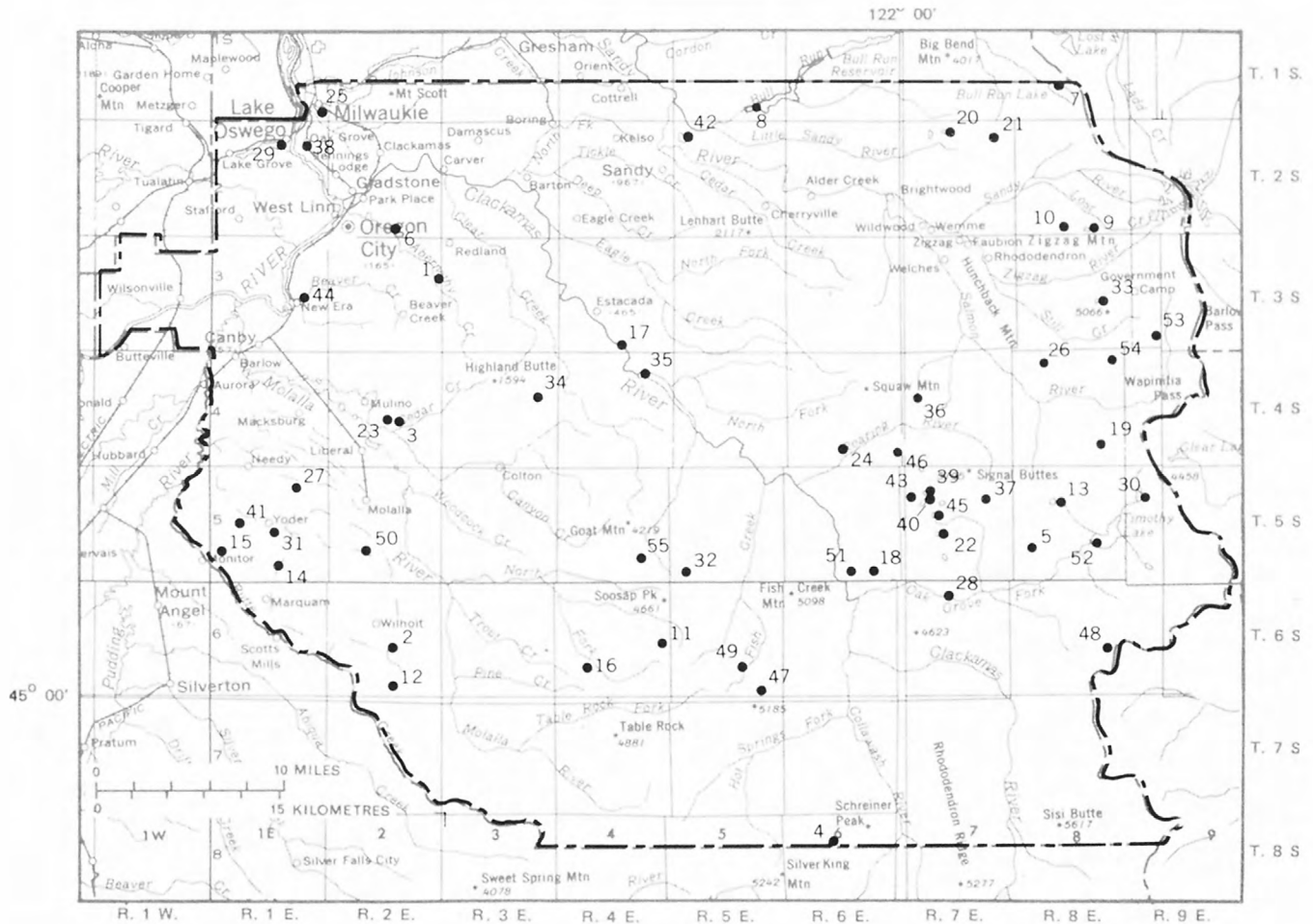


Figure 4.—Locations and identification numbers of lakes in Clackamas County.

LOCATION: Sec.13, T.3 S., R.2 E., about 2.0 mi (3.2 km) north-east of Beaver Creek and 5.5 mi (9 km) southeast of Oregon City. Surface-water outlet at lat 45°18'53", long 122°30'12". Oregon City 7½-minute quadrangle map, photo-revised 1970 (not shown on map).

DRAINAGE BASIN: Willamette River.

DRAINAGE AREA: 12.6 mi² (32.6 km²).

SURFACE ELEVATION: 180 ft (55 m) above mean sea level at normal pool.

SURFACE AREA: 50 acres (200,000 m²) at normal pool.

VOLUME: 800 acre-ft (990,000 m³) at normal pool.

INFLOW: Primarily from Abernethy Creek on southeast side of lake, and unnamed creek on west side of lake.

OUTFLOW: Estimated 5 ft³/s (0.14 m³/s) to Abernethy Creek on north side of lake.

USE: Private recreation.

REMARKS: No evidence of either floating or submerged aquatic growth. Phytoplankton analysis indicated mostly diatoms with some blue-green algae present. Bottom material is mostly soft mud. Information on bathymetry, elevation, surface area, and volume furnished by the Oregon Water Resources Department.

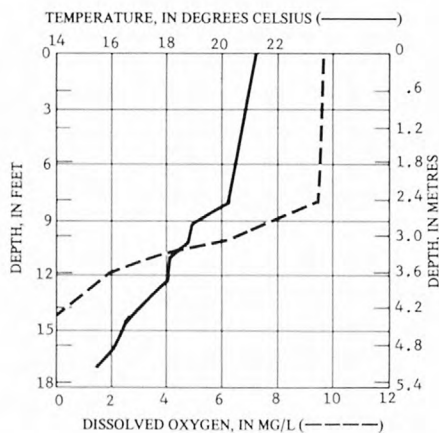
This manmade lake is also known as Mompano Reservoir. Water-rights certificate issued for storage of 780 acre-ft (960,000 m³) for fish culture and recreation.

WATER-QUALITY DATA

SAMPLING TIME: 1230 hours
CLOUD COVER: 20 percent

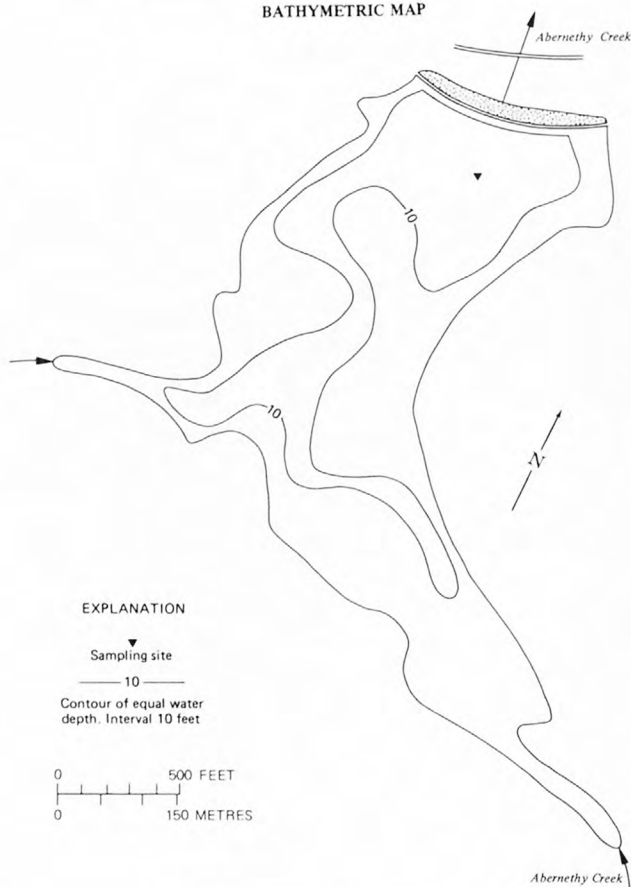
	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	8.0	60
BOTTOM	--	95

ALKALINITY (mg/l as CaCO ₃)	33
TOTAL HARDNESS (mg/l as CaCO ₃)	20
DISSOLVED SOLIDS (mg/l)	42
TRANSPARENCY (metres)	2.0
COLOR (Pt-Co units)	5
FECAL COLIFORM (colonies/100 ml)	< 1



Photograph taken September 12, 1975.

BATHYMETRIC MAP



LOCATION: Sec.22, T.6 S., R.2 E., about 1.5 mi (2.4 km) south of Wilhoit and 11 mi (118 km) east of Silverton. Surface-water outlet at lat 45°02'05", long 122°33'19". Wilhoit 7½-minute quadrangle map, photorevised 1970 (not named on map).

DRAINAGE BASIN: Butte Creek (Willamette River).

DRAINAGE AREA: 1.92 mi² (4.97 km²).

SURFACE ELEVATION: 1,080 ft (329 m) above mean sea level, from topographic map.

SURFACE AREA: 20 acres (81,000 m²).

VOLUME: 220 acre-ft (270,000 m³).

INFLOW: Estimated 0.5 ft³/s (0.01 m³/s) from Beaver Creek on south side of lake. No measurable flow through unnamed stream on east side of lake.

OUTFLOW: Some outflow through enclosed overflow structure in northeast corner of lake near dam. No flow through spillway.

USE: Private recreation.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly sand and gravel. Information on bathymetry, surface area, and volume furnished by the Oregon Water Resources Department.

Water-rights permit issued for storage of 220 acre-ft (270,000 m³) for irrigation and fish culture.



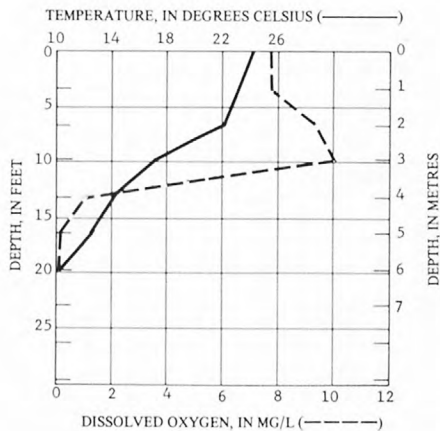
Photograph taken September 5, 1975.

WATER-QUALITY DATA

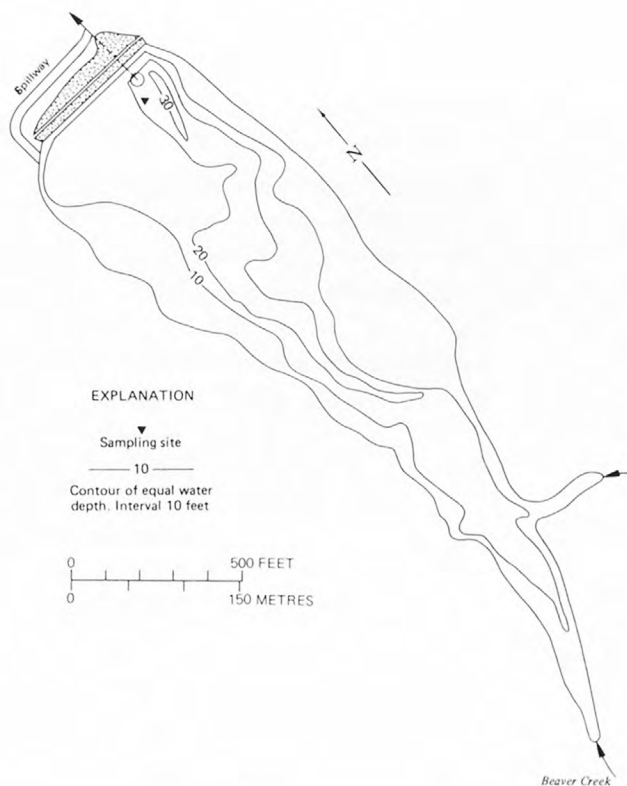
SAMPLING TIME: 1400 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.2	47
BOTTOM	--	63

ALKALINITY (mg/l as CaCO ₃)	21
TOTAL HARDNESS (mg/l as CaCO ₃)	16
DISSOLVED SOLIDS (mg/l)	39
TRANSPARENCY (metres)	1.8
COLOR (Pt-Co units)	5
FECAL COLIFORM (colonies/100 ml)	< 1



BATHYMETRIC MAP



LOCATION: Sec.22, T.4 S., R.2 E., about 2 mi (3.2 km) southeast of Mulino and 4.5 mi (7.0 km) northeast of Molalla. Southernmost tip of lake at lat 45°12'23", long 122°32'55". Molalla 7½-minute quadrangle map, photorevised 1970 (not named on map).

DRAINAGE BASIN: Molalla River (Willamette River, noncontributing).

DRAINAGE AREA: 0.04 mi² (0.10 km²).

SURFACE ELEVATION: 490 ft (150 m) above mean sea level, from topographic map.

SURFACE AREA: 5 acres (20,000 m²).

VOLUME: 37 acre-ft (46,000 m³).

INFLOW: No channel observed and none indicated on topographic map. Lake is primarily spring fed.

OUTFLOW: No channel observed and none indicated on topographic map. Some seepage occurs through earthfill dam on east side of lake.

USE: Private recreation.

REMARKS: No evidence of floating aquatic growth, although there is considerable submerged vegetation throughout the lake. Bottom material is mostly silt and clay.

This artificial lake was developed to provide lakefront building property. The earthfill dam on the east end of lake has been sealed to minimize seepage and to help maintain a more constant water level in the lake throughout the year.



Photograph taken September 12, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1130 hours

CLOUD COVER: 100 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.5	41
BOTTOM	--	49

ALKALINITY (mg/l as CaCO₃) _____ 19

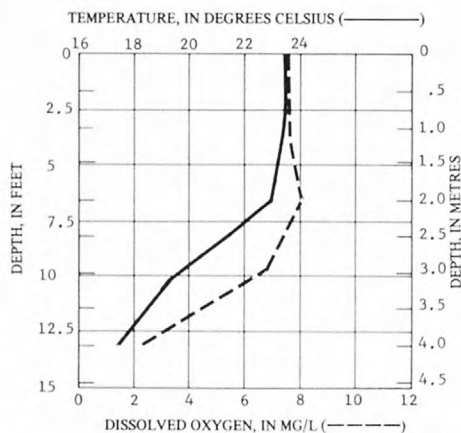
TOTAL HARDNESS (mg/l as CaCO₃) _____ 13

DISSOLVED SOLIDS (mg/l) _____ 26

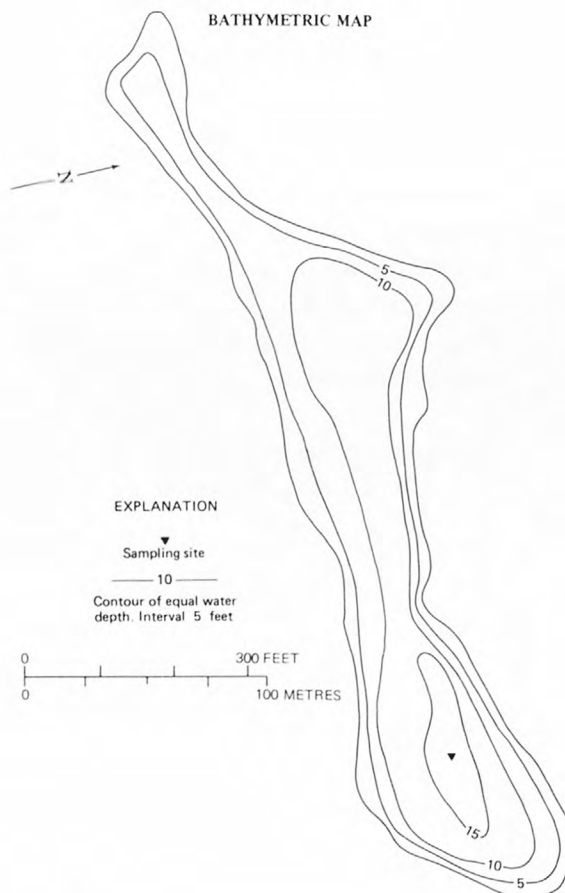
TRANSPARENCY (metres) _____ 2.9

COLOR (Pt-Co units) _____ 5

FECAL COLIFORM (colonies/100 ml) _____ 7



BATHYMETRIC MAP



LOCATION: Sec.9, T.8 S., R.6 E., just north of the Clackamas-Marion County line near Bull of the Woods lookout about 11 mi (18 km) northeast of Detroit. Surface-water outlet at lat 44°53'26", long 122°05'01". Battle Ax 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.34 mi² (0.88 km²).

SURFACE ELEVATION: 4,200 ft (1,280 m) above mean sea level, from topographic map.

SURFACE AREA: 4 acres (16,000 m²).

VOLUME: 17 acre-ft (21,000 m³).

INFLOW: No flow observed from channel on south end of lake.

OUTFLOW: Estimated 0.2 ft³/s (0.006 m³/s) through outlet to Dickey Creek on north end of lake.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife.

REMARKS: No floating vegetation, although there is some bottom growth in the lake. Bottom material is mostly sand and gravel. The lake is in the 10,200-acre (4,130 km²) Bull of the Woods roadless area in which motor vehicles are prohibited. Access to the lake is from Forest Service Trail 550, off Forest Service Road S708. The trail is about 5 mi (8 km) long.

References: 2, 4, 7.



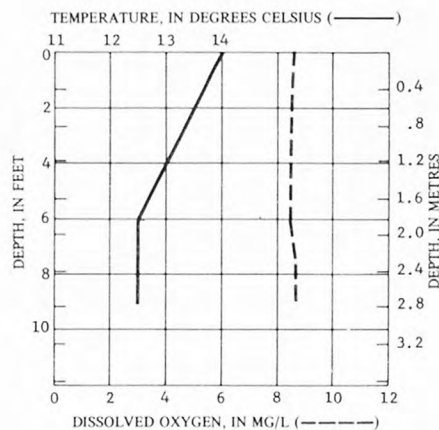
Photograph taken September 12, 1975.

WATER-QUALITY DATA

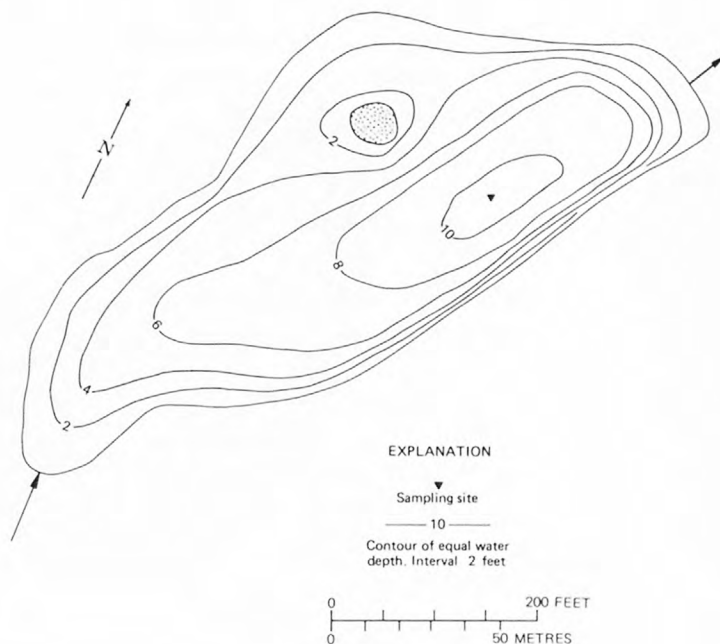
SAMPLING TIME: 1330 hours
SAMPLING SITE: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.4	78
BOTTOM	--	--

ALKALINITY (mg/l as CaCO ₃)	15
TOTAL HARDNESS (mg/l as CaCO ₃)	14
DISSOLVED SOLIDS (mg/l)	41
TRANSPARENCY (meters)	(bottom) 3.3
COLOR (Pt-Co units)	5
FECAL COLIFORM (colonies/100 ml)	< 1



BATHYMETRIC MAP



LOCATION: Sec. 30, T. 5 S., R. 8 E., in Mount Hood National Forest, about 3 mi (5 km) west of Timothy Lake outlet and 3.5 mi (5.5 km) south of High Rock. Southernmost tip of lake at lat 45°06'36", long 121°52'15". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River, noncontributing).

DRAINAGE AREA: 0.11 mi² (0.28 km²).

SURFACE ELEVATION: 4,050 ft (1,230 m) above mean sea level, from topographic map.

SURFACE AREA: 11 acres (45,000 m²).

VOLUME: 140 acre-ft (173,000 m³).

INFLOW: No channel observed and none indicated on topographic map.

OUTFLOW: No channel observed and none indicated on topographic map.

USE: Public recreation. The lake is stocked with fingerling Eastern brook trout by the Oregon State Department of Fish and Wildlife.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly sand and rock covered by detritus near shore. Forest Service Trail 728 provides access from the forest road 0.5 mi (0.8 km) north of the lake.

References: 2, 4, 7.



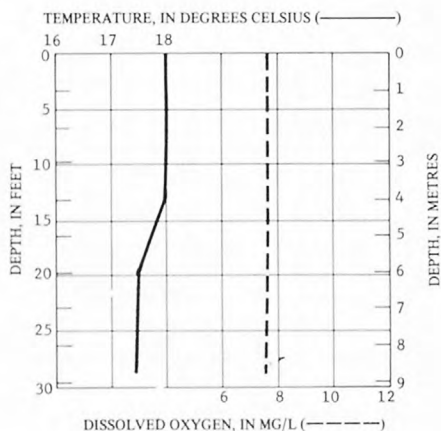
Photograph taken August 26, 1975.

WATER-QUALITY DATA

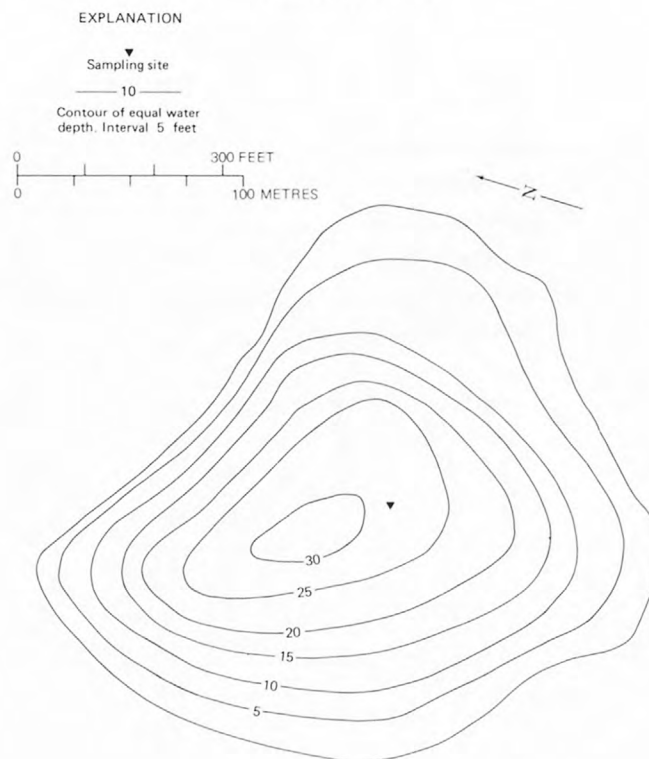
SAMPLING TIME: 1200 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.7	6
BOTTOM	--	6

ALKALINITY (mg/l as CaCO ₃)	4
TOTAL HARDNESS (mg/l as CaCO ₃)	2
DISSOLVED SOLIDS (mg/l)	1
TRANSPARENCY (metres)	(bottom) 8.5
COLOR (Pt-Co units)	0
FECAL COLIFORM (colonies/100 ml)	< 1



BATHYMETRIC MAP



LOCATION: Sec.34, T.2 S., R.2 E., about 2 mi (3.2 km) east of Oregon City and 3 mi (5 km) west of Redland. Surface-water outlet at lat 45°21'07", long 122°33'13". Oregon City 7½-minute quadrangle map, photorevised 1970 (not named on map).

DRAINAGE BASIN: Willamette River.

DRAINAGE AREA: 22.8 mi² (59.0 km²).

SURFACE ELEVATION: 50 ft (15 m) above mean sea level, from topographic map.

SURFACE AREA: 5 acres (20,000 m²).

VOLUME: 21 acre-ft (26,000 m³). (Information furnished by Oregon Water Resources Department.)

INFLOW: No flow observed from Abernethy Creek on east end of lake.

OUTFLOW: No flow observed in Abernethy Creek on west end of lake.

USE: Private recreation.

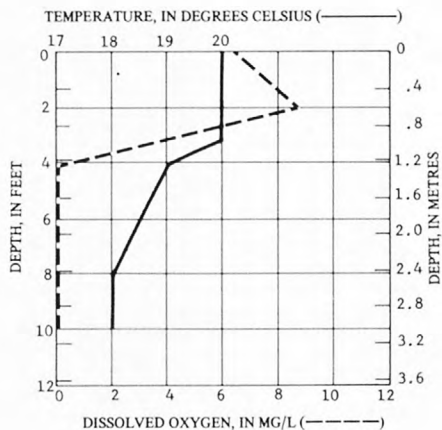
REMARKS: Water-rights certificate issued for storage of 21.5 acre-ft (26,500 m³) for recreation.

WATER-QUALITY DATA

SAMPLING TIME: 0930 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	9.2	70
BOTTOM	--	100

ALKALINITY (mg/l as CaCO ₃)	36
TOTAL HARDNESS (mg/l as CaCO ₃)	25
DISSOLVED SOLIDS (mg/l)	55
TRANSPARENCY (metres)	.3
COLOR (Pt-Co units)	125
FECAL COLIFORM (colonies/100 ml)	4



Photograph taken September 12, 1975.

LOCATION: Sec. 20, 21, 27, 28, 29, and 34, T.1 S., R.8 E., about 9 mi (14 km) northwest of Mount Hood and 13 mi (21 km) southeast of Bonneville Dam in the Bull Run Reserve of Mount Hood National Forest. Surface-water outlet at lat 45°27'39", long 121°50'41". Bull Run 7½-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: 3.45 mi² (8.94 km²).

SURFACE ELEVATION: 3,175 ft (968 m) above mean sea level, from topographic map.

SURFACE AREA: 450 acres (1.8 km²).

VOLUME: 30,000 acre-ft (37 hm³). Usable storage in the lake is 12,300 acre-ft (15 hm³) (Appendix B, Willamette Basin Task Force, 1969, table I-1).

INFLOW: Estimated at 3.0 ft³/s (0.08 m³/s) from inflows A and B on the bathymetric map. No flow observed in other inflow channels.

OUTFLOW: No flow observed through control structure to Bull Run River on northwest end of lake.

USE: No public recreation. Reserve is closed to the general public.

REMARKS: No evidence of either floating or submerged aquatic growth. Phytoplankton analysis revealed a total count of 200 cells/ml, of which 54 percent was the diatom CYCLOTELLA. The remainder was composed of 27 percent DICTYOSPHAERIUM, 8 percent XANTHIDIUM, and 12 percent NITZSCHIA. Bottom material is mostly sand and rock.

The lake, formed primarily by glacial scouring, serves as headwaters for Portland's water-supply system. The city has exclusive rights to all waters within the Bull Run Reserve.

Lake also appears as Multnomah County No. 4 in volume 3 of "Lakes of Oregon" (1975). Data for that report were collected on September 12, 1974.

Bathymetry from Campbell (1940).

References: 2, 19.



Photograph taken May 21, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1200 hours

CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.5	16
BOTTOM	6.2	16

ALKALINITY (mg/l as CaCO₃) 8

TOTAL HARDNESS (mg/l as CaCO₃) 1/5

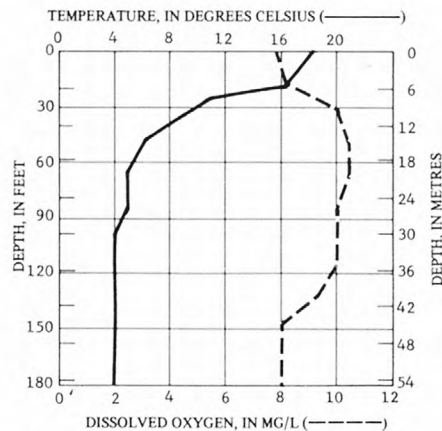
DISSOLVED SOLIDS (mg/l) 1/16

TRANSPARENCY (metres) 11.9

COLOR (Pt-Co units) 5

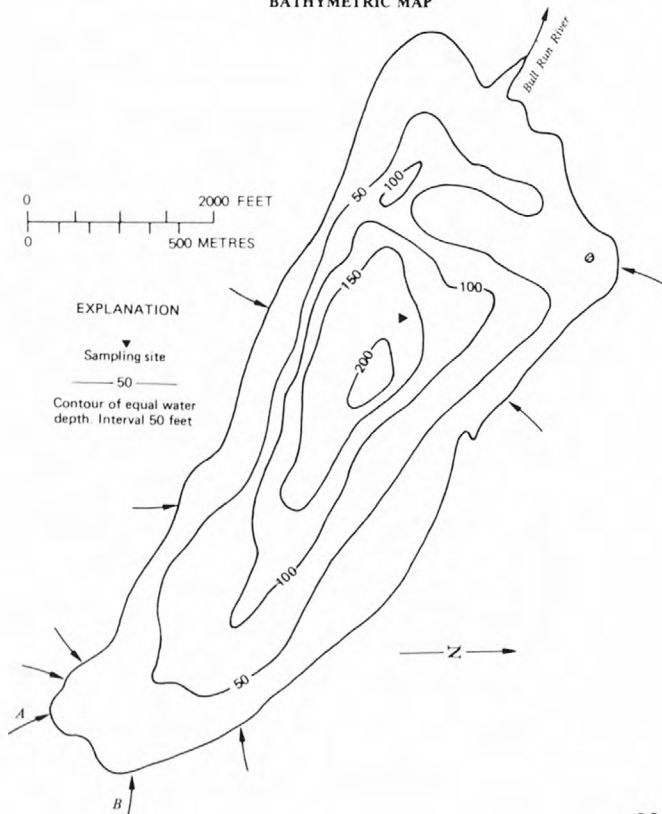
FECAL COLIFORM (colonies/100 ml) < 1

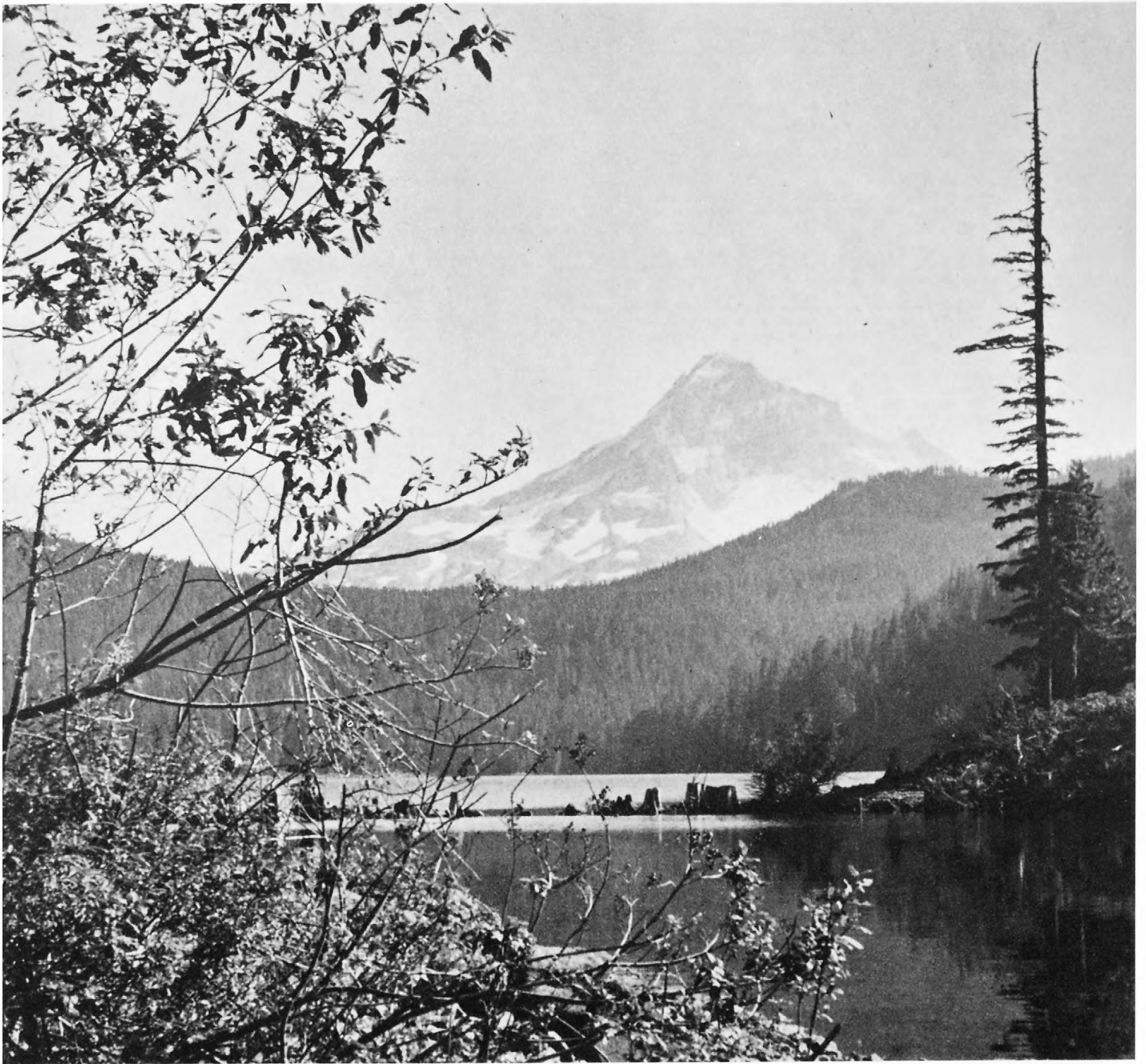
(Chemical analysis in table 2, p.



1/ From September 12, 1974, sampling.

BATHYMETRIC MAP





LOCATION: Secs. 25, 26, 35, 36, T.1 S., R.5 E., and secs. 17, 19, 20, 30, 31, T.1 S., R.6 E., about 5.5 mi (9.0 km) north of Cherryville and 26 mi (42 km) east of Portland city center in the Bull Run Reserve of Mount Hood National Forest. Surface-water outlet at lat. 45°26'55", long 122°08'45". Cherryville 15-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: 102 mi² (264 km²).

SURFACE ELEVATION: 860 ft (262 m) above mean sea level at spillway crest.

SURFACE AREA: 450 acres (1.8 km²).

VOLUME: 20,990 acre-ft (25.9 hm³) at spillway crest.

INFLOW: 1,580 ft³/s (45 m³/s) from Dam No. 1 on east end of reservoir. The South Fork of the Bull Run River, Camp Creek, and other streams (unnamed) also contribute to the reservoir.

OUTFLOW: 1,395 ft³/s (39.5 m³/s) through dam and spillway on west end of reservoir to the Bull Run River and to the city water-supply system.

USE: No public recreation. (Reserve is closed to the public.) Water is used for power generation by Portland General Electric Co. and for municipal supply by the city of Portland.

REMARKS: No evidence of either floating or submerged aquatic growth.
The reservoir was formed by an earth- and rock-fill dam completed in December 1961. Portland has exclusive rights to all waters within the Bull Run Reserve.
Information on surface area, volume, inflow, outflow, and bathymetry furnished by the city of Portland.
The Oregon Department of Environmental Quality and the city of Portland have additional water-quality data.

Photograph taken September 5, 1975.



WATER-QUALITY DATA Site 1

SAMPLING TIME: 1115 hours
CLOUD COVER: 100 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.0	25
BOTTOM	6.9	24

ALKALINITY (mg/l as CaCO₃) 15

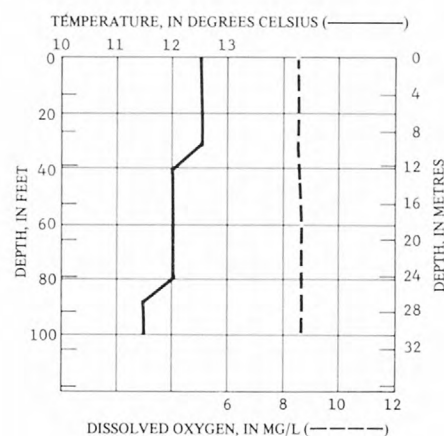
TOTAL HARDNESS (mg/l as CaCO₃) 8

DISSOLVED SOLIDS (mg/l) 19

TRANSPARENCY (metres) 6.3

COLOR (Pt-Co units) 5

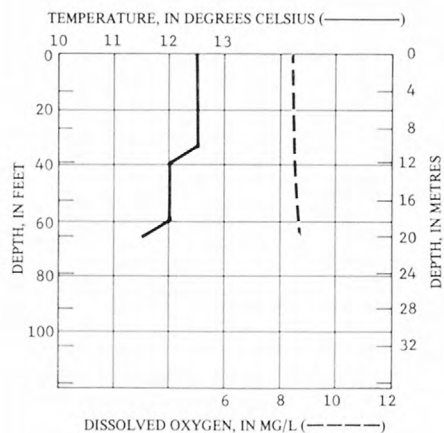
FECAL COLIFORM (colonies/100 ml) < 1
(Chemical analysis in table 2, p. 4)

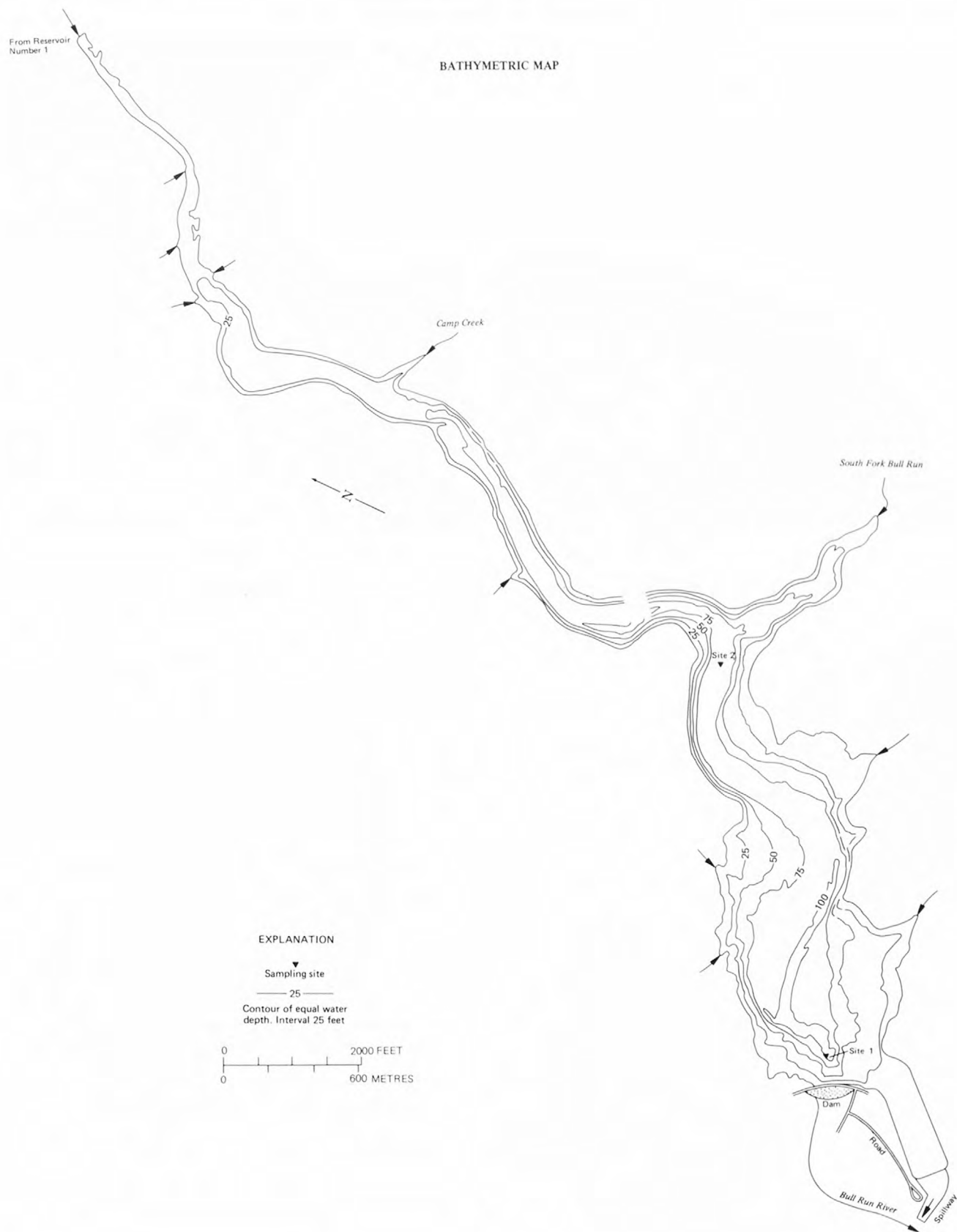


WATER-QUALITY DATA Site 2

SAMPLING TIME: 1130 hours
CLOUD COVER: 100 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.4	25
BOTTOM	7.0	24





LOCATION: Sec. 34, T. 2 S., R. 8 E., in Mount Hood National Forest about 4 mi (6.5 km) northwest of Government Camp and 24 mi (39 km) east of Sandy. Surface-water outlet at lat 45°21'07", long 121°48'02". Government Camp 7½-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: 0.28 mi² (0.72 km²).

SURFACE ELEVATION: 4,100 ft (1,250 m) above mean sea level, from topographic map.

SURFACE AREA: 6 acres (24,000 m²).

VOLUME: 75 acre-ft (92,000 m³).

INFLOW: No measurable flow from channel on southeast side of lake.

OUTFLOW: Estimated 1.0 ft³/s (0.03 m³/s) through outlet channel on north end of lake at a point 500 ft (152 m) downstream from lake.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife.

REMARKS: No evidence of either floating or submerged aquatic growth. Because of increased use, the Forest Service has posted signs requesting that hikers help to protect the fragile shoreline of the lake by camping in designated sites only.

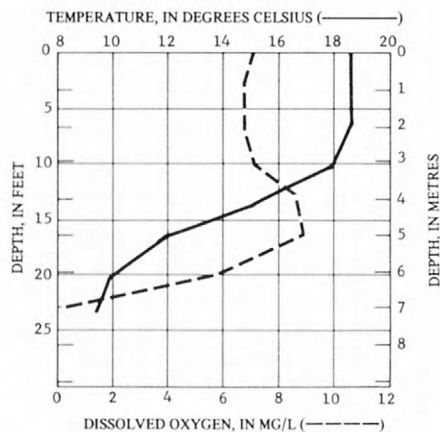
Access by Forest Service Trail 772 from Devil Canyon Road or Forest Service Road S239. Trails are very steep in some places.

WATER-QUALITY DATA

SAMPLING TIME: 1300 hours
CLOUD COVER: 70 percent

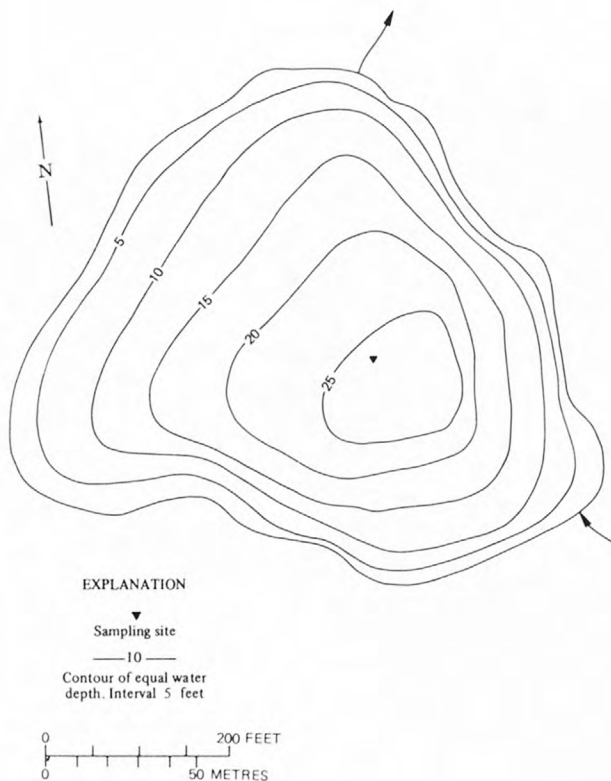
	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.6	23
BOTTOM	--	27

ALKALINITY (mg/l as CaCO ₃)	7
TOTAL HARDNESS (mg/l as CaCO ₃)	12
DISSOLVED SOLIDS (mg/l)	21
TRANSPARENCY (metres)	4.8
COLOR (Pt-Co units)	5
FECAL COLIFORM (colonies/100 ml)	<1



Photograph taken August 26, 1975.

BATHYMETRIC MAP



LOCATION: Sec.33, T.2 S., R.8 E., in Mount Hood National Forest about 5 mi (8 km) northwest of Government Camp and 22 mi (35 km) east of Sandy. Surface-water outlet at lat 45°21'05", long 121°50'12". Government Camp 7½-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: 0.11 mi² (0.28 km²).

SURFACE ELEVATION: 4,420 ft (1,350 m) above mean sea level, from topographic map.

SURFACE AREA: 4 acres (16,000 m²).

VOLUME: 40 acre-ft (49,000 m³).

INFLOW: No measurable flow from channels on south and east sides of lake.

OUTFLOW: No measurable flow through channel to Cast Creek on north side of lake.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly soft mud with detritus near shore.

Because of increased use, the U.S. Forest Service has posted signs requesting that hikers help to protect the fragile meadow areas south of the lake by camping in designated sites only.

Access by Forest Service Trail 772 from Devil Canyon Road or Trail 773 from Road S239.

References: 2, 4, 7.



Photograph taken August 26, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1330 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.5	15
BOTTOM	--	16

ALKALINITY (mg/l as CaCO₃) _____ 8

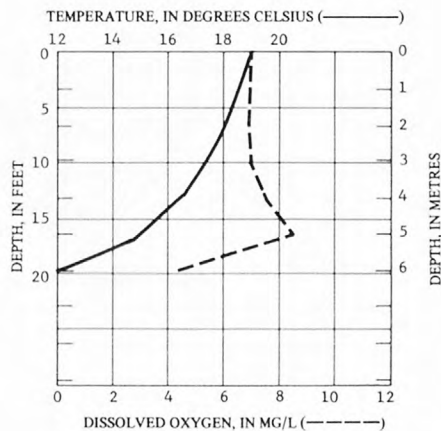
TOTAL HARDNESS (mg/l as CaCO₃) _____ 6

DISSOLVED SOLIDS (mg/l) _____ 13

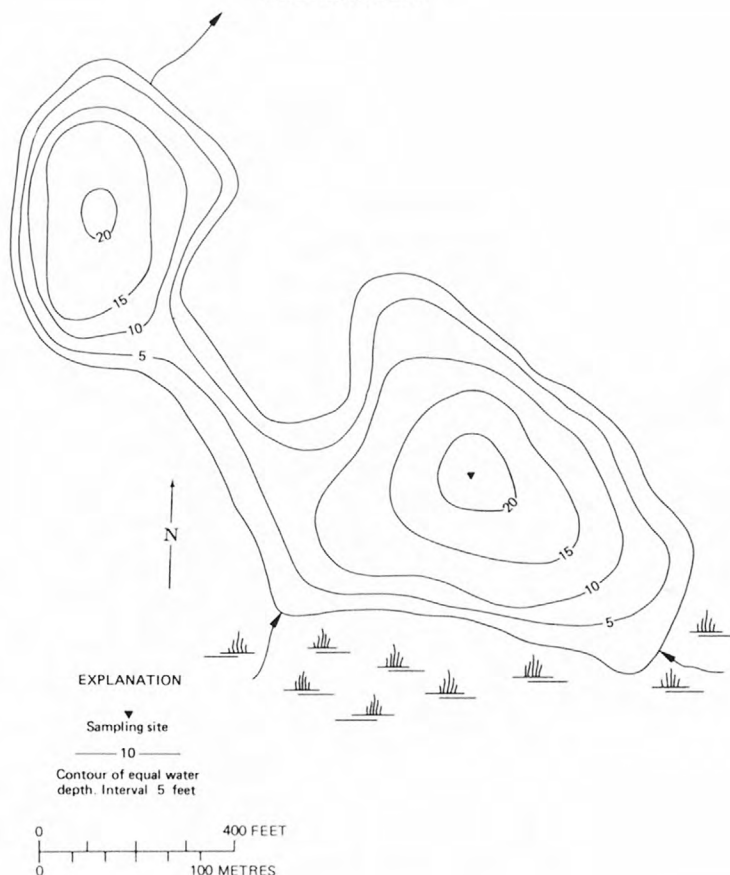
TRANSPARENCY (metres) _____ 4.2

COLOR (Pt-Co units) _____ 5

FECAL COLIFORM (colonies/100 ml) _____ <1



BATHYMETRIC MAP



LOCATION: Sec.24, T.6 S., R.4 E., about 13 mi (21 km) southeast of Colton and 11.5 mi (18.5 km) east of Glen Avon. Surface-water outlet at lat 45°02'18", long 122°15'53". Colton 15-minute quadrangle map.

DRAINAGE BASIN: Molalla River (Willamette River).

DRAINAGE AREA: 0.19 mi² (0.49 km²).

SURFACE ELEVATION: 4,060 ft (1,240 m) above mean sea level, from topographic map.

SURFACE AREA: 8 acres (32,000 m²).

VOLUME: 30 acre-ft (37,000 m³).

INFLOW: No measurable flow from marsh on southeast end of lake.

OUTFLOW: Estimated 0.5 ft³/s (0.01 m³/s) through outlet on northwest end of lake to Cougar Creek.

USE: Public recreation. There is natural reproduction of brook trout in the lake.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly soft mud.
This Crown Zellerbach lake is open to the general public on weekends, but a permit is required for weekday use because of logging operations in the area. Because of fire danger, the area is often closed during late summer. Area around lake, except west side, has been clearcut. Bathymetric map from Oregon State Game Commission, 1961.
Access by private logging road from Glen Avon.
References: 4, 15.

WATER-QUALITY DATA

SAMPLING TIME: 1300 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.4	25
BOTTOM	--	25

ALKALINITY (mg/l as CaCO₃) 14

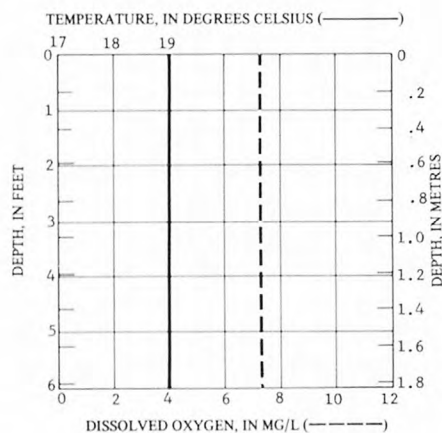
TOTAL HARDNESS (mg/l as CaCO₃) 8

DISSOLVED SOLIDS (mg/l) 23

TRANSPARENCY (metres) (bottom) 1.8

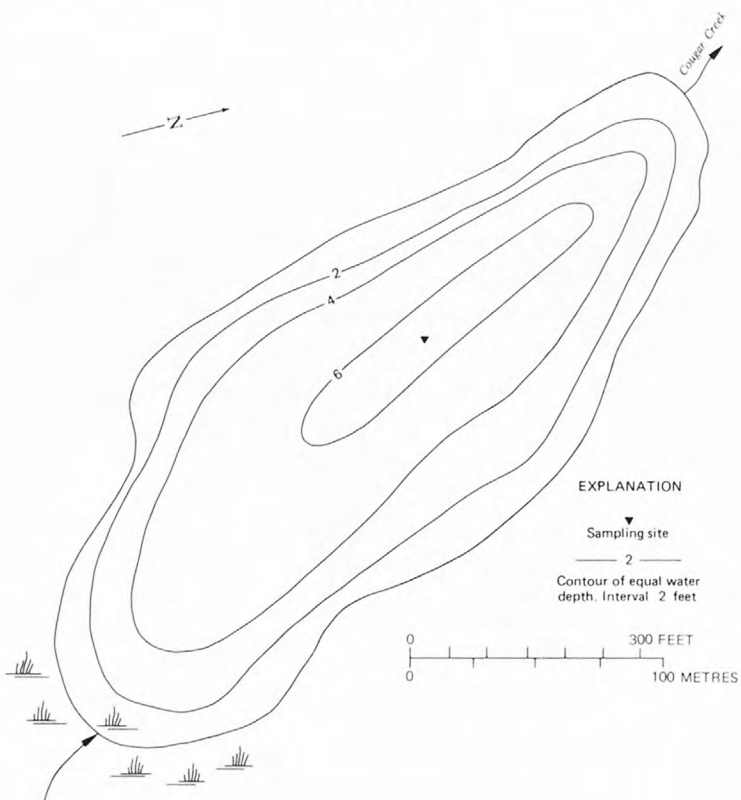
COLOR (Pt-Co units) 5

FECAL COLIFORM (colonies/100 ml) < 1



Photograph taken September 5, 1975.

BATHYMETRIC MAP



LOCATION: Sec.34, T.6 S., R.2 E., about 3.5 mi (5.5 km) south of Wilhoit and 11.5 mi (18.5 km) east of Silverton. Surface-water outlet at lat 45°00'01", long 122°32'49". Wilhoit 7½-minute quadrangle map, photorevised 1970 (not shown on map).

DRAINAGE BASIN: Pudding River (Willamette River).

DRAINAGE AREA: 2.05 mi² (5.3 km²).

SURFACE ELEVATION: 1,200 ft (366 m) above mean sea level, from topographic map.

SURFACE AREA: 49 acres (198,000 m²) at normal pool.

VOLUME: 1,030 acre-ft (1.27 hm³) at normal pool.

INFLOW: Primarily from channel on northeast end of lake. Three other small channels contribute to the reservoir.

OUTFLOW: Estimated less than 2 ft³/s (0.06 m³/s) over spillway at south end of reservoir.

USE: Private recreation.

REMARKS: Some floating aquatic growth, but no bottom vegetation observed. Bottom material is mostly soft mud.

Water-rights certificate issued for storage of 1,030 acre-ft (1.27 hm³) for fish culture.

Information on surface area, volume, and bathymetry furnished by the Oregon Water Resources Department.

WATER-QUALITY DATA

SAMPLING TIME: 1215 hours

CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.9	55
BOTTOM	--	70

ALKALINITY (mg/l as CaCO₃) 29

TOTAL HARDNESS (mg/l as CaCO₃) 27

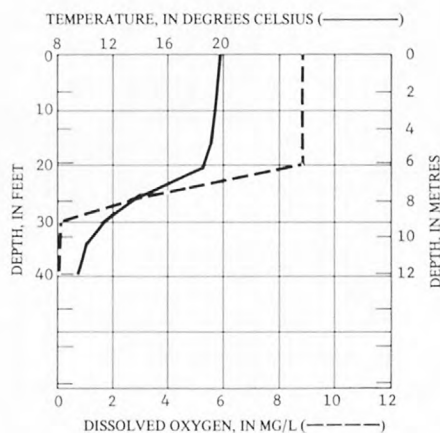
DISSOLVED SOLIDS (mg/l) 45

TRANSPARENCY (metres) 5.0

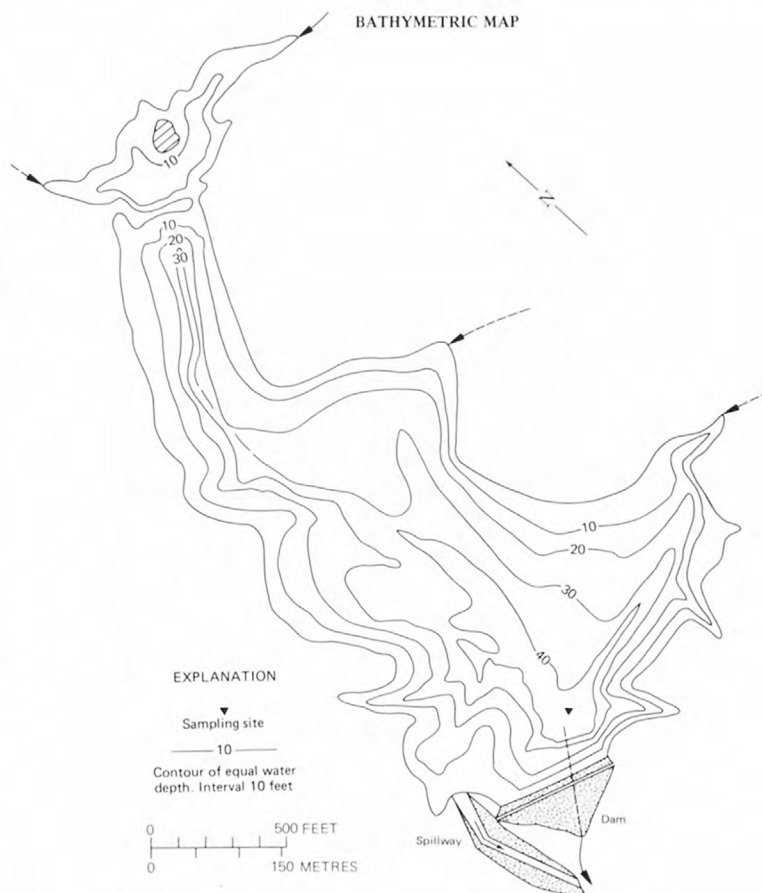
COLOR (Pt-Co units) 5

FECAL COLIFORM (colonies/100 ml) 1

(Chemical analysis in table 2, p. 4)



Photograph taken September 5, 1975.



LOCATION: Secs. 9 and 16, T.5 S., R.8 E., in Mount Hood National Forest about 2.5 mi (4 km) southeast of High Rock and 11.5 mi (18.5 km) southwest of Government Camp. Southernmost tip of lake at lat 45°08'34", long 121°50'32". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 1.45 mi² (3.76 km²).

SURFACE ELEVATION: 3,950 ft (1,200 m) above mean sea level from topographic map.

SURFACE AREA: 14 acres (57,000 m²).

VOLUME: 27 acre-ft (33,000 m³).

INFLOW: Estimated 2 ft³/s (0.06 m³/s) from spring and unnamed channel on north end of lake and 1 ft³/s (0.03 m³/s) from unnamed channel on southwest end of lake.

OUTFLOW: No channel observed and none indicated on topographic map. Possible subsurface outflow to Dinger Creek is shown on bathymetric map.

USE: Public recreation. The lake is stocked annually with fingerling cutthroat trout by the Oregon Department of Fish and Wildlife.

REMARKS: About 5 percent of the lake surface is covered with floating pond lilies, and there is considerable marsh grass on the lake perimeter. Bottom material is mostly mud and detritus.

The lake can be reached by following an old skid road south from Abbot Road to the lake. There are no maintained trails to the lake.

References: 2, 4, 6.



Photograph taken August 26, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1500 hours
CLOUD COVER: 75 percent

pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE (2 ft) 6.2	19

ALKALINITY (mg/l as CaCO₃) 10

TOTAL HARDNESS (mg/l as CaCO₃) 8

DISSOLVED SOLIDS (mg/l) 15

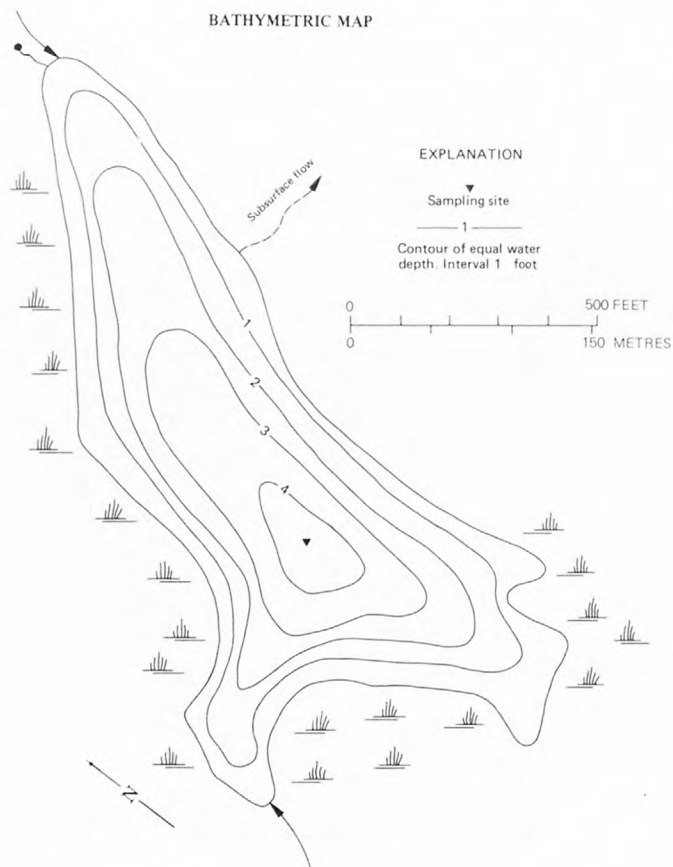
TRANSPARENCY (metres) (bottom) 1.2

COLOR (Pt-Co units) 10

FECAL COLIFORM (colonies/100 ml) <1

Dissolved oxygen (mg/l)	Temperature (°C)
SURFACE 6.9	17.5

BATHYMETRIC MAP



LOCATION: Sec. 34, T. 5 S., R. 1 E., about 3.5 mi (5.5 km) north of Scotts Mills and 12 mi (19 km) south of Canby. Surface-water outlet at 45°05'35", long 122°40'17". Scotts Mills 7½-minute quadrangle map, photorevised 1970 (not named on map).

DRAINAGE BASIN: Pudding River (Willamette River).

DRAINAGE AREA: 6.0 mi² (15.5 km²).

SURFACE ELEVATION: 210 ft (64 m) above mean sea level, from topographic map.

SURFACE AREA: 7 acres (28,000 m²) at normal pool.

VOLUME: 32 acre-ft (39,000 m³) at normal pool.

INFLOW: No measurable flow from Marquam Creek on south end of reservoir.

OUTFLOW: No flow observed through outlet on north end of lake.

USE: Private recreation.

REMARKS: No evidence of either floating or submerged aquatic growth. There is considerable grass on the perimeter of the lake. Bottom material is mostly soft mud.

Information on surface area, volume, and bathymetry furnished by the Oregon Water Resources Department.

Water-rights certificate issued for storage of 28 acre-ft (34,500 m³) for fish culture.

Photograph taken September 12, 1975.

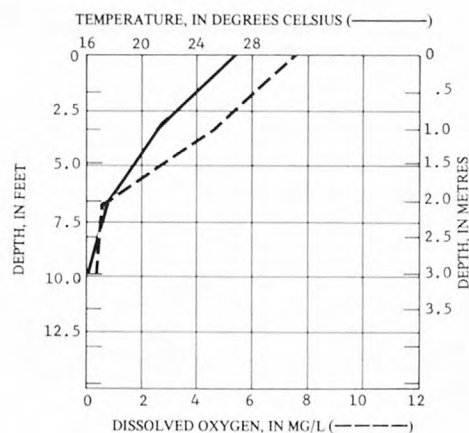


WATER-QUALITY DATA

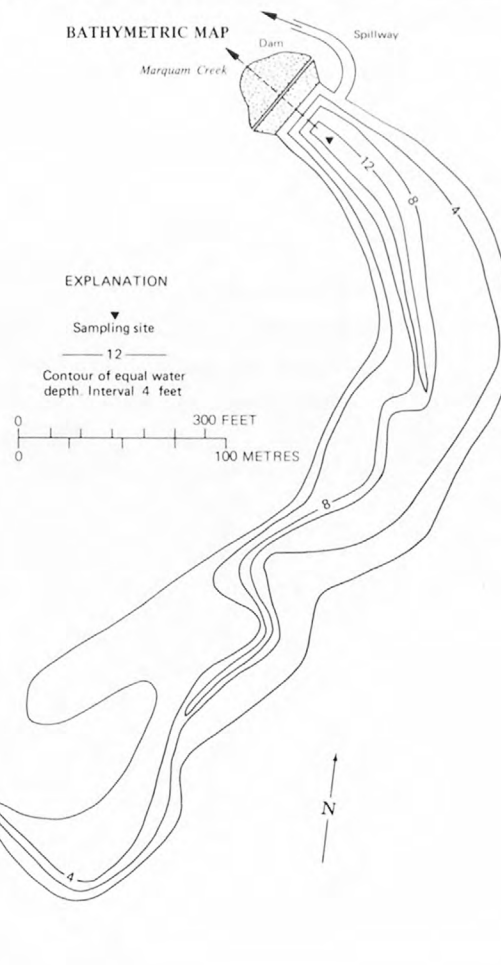
SAMPLING TIME: 1300 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	--	116
BOTTOM	--	145

ALKALINITY (mg/l as CaCO ₃)	--
TOTAL HARDNESS (mg/l as CaCO ₃)	42
DISSOLVED SOLIDS (mg/l)	63
TRANSPARENCY (metres)	1.0
COLOR (Pt-Co units)	25
FECAL COLIFORM (colonies/100 ml)	--



BATHYMETRIC MAP



LOCATION: Sec.30, T.5 S., R.1 E., about 0.5 mi (0.8 km) north-east of Monitor and 10.5 mi (17 km) southwest of Canby. Surface-water outlet at lat 45°06'31", long 122°44'24". Scotts Mills 7½-minute quadrangle map, photorevised 1970 (not named on map).

DRAINAGE BASIN: Pudding River (Willamette River).

DRAINAGE AREA: 1.46 mi² (3.78 km²).

SURFACE ELEVATION: 170 ft (50 m) above mean sea level, from topographic map.

SURFACE AREA: 7 acres (28,000 m²).

VOLUME: 21 acre-ft (26,000 m³). (Information furnished by Oregon Water Resources Department.)

INFLOW: No flow observed from channel on southeast end of lake.

OUTFLOW: No flow observed through outlet on northwest end of lake.

USE: No public recreation.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly soft mud. The water had a distinct organic brown tealike color.
Water-rights certificate issued for storage of 21.2 acre-ft (26,000 m³) for irrigation and fish culture.

WATER-QUALITY DATA

SAMPLING TIME: 1315 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	8.5	250
BOTTOM	--	> 300
ALKALINITY (mg/l as CaCO ₃)		89
TOTAL HARDNESS (mg/l as CaCO ₃)		66
DISSOLVED SOLIDS (mg/l)		171
TRANSPARENCY (metres)		1.2
COLOR (Pt-Co units)		50
FECAL COLIFORM (colonies/100 ml)		9



Photograph taken September 12, 1975.

LOCATION: Sec. 29, T. 6 S., R. 4 E., about 1 mi (1.6 km) northwest of High Camp Lookout and 8 mi (13 km) southeast of Glen Avon. Surface-water outlet at lat 45°01'19", long 122°20'54". Colton 15-minute quadrangle map.

DRAINAGE BASIN: Molalla River (Willamette River).

DRAINAGE AREA: 0.27 mi² (0.70 km²).

SURFACE ELEVATION: 3,380 ft (1,030 m) above mean sea level, from topographic map.

SURFACE AREA: 7 acres (28,000 m²).

VOLUME: 65 acre-ft (80,000 m³).

INFLOW: No measurable flow from channel on southeast side of lake.

OUTFLOW: Estimated less than 0.5 ft³/s (0.01 m³/s) through channel on northeast end of lake to the North Fork Molalla River.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly sand and rock covered by detritus.

This Crown Zellerbach lake is open to the general public on weekends, but a permit is required for weekday use because of logging operations in the area. Because of fire danger, area often is closed during late summer. The area around the lake has been clearcut.

Bathymetric map from Oregon Game Commission, 1961.

Access to lake via private logging road (Four Hundred Road) from Glen Avon.

References: 4, 15.

WATER-QUALITY DATA

SAMPLING TIME: 1200 hours

CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.8	14
BOTTOM	--	19

ALKALINITY (mg/l as CaCO₃) _____ 10

TOTAL HARDNESS (mg/l as CaCO₃) _____ 6

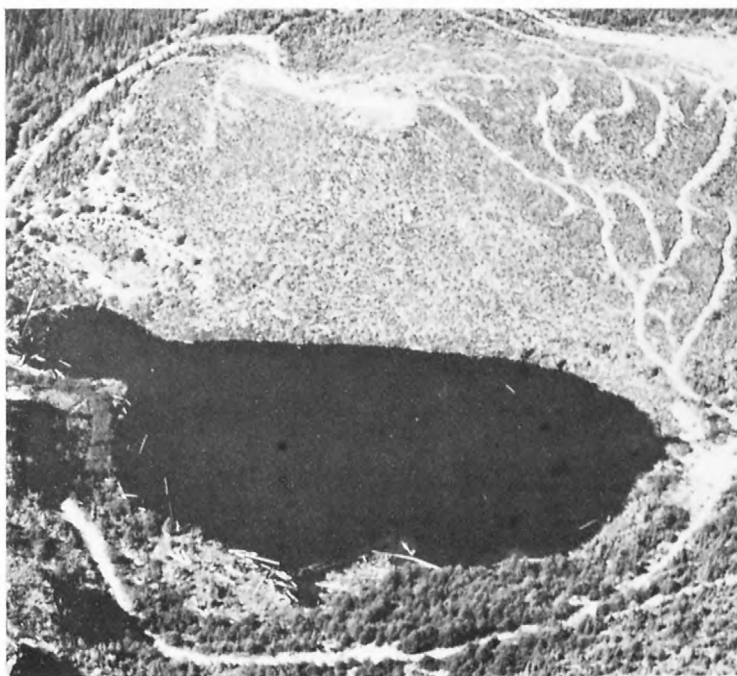
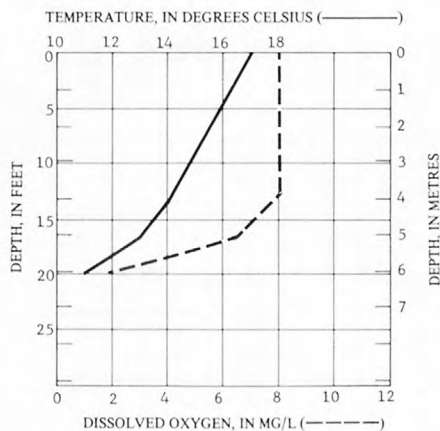
DISSOLVED SOLIDS (mg/l) _____ 14

TRANSPARENCY (metres) _____ 5.1

COLOR (Pt-Co units) _____ 5

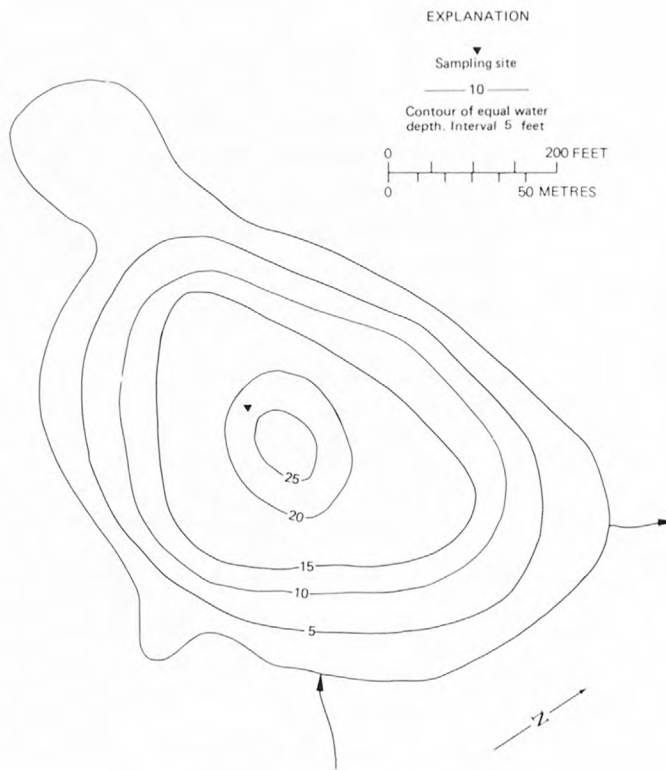
FECAL COLIFORM (colonies/100 ml) _____ <1

(Chemical analysis in table 2, p. 4)



Photograph taken September 5, 1975.

BATHYMETRIC MAP



LOCATION: Secs. 33 and 34, T.3 S., R.4 E., about 2 mi (3.2 km) southeast of Estacada and 15 mi (24 km) northeast of Molalla. Surface-water outlet at lat 45°16'03", long 122°19'08". Estacada 7½-minute quadrangle map, photorevised 1970.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: Indeterminate.

SURFACE ELEVATION: 523 ft (159 m) above mean sea level, from topographic map.

SURFACE AREA: 13 acres (53,000 m²).

VOLUME: 170 acre-ft (210,000 m³).

INFLOW: Diverted from the Clackamas River at Cazadero Dam about 1 mi (1.6 km) upstream from lake.

OUTFLOW: Through powerhouse and spillway to the Clackamas River.

USE: Public recreation. The lake is stocked monthly with legal-size rainbow trout during summer and annually with fingerlings by the Oregon Department of Fish and Wildlife. No powerboats are permitted on the lake.

REMARKS: No evidence of floating vegetation, although some bottom growth was apparent. Bottom material is mostly silt. The bathymetric map is from original construction drawings of the lake and does not represent the present bottom configuration due to heavy sedimentation. Portland General Electric Co. periodically drains the lake for repair and maintenance.

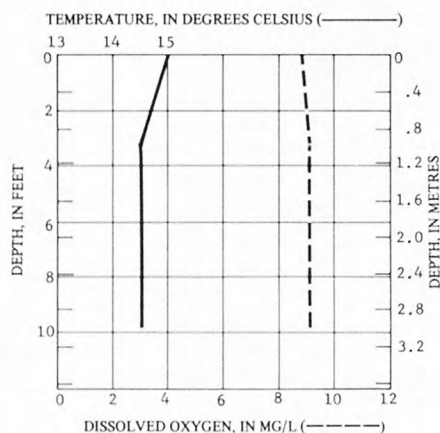
This Portland General Electric Co. reservoir was constructed in 1966 to provide storage for electric power production.

WATER-QUALITY DATA

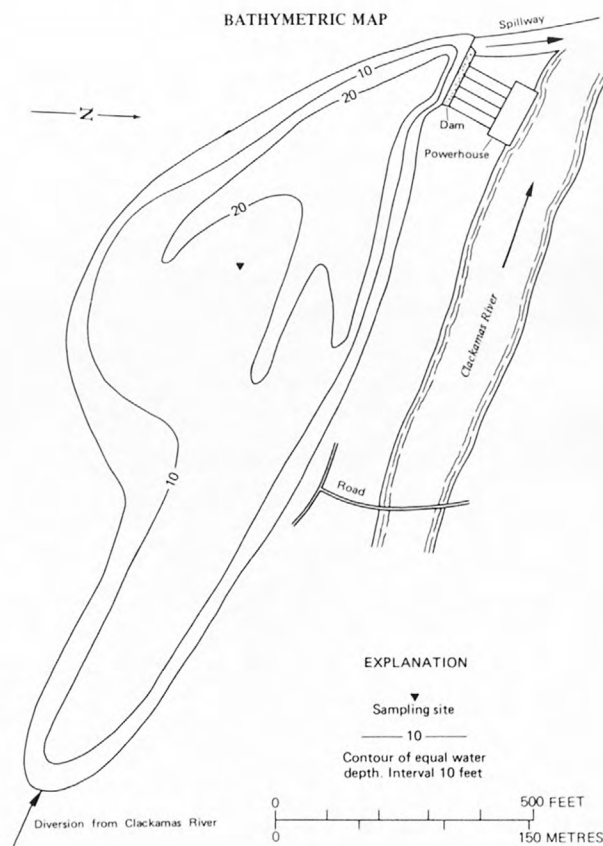
SAMPLING TIME: 1130 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.8	60
BOTTOM	--	60

ALKALINITY (mg/l as CaCO ₃)	28
TOTAL HARDNESS (mg/l as CaCO ₃)	22
DISSOLVED SOLIDS (mg/l)	47
TRANSPARENCY (metres)	3.5
COLOR (Pt-Co units)	0
FECAL COLIFORM (colonies/100 ml)	5



Photograph taken September 5, 1975.



LOCATION: Sec.35, T.5 S., R.6 E., in Mount Hood National Forest about 2.5 mi (4 km) southeast of Three Lynx and 19.5 mi (31.5 km) southeast of Estacada. Surface-water outlet at lat 45°05'38", long 122°02'32". Fish Creek Mountain 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: Indeterminate.

SURFACE ELEVATION: 1,990 ft (606 m) above mean sea level at maximum operating level.

SURFACE AREA: 17 acres (69,000 m²) at maximum operating level.

VOLUME: 460 acre-ft (570,000 m³) at maximum operating level.

INFLOW: Diverted by pipeline from Lake Harriet about 4 mi (6.4 km) upstream from lake.

OUTFLOW: Diverted by pipeline to powerhouse about 3 mi (4.8 km) downstream from lake. No flow observed through emergency spillway.

USE: No recreational use.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly rock and gravel.

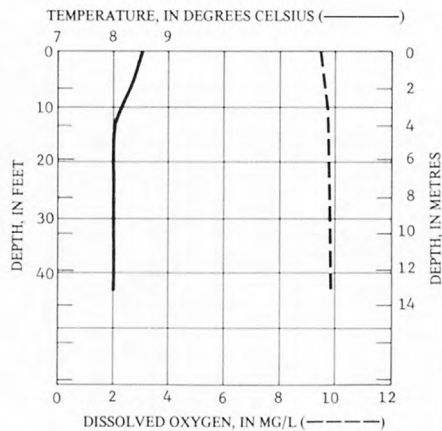
This Portland General Electric Co. reservoir was constructed in 1953 to provide storage for downstream power production.

Information on surface area, elevation, volume, and bathymetry furnished by the Oregon Water Resources Department.

WATER-QUALITY DATA

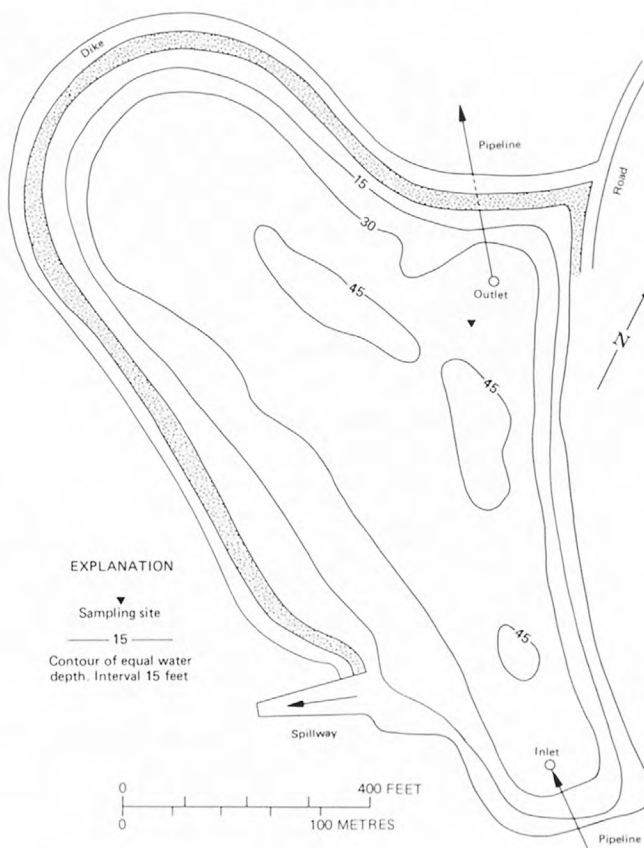
SAMPLING TIME: 1400 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.7	56
BOTTOM	--	57
ALKALINITY (mg/l as CaCO ₃)		28
TOTAL HARDNESS (mg/l as CaCO ₃)		23
DISSOLVED SOLIDS (mg/l)		43
TRANSPARENCY (metres)		11.1
COLOR (Pt-Co units)		0
FECAL COLIFORM (colonies/100 ml)		< 1



Photograph taken August 26, 1975.

BATHYMETRIC MAP



LOCATION: Secs. 26 and 35, T.4 S., R.8 E., in Mount Hood National Forest about 5 mi (8 km) northeast of High Rock and 8 mi (13 km) south of Government Camp. Surface-water outlet at lat 45°11'16", long 121°47'27". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.48 mi² (1.24 km²).

SURFACE ELEVATION: 3,980 ft (1,210 m) above mean sea level, from topographic map.

SURFACE AREA: 27 acres (110,000 m²).

VOLUME: 75 acre-ft (92,000 m³).

INFLOW: No channels observed and none indicated on topographic map.

OUTFLOW: No flow observed through channel to Cooper Creek on southeast side of lake.

USE: Public recreation. There is a forest camp on the south end of the lake.

REMARKS: About 15 percent of the lake surface is covered by floating pond lilies, and there is considerable marsh grass on the perimeter of the lake. Bottom material is mostly mud with some large rocks.

When sampled on July 18, the lake was near its maximum size; however, it had decreased to about one-third of this size by August 26 when the photograph was taken. This lake becomes too shallow during summer to support fish life.



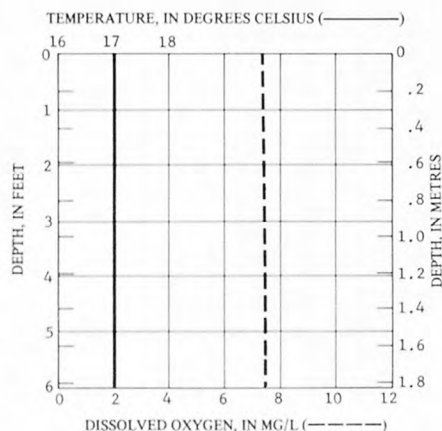
Photograph taken August 26, 1975.

WATER-QUALITY DATA

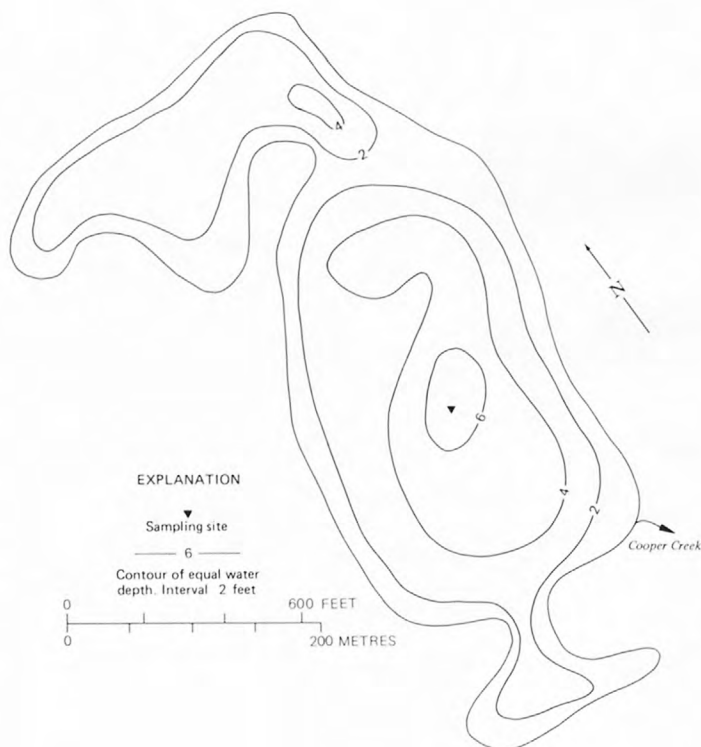
SAMPLING TIME: 1000 hours
CLOUD COVER: 100 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.6	10
BOTTOM	--	10

ALKALINITY (mg/l as CaCO ₃)	7
TOTAL HARDNESS (mg/l as CaCO ₃)	4
DISSOLVED SOLIDS (mg/l)	8
TRANSPARENCY (metres)	(bottom) 1.8
COLOR (Pt-Co units)	5
FECAL COLIFORM (colonies/100 ml)	<1



BATHYMETRIC MAP



LOCATION: Sec. 4, T. 2 S., R. 7 E., about 2.5 mi (4 km) south of the Clackamas-Multnomah County line and 12.5 mi (20 km) northwest of Government Camp in the Bull Run Reserve of Mount Hood National Forest. Surface-water outlet at lat 45°25'34", long 121°57'23". Hickman Butte 7½-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: 0.14 mi² (0.36 km²).

SURFACE ELEVATION: 3,122 ft (952 m) above mean sea level, from topographic map.

SURFACE AREA: 20 acres (81,000 m²).

VOLUME: 490 acre-ft (600,000 m³).

INFLOW: No flow observed from channel on south side of lake.

OUTFLOW: Estimated 1 ft³/s (0.03 m³/s) through outlet to the Little Sandy River on west side of lake.

USE: No recreational use. The reserve is closed to the general public.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly soft mud with some large rocks.

This lake is the easternmost of three called the Goodfellow Lakes on the topographic map. The other two lakes are smaller and often go dry during summer.

The city of Portland has exclusive rights to all water within the Bull Run Reserve.

The Oregon Department of Environmental Quality and the city of Portland have additional water-quality data.

Reference: 2.



Photograph taken August 26, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1200 hours

CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.9	13
BOTTOM	--	14

ALKALINITY (mg/l as CaCO₃) 7

TOTAL HARDNESS (mg/l as CaCO₃) 3

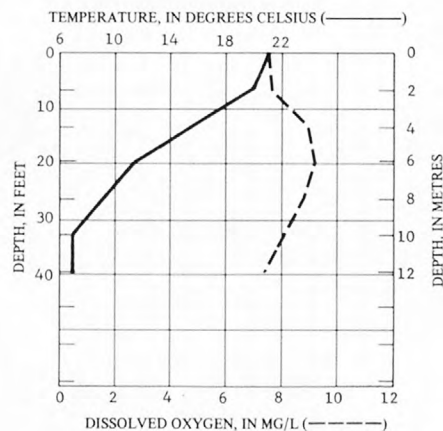
DISSOLVED SOLIDS (mg/l) 6

TRANSPARENCY (metres) 7.4

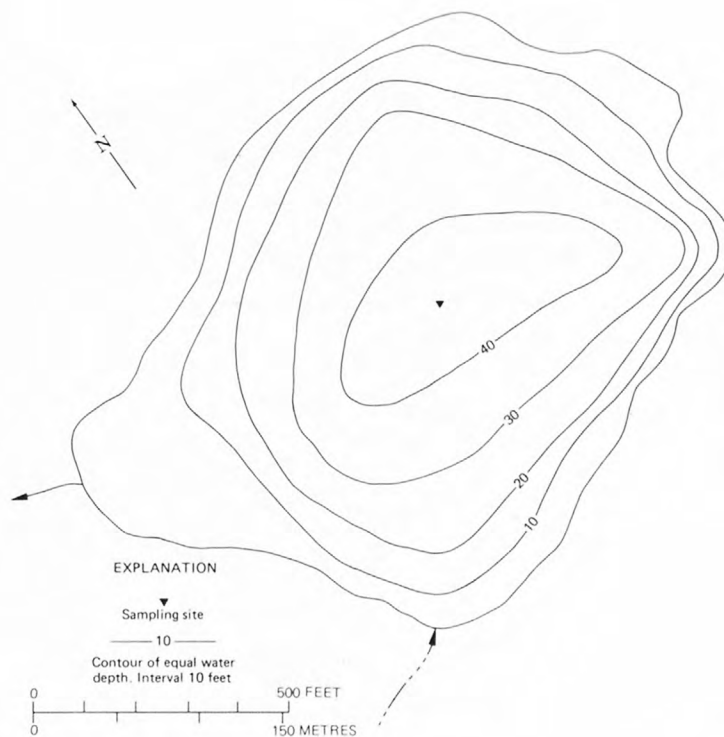
COLOR (Pt-Co units) 0

FECAL COLIFORM (colonies/100 ml) < 1

(Chemical analysis in table 2, p. 4)



BATHYMETRIC MAP



LOCATION: Secs. 2 and 11, T. 2 S., R. 7 E., about 3 mi (5 km) south of the Multnomah-Clackamas County line and 11 mi (18 km) northwest of Government Camp in Bull Run Reserve of Mount Hood National Forest. Surface-water outlet at lat $45^{\circ}25'10''$, long $121^{\circ}54'33''$. Hickman Butte 7½-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: 0.25 mi^2 (0.65 km^2).

SURFACE ELEVATION: 3,290 ft (1,000 m) above mean sea level, from topographic map.

SURFACE AREA: 12 acres ($48,000 \text{ m}^2$).

VOLUME: 115 acre-ft ($142,000 \text{ m}^3$).

INFLOW: No channels observed and none indicated on topographic map. Several springs contribute to the lake.

OUTFLOW: Estimated $2 \text{ ft}^3/\text{s}$ ($0.06 \text{ m}^3/\text{s}$) through Hickman Creek on northeast side of lake.

USE: No recreational use. The reserve is closed to the general public.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material of this cirque lake is mostly sand covered by detritus.

The city of Portland has exclusive rights to all waters within the Bull Run Reserve.

References: 2, 9.

WATER-QUALITY DATA

SAMPLING TIME: 1200 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.8	15
BOTTOM	--	15

ALKALINITY (mg/l as CaCO_3) 11

TOTAL HARDNESS (mg/l as CaCO_3) 4

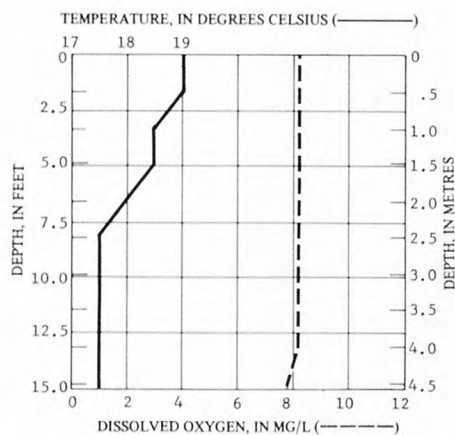
DISSOLVED SOLIDS (mg/l) 6

TRANSPARENCY (metres) (bottom) 5.0

COLOR (Pt-Co units) 0

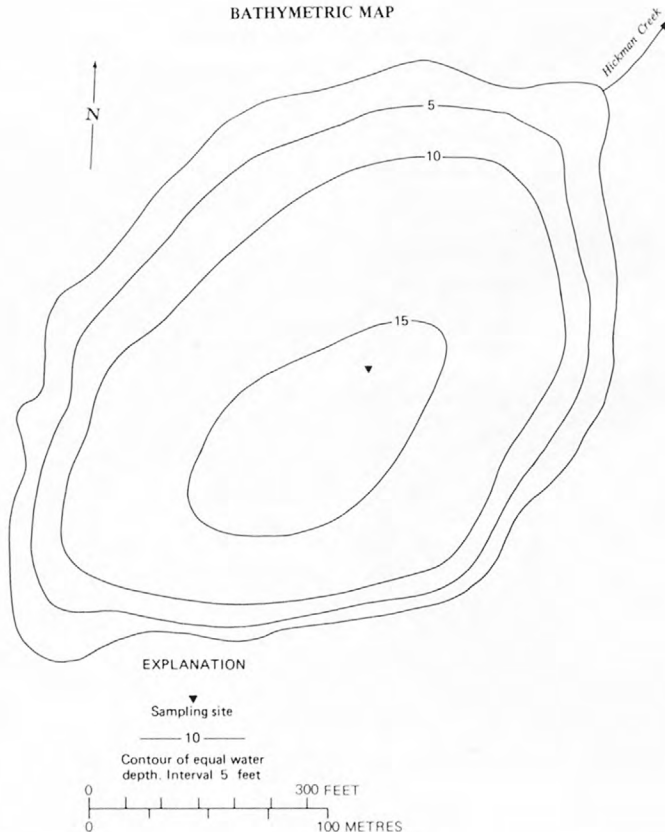
FECAL COLIFORM (colonies/100 ml) <1

(Chemical analysis in table 2, p. 4)



Photograph taken August 26, 1975.

BATHYMETRIC MAP



LOCATION: Secs. 20 and 21, T.5 S., R.7 E., in Mount Hood National Forest about 4.5 mi (7 km) southwest of High Rock and 21 mi (34 km) southeast of Estacada. Surface-water outlet at lat 45°07'20", long 121°58'02". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.11 mi² (0.28 km²).

SURFACE ELEVATION: 4,100 ft (1,250 m) above mean sea level, from topographic map.

SURFACE AREA: 16 acres (65,000 m²).

VOLUME: 260 acre-ft (320,000 m³).

INFLOW: No channels observed and none indicated on topographic map.

OUTFLOW: No flow observed through channel on northwest side of lake.

USE: Public recreation. The lake is stocked annually with fingerling rainbow and Eastern brook trout by the Oregon Department of Fish and Wildlife. There is a forest camp on the north end of the lake.

REMARKS: No floating vegetation evident, although some bottom growth was observed. Bottom material is mostly sand covered by detritus.

Not shown on the quadrangle map is an improved gravel road leading to the lake from Shellrock Road.

References: 2, 4, 7.

WATER-QUALITY DATA

SAMPLING TIME: 1700 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.5	10
BOTTOM	--	11

ALKALINITY (mg/l as CaCO₃) _____ 5

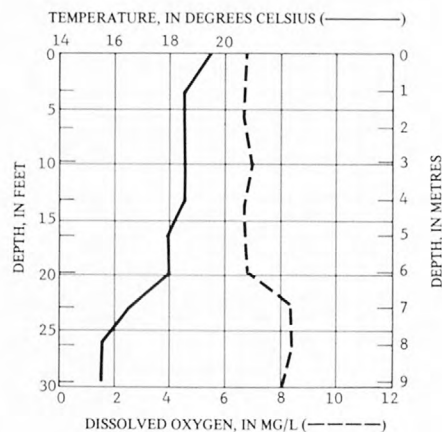
TOTAL HARDNESS (mg/l as CaCO₃) _____ 2

DISSOLVED SOLIDS (mg/l) _____ 12

TRANSPARENCY (metres) _____ 8.7

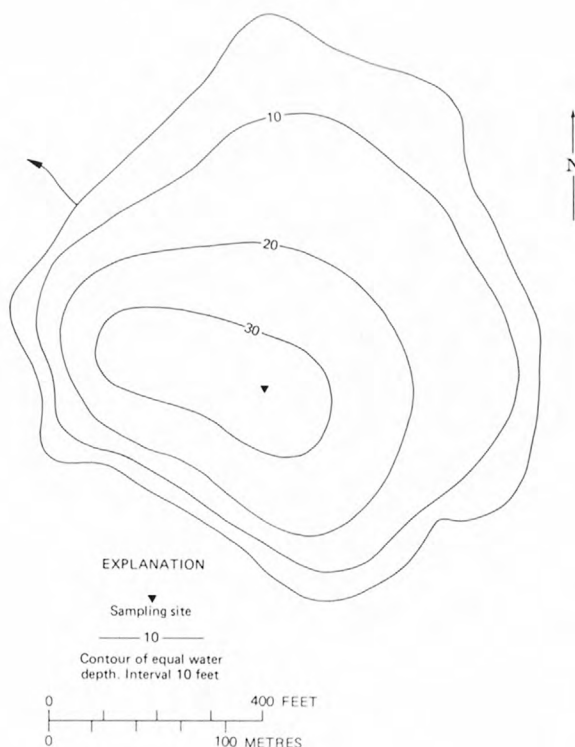
COLOR (Pt-Co units) _____ 0

FECAL COLIFORM (colonies/100 ml) _____ <1



Photograph taken August 26, 1975.

BATHYMETRIC MAP



LOCATION: Secs. 21 and 22, T. 4 S., R. 2 E., about 1.5 mi (2.4 km) southeast of Mulino and 4 mi (6.5 km) north of Molalla. Surface-water outlet at southeast corner of lake at lat 45°12'26", long 122°33'05". Molalla 7½-minute quadrangle map, photorevised 1970 (not named on map).

DRAINAGE BASIN: Molalla River (Willamette River).

DRAINAGE AREA: 0.23 mi² (0.60 km²).

SURFACE ELEVATION: 450 ft (137 m) above mean sea level, from topographic map.

SURFACE AREA: 15 acres (61,000 m²).

VOLUME: Not determined.

INFLOW: No channels observed and none indicated on topographic map.

OUTFLOW: No measurable flow through either outlet.

USE: No public recreation.

REMARKS: Emergent plants cover about 90 percent of the lake, and there are many tree limbs and snags in the lake. The reservoir is generally shallow, and the bottom is completely covered by limbs and detritus.

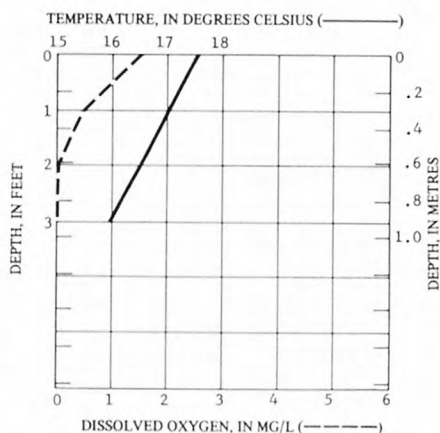
WATER-QUALITY DATA

SAMPLING TIME: 1120 hours

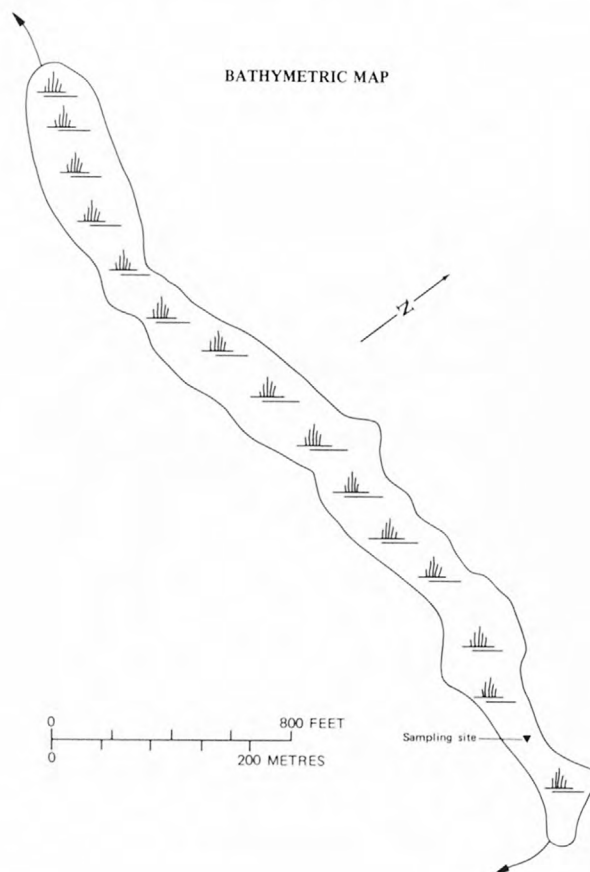
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.4	65
BOTTOM	--	65

ALKALINITY (mg/l as CaCO ₃)	28
TOTAL HARDNESS (mg/l as CaCO ₃)	23
DISSOLVED SOLIDS (mg/l)	55
TRANSPARENCY (metres)	.3
COLOR (Pt-Co units)	100
FECAL COLIFORM (colonies/100 ml)	28



Photograph taken September 12, 1975.



LOCATION: Secs. 28 and 33, T. 4 S., R. 6 E., in Mount Hood National Forest about 4 mi (6.5 km) north of Three Lynx and 14.5 mi (23 km) southeast of Estacada. Surface-water outlet at lat 45°11'08", long 122°04'31". Fish Creek Mtn. 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.09 mi² (0.23 km²).

SURFACE ELEVATION: 2,573 ft (784 m) above mean sea level, from topographic map.

SURFACE AREA: 6 acres (24,000 m²).

VOLUME: 10 acre-ft (12,000 m³).

INFLOW: No channels observed and none indicated on topographic map.

OUTFLOW: No measurable flow through channel on south side of lake.

USE: Public recreation. However, the lake is not stocked because of its very shallow depth.

REMARKS: About 10 percent of the lake surface is covered by floating pond lilies, and the perimeter of the lake has considerable marsh grass. Bottom material is detritus. Accessible by Forest Service trails from forest roads south and west of lake; however, trails to the lake are not well maintained.

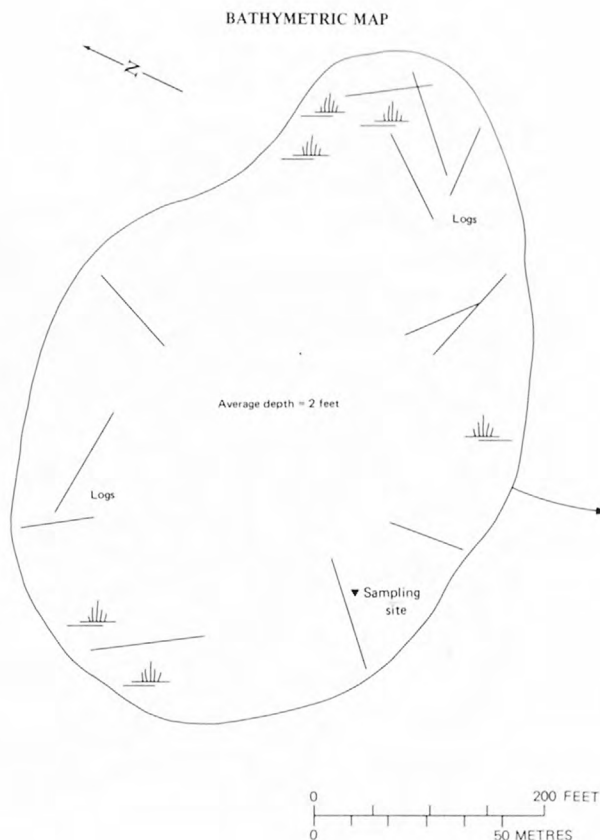


Photograph taken September 5, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1500 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.3	39
ALKALINITY (mg/l as CaCO ₃)		18
TOTAL HARDNESS (mg/l as CaCO ₃)		12
DISSOLVED SOLIDS (mg/l)		50
TRANSPARENCY (metres)	(bottom)	.6
COLOR (Pt-Co units)		15
FECAL COLIFORM (colonies/100 ml)		< 1
	D.O. (mg/l)	TEMP. (°C)
SURFACE	8.4	16.0



LOCATION: Secs. 35 and 36, T.1 S., R.1 E., in Milwaukie about 6 mi (10 km) south of Portland city center. Surface-water outlet at lat 45°26'30", long 122°38'26". Lake Oswego 7½-minute quadrangle map, photorevised 1970.

DRAINAGE BASIN: Willamette River.

DRAINAGE AREA: 14.8 mi² (38.3 km²).

SURFACE ELEVATION: 8 ft (2 m) above mean sea level, from topographic map. The mean tide change in the Willamette River at Kellogg Lake outlet is 2 ft (0.6 m).

SURFACE AREA: 15 acres (61,000 m²).

VOLUME: 45 acre-ft (55,000 m³).

INFLOW: No measurable flow in Kellogg Creek on southeast side of lake. The Willamette River could flood the lake during periods of extreme high water.

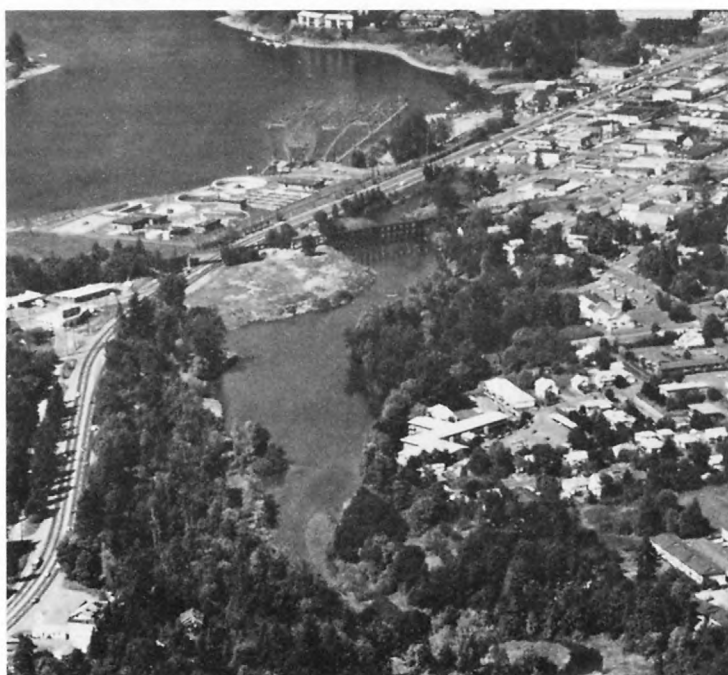
OUTFLOW: Some flow through spillway to the Willamette River on northwest end of lake.

USE: No specific recreational use; some fishing.

REMARKS: No evidence of either floating or submerged aquatic growth. Algal mats, high dissolved oxygen, and pH values indicated recent bloom. Bottom material is mostly soft mud.

Water-rights certificates issued for diversion of 0.031 ft³/s (<0.01 m³/s) for irrigation.

Photograph taken September 12, 1975.

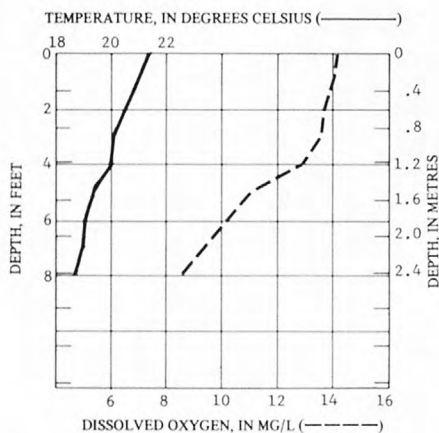


WATER-QUALITY DATA

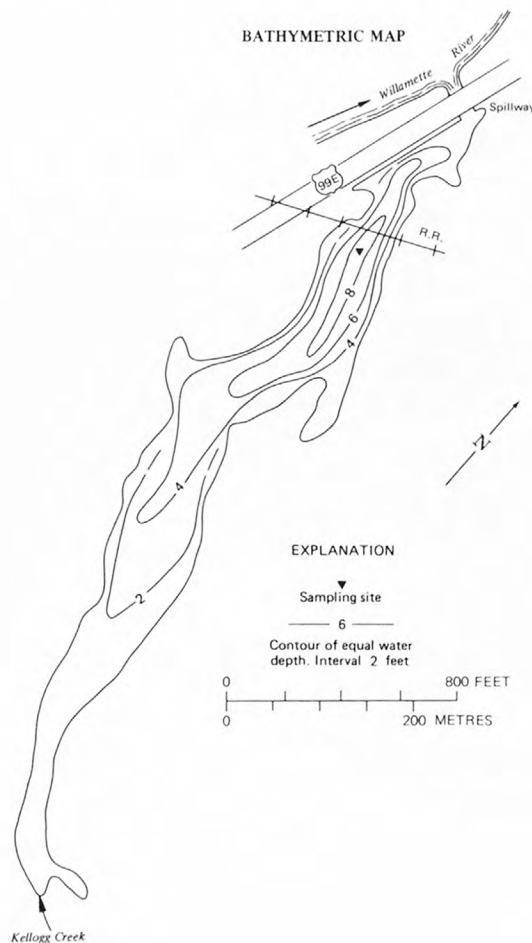
SAMPLING TIME: 1300 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	8.7	215
BOTTOM	--	200

ALKALINITY (mg/l as CaCO ₃)	87
TOTAL HARDNESS (mg/l as CaCO ₃)	89
DISSOLVED SOLIDS (mg/l)	181
TRANSPARENCY (metres)	.8
COLOR (Pt-Co units)	25
FECAL COLIFORM (colonies/100 ml)	67



BATHYMETRIC MAP



LOCATION: Sec. 5, T. 4 S., R. 8 E., in Mount Hood National Forest about 1 mi (1.6 km) southeast of Devils Peak and 6.5 mi (10 km) southwest of Government Camp. Surface-water outlet at lat 45°15'14", long 121°51'35". Government Camp 7½-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: 0.02 mi² (0.05 km²).

SURFACE ELEVATION: 4,260 ft (1,300 m) above mean sea level, from topographic map.

SURFACE AREA: 1 acre (4,000 m²).

VOLUME: 3 acre-ft (3,700 m³).

INFLOW: No channels observed and none indicated on topographic map.

OUTFLOW: No flow observed through Kinzel Creek on east side of lake.

USE: Public recreation. However, the lake is not stocked because it will not support fish life. There is a forest camp on the southeast side of lake.

REMARKS: The lake is surrounded by considerable marsh grass, and it contains both floating and submerged vegetation. Bottom material is mostly sand covered by detritus.

There was a distinct hydrogen sulphide odor from the lake on the survey date. The pH value was the most acid observed in the county.

Access by Forest Service Road S32 from U.S. Highway 26. References: 2, 4, 7.



Photograph taken September 5, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1500 hours
CLOUD COVER: 30 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	4.9	84
BOTTOM	--	84

ALKALINITY (mg/l as CaCO₃) _____ 2.5

TOTAL HARDNESS (mg/l as CaCO₃) _____ 30

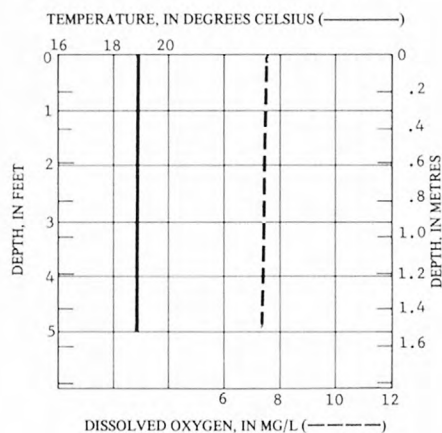
DISSOLVED SOLIDS (mg/l) _____ 67

TRANSPARENCY (metres) (bottom) _____ 1.5

COLOR (Pt-Co units) _____ 5

FECAL COLIFORM (colonies/100 ml) _____ <1

(Chemical analysis in table 2, p. 4)



BATHYMETRIC MAP



LOCATION: Sec.11, T.5 S., R.1 E., about 2 mi (3.2 km) northeast of Yoder and 7 mi (11 km) south of Canby. Surface-water outlet at lat 45°09'24", long 122°39'33". Yoder 7½-minute quadrangle map, photorevised 1970 (not named on map).

DRAINAGE BASIN: Pudding River (Willamette River).

DRAINAGE AREA: 0.5 mi² (1.3 km²).

SURFACE ELEVATION: 230 ft (70 m) above mean sea level, from topographic map.

SURFACE AREA: 6 acres (24,000 m²).

VOLUME: 40 acre-ft (49,000 m³).

INFLOW: No measurable flow from channel on east side of reservoir.

OUTFLOW: No flow observed through channel on west side of reservoir.

USE: No public recreation.

REMARKS: No evidence of either floating or submerged aquatic growth. An algal bloom was observed on the survey date, as indicated by the supersaturated dissolved-oxygen value and high pH near the surface. Bottom material is mostly soft mud.

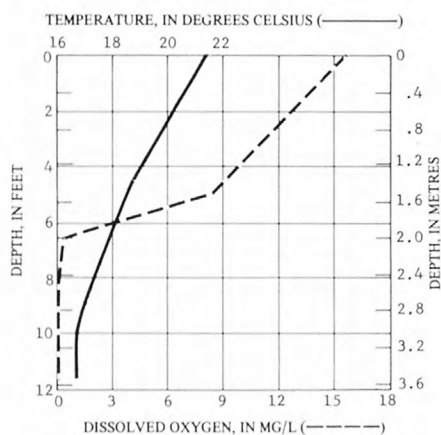
WATER-QUALITY DATA

SAMPLING TIME: 1230 hours

CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	9.4	128
BOTTOM	--	167

ALKALINITY (mg/l as CaCO ₃)	62
TOTAL HARDNESS (mg/l as CaCO ₃)	30
DISSOLVED SOLIDS (mg/l)	90
TRANSPARENCY (metres)	.5
COLOR (Pt-Co units)	20
FECAL COLIFORM (colonies/100 ml)	6



Photograph taken September 12, 1975.

LOCATION: Sec.4, T.6 S., R.7 E., in Mount Hood National Forest about 7 mi (11 km) southwest of High Rock and 23 mi (37 km) southeast of Estacada. Surface-water outlet at lat 45°04'30", long 121°58'05". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 131 mi² (339 km²).

SURFACE ELEVATION: 2,000 ft (610 m) above mean sea level, from topographic map.

SURFACE AREA: 20 acres (80,000 m²).

VOLUME: Not determined.

INFLOW: Oak Grove Fork of the Clackamas River on the east end of lake and Kink Creek on south side of lake. Several other small channels that contribute to the lake are shown on the map.

OUTFLOW: Water is diverted by pipeline to Frog Lake (p. 33). Seepage through dam on west end of lake returns to the Oak Grove Fork of the Clackamas River.

USE: Public recreation. The lake is stocked monthly during summer with legal-size rainbow trout by the Oregon Department of Fish and Wildlife. In addition, the lake has a resident population of brown trout. Portland General Electric Co. maintains a campground on the east end of lake.

REMARKS: No evidence of floating vegetation, although there was considerable bottom vegetation. The lake bottom is mostly gravel and rock covered by silt.

The dam was constructed in 1923 to provide a point of diversion for downstream powerplant operations.

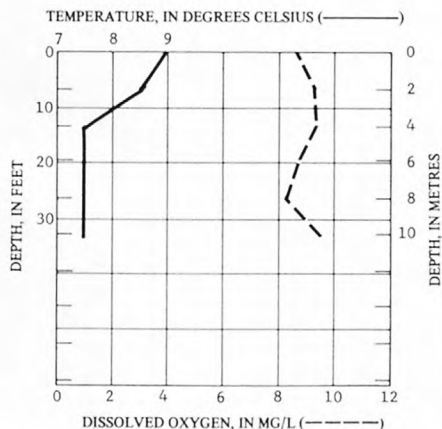
References: 2, 4.

WATER-QUALITY DATA

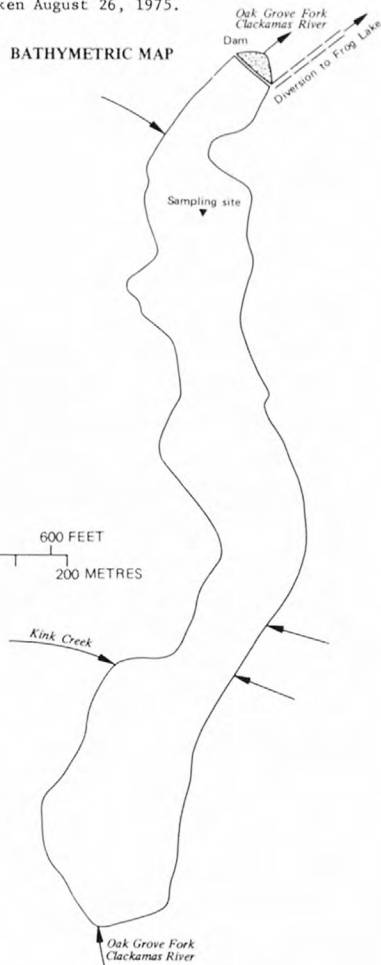
SAMPLING TIME: 1000 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.7	58
BOTTOM	--	58

ALKALINITY (mg/l as CaCO ₃)	33
TOTAL HARDNESS (mg/l as CaCO ₃)	22
DISSOLVED SOLIDS (mg/l)	49
TRANSPARENCY (metres)	5.7
COLOR (Pt-Co units)	5
FECAL COLIFORM (colonies/100 ml)	4



Photograph taken August 26, 1975.



LOCATION: Secs. 8, 9, 10, and 17, T.2 S., R.1 E., in Lake Oswego about 8 mi (13 km) south of Portland city center. Surface-water outlet at lat 45°24'38", long 122°40'00". Lake Oswego 7½-minute quadrangle map, photorevised 1970.

DRAINAGE BASIN: Willamette River.

DRAINAGE AREA: Indeterminate.

SURFACE ELEVATION: 99 ft (30 m) above mean sea level, from topographic map. Elevation was 97 ft (30 m) above mean sea level on the survey date.

SURFACE AREA: 385 acres (156 hm²).

VOLUME: 9,800 acre-ft (12 hm³).

INFLOW: Primary inflow is diverted through Oswego Canal from the Tualatin River.

OUTFLOW: Through Oswego Creek on southeast end of lake.

USE: Private recreation, including swimming, boating, and fishing.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly rock and mud.

The lake, which was much smaller prior to construction of the dam on Oswego Creek, was called Sucker Lake by early settlers and "Waluga" (Wild Swan) by the Indians that inhabited the area (from "Oregon's Iron Dream," by Mary Goodall).

The lake level is periodically lowered so that owners may repair their seawalls and docks and so that inspections can be made of the sewerline that runs the length of the lake.

References: 4, 5.

WATER-QUALITY DATA

SAMPLING TIME: 1400 hours
CLOUD COVER: 100 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.8	122
BOTTOM	6.8	162

ALKALINITY (mg/l as CaCO₃) _____ 48

TOTAL HARDNESS (mg/l as CaCO₃) _____ 41

DISSOLVED SOLIDS (mg/l) _____ 74

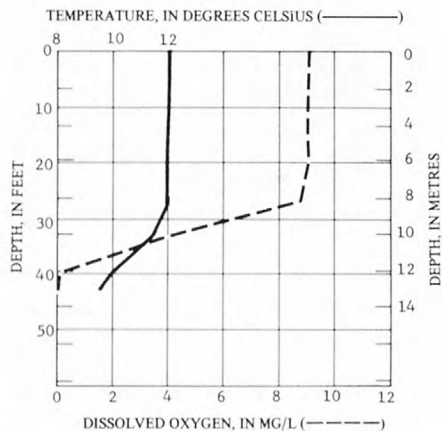
TRANSPARENCY (metres) _____ 2.0

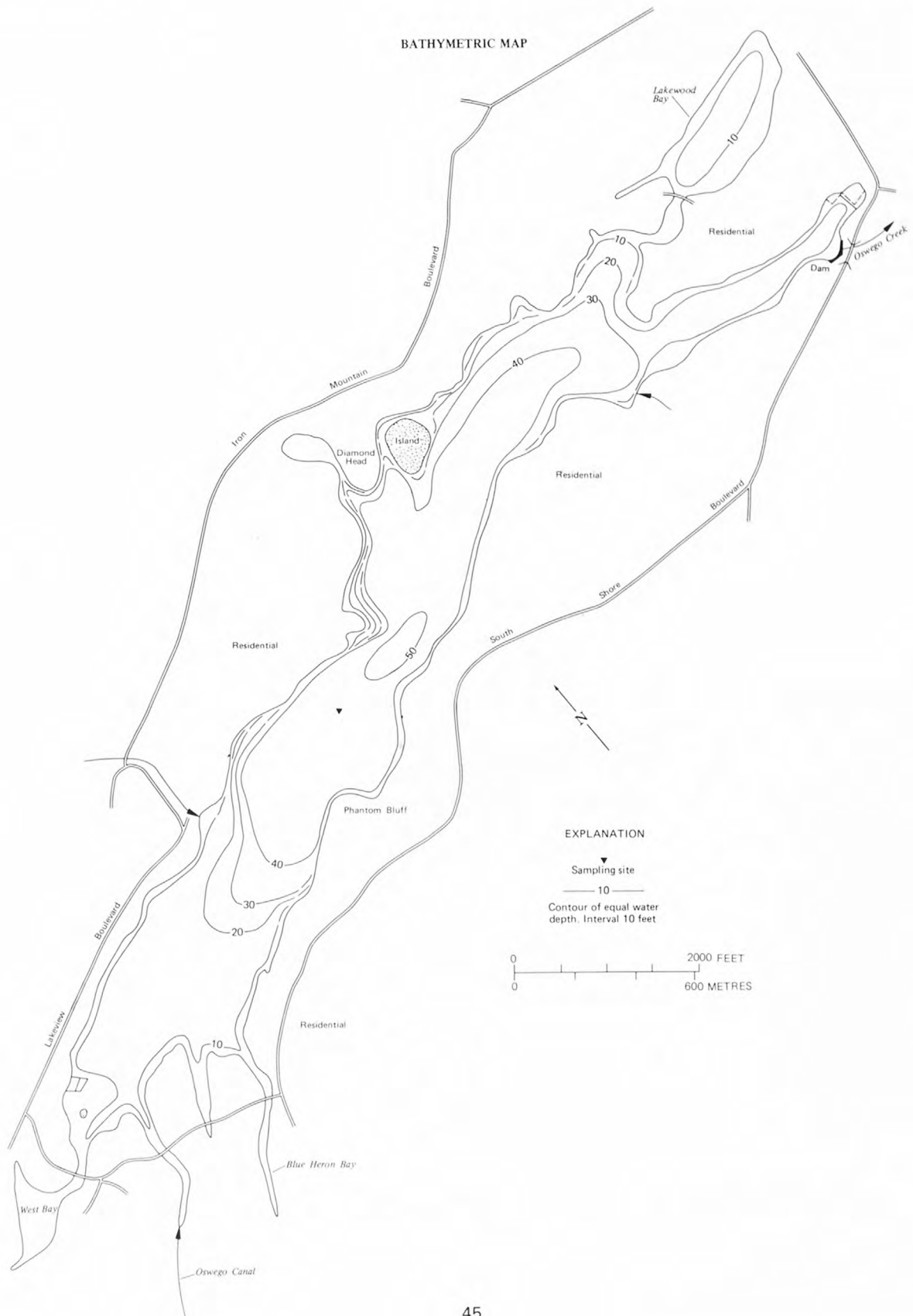
COLOR (Pt-Co units) _____ 30

FECAL COLIFORM (colonies/100 ml) _____ 120



Photograph taken September 12, 1975.





LOCATION: SE $\frac{1}{4}$ sec. 11, T. 5 S., R. 8 $\frac{1}{2}$ E., about 6.5 mi (10.5 km) east of High Rock and 10.5 mi (17 km) south of Government Camp. Surface-water outlet at lat 45°08'57", long 121°44'58". Mt. Wilson 15-minute quadrangle map (not shown on map).

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 4.58 mi² (11.9 km²).

SURFACE ELEVATION: 3,240 ft (988 m) above mean sea level, from topographic map.

SURFACE AREA: 0.2 acre (800 m²).

VOLUME: 8 acre-ft (10,000 m³).

INFLOW: Primarily spring fed. Some flow from channel through marsh on northwest side of lake.

OUTFLOW: Estimated 1 ft³/s (0.03 m³/s) through channel on west side of lake.

USE: Esthetic value; geologic interest.

REMARKS: No floating aquatic growth, although some bottom vegetation was observed. Bottom material is mostly sand and rock.

According to the U.S. Forest Service, the lake was formed by the force of an artesian spring washing away the soft siltstone in which the lake lies. The artesian spring resulted from the earth shifting along a fault and interrupting a layer of water-bearing gravel.

The walls of the lake drop sharply to a depth of about 45 ft (14 m). Because of the clarity of the water, objects on the lake bottom can be seen in detail.

WATER-QUALITY DATA

SAMPLING TIME: 1200 hours
CLOUD COVER: 100 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	8.2	65
BOTTOM	--	64

ALKALINITY (mg/l as CaCO₃) 36

TOTAL HARDNESS (mg/l as CaCO₃) 29

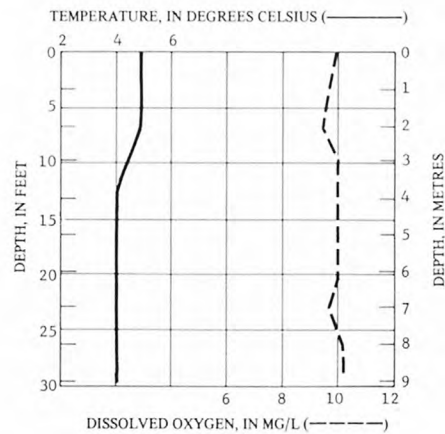
DISSOLVED SOLIDS (mg/l) 51

TRANSPARENCY (metres) (bottom) 13.7

COLOR (Pt-Co units) 0

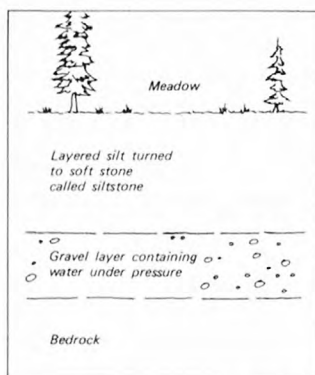
FECAL COLIFORM (colonies/100 ml) < 1

(Chemical analysis in table 2, p. 4)

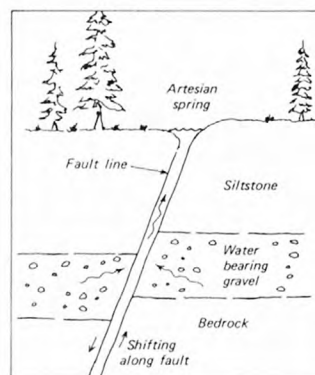


LITTLE CRATER LAKE

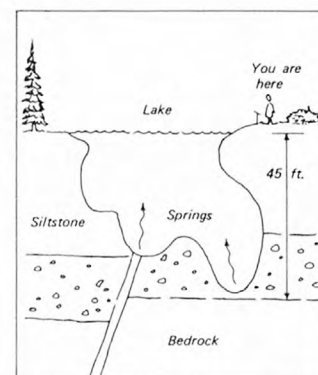
The Story of Its Formation



This cross section shows the condition here many years ago, before the lake was formed.



The earth cracked and shifted along a line known as a fault. The water was forced up the crack at this point, resulting in an artesian spring.



The lake was formed by the force of the artesian spring, which washed away the soft siltstone.

Catching frogs at Little Crater Lake



LOCATION: Secs. 21 and 22, T.5 S., R.1 E., about 3.5 mi (5.5 km) northeast of Monitor and 9.5 mi (15 km) south of Canby. Southernmost tip of pond at lat 45°07'17", long 122°40'52". Scotts Mills 7½-minute quadrangle map, photorevised 1970.

DRAINAGE BASIN: Pudding River (Willamette River).

DRAINAGE AREA: Indeterminate.

SURFACE ELEVATION: 150 ft (46 m) above mean sea level, from topographic map.

SURFACE AREA: 7 acres (28,000 m²).

VOLUME: 35 acre-ft (43,000 m³).

INFLOW: Water diverted from Rock Creek.

OUTFLOW: No channels observed and none indicated on topographic map.

USE: No recreational use.

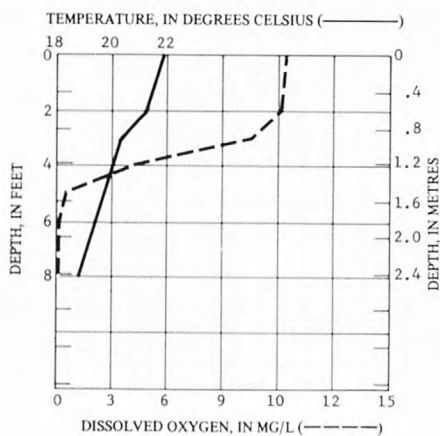
REMARKS: No evidence of either floating or submerged aquatic growth. The water had a dark pea-green color on the survey date. Bottom material is mostly soft mud. The pond is no longer used for log storage.

WATER-QUALITY DATA

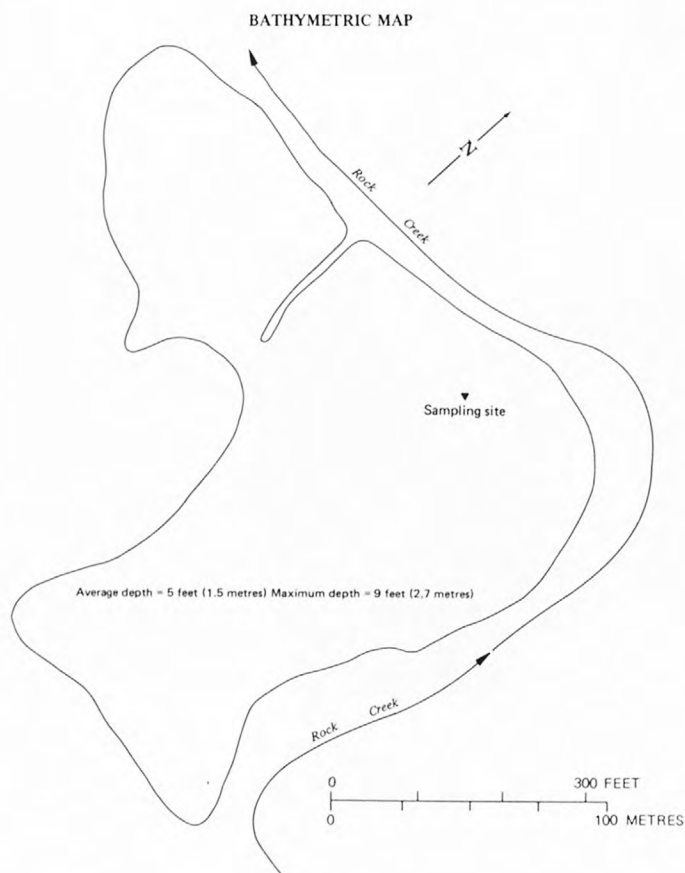
SAMPLING TIME: 1100 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	8.5	110
BOTTOM	--	120

ALKALINITY (mg/l as CaCO ₃)	49
TOTAL HARDNESS (mg/l as CaCO ₃)	40
DISSOLVED SOLIDS (mg/l)	85
TRANSPARENCY (metres)	.6
COLOR (Pt-Co units)	25
FECAL COLIFORM (colonies/100 ml)	< 1



Photograph taken September 12, 1975.



LOCATION: Sec.31, T.5 S., R.5 E., in Mount Hood National Forest about 5.5 mi (9 km) west of Fish Creek Mountain and 14 mi (22.5 km) southeast of Estacada. Surface-water outlet at lat 45°05'52", long 122°14'02". Fish Creek Mtn. 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.15 mi² (0.39 km²).

SURFACE ELEVATION: 4,114 ft (1,254 m) above mean sea level, from topographic map.

SURFACE AREA: 5 acres (20,000 m²).

VOLUME: 17 acre-ft (21,000 m³).

INFLOW: No channels observed and none indicated on topographic map.

OUTFLOW: Estimated 1 ft³/s (0.03 m³/s) through Memaloose Creek on east side of lake.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife. There are several campsites at the lake.

REMARKS: No floating aquatic growth was observed; however, about 70 percent of the lake bottom was covered with vegetation. Bottom material is mostly sand covered by detritus.

Accessible by Forest Service Trail 515 from National Forest Route 45 (not shown on topographic map) which intersects with State Highway 224 near Big Cliff.

References: 2, 7.



Photograph taken September 5, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1200 hours
CLOUD COVER: 90 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	8.2	36
BOTTOM	--	37

ALKALINITY (mg/l as CaCO₃) _____ 20

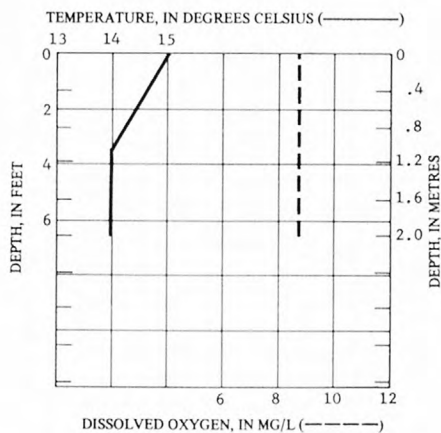
TOTAL HARDNESS (mg/l as CaCO₃) _____ 12

DISSOLVED SOLIDS (mg/l) _____ 19

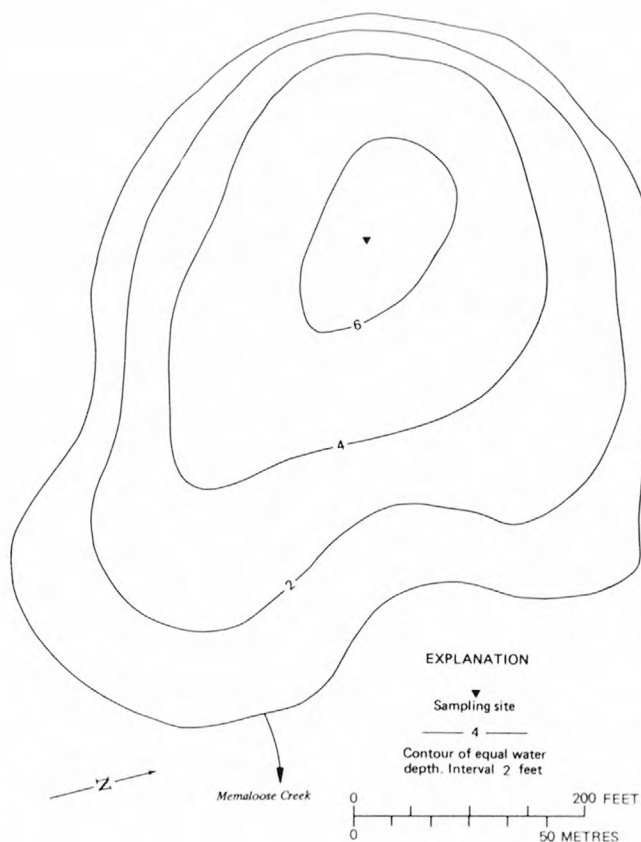
TRANSPARENCY (metres) (bottom) 2.0

COLOR (Pt-Co units) _____ 5

FECAL COLIFORM (colonies/100 ml) _____ <1



BATHYMETRIC MAP



LOCATION: Sec.23, T.3 S., R.8 E., in the Mount Hood National Forest about 0.6 mi (1 km) south of U.S. Highway 26 and 2 mi (3.2 km) west of Government Camp. Surface-water outlet at lat 45°17'53", long 121°47'29". Government Camp 7½-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: 0.27 mi² (0.70 km²).

SURFACE ELEVATION: 4,100 ft (1,250 m) above mean sea level, from topographic map.

SURFACE AREA: 7 acres (28,000 m²).

VOLUME: 65 acre-ft (80,000 m³).

INFLOW: Estimated 1.5 ft³/s (0.04 m³/s) in channel through marsh on west side of lake.

OUTFLOW: Estimated 1.5 ft³/s (0.04 m³/s) through channel to Camp Creek on north side of lake.

USE: Public recreation. The lake is stocked annually with fingerling rainbow and Eastern brook trout by the Oregon Department of Fish and Wildlife. Trails to the lake are maintained by the U.S. Forest Service. There are several campsites around the lake.

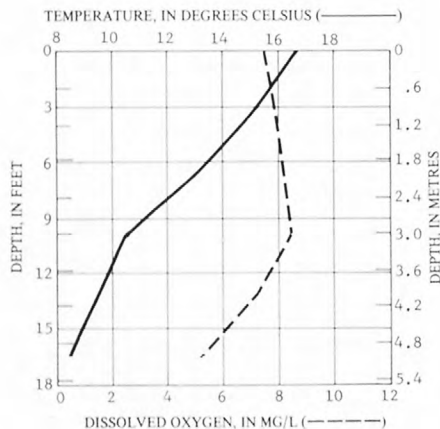
REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly sand covered by detritus. This lake receives heavy use because of easy access via Mirror Lake trail from U.S. Highway 26.
References: 2, 4, 7.

WATER-QUALITY DATA

SAMPLING TIME: 1130 hours
CLOUD COVER: 10 percent

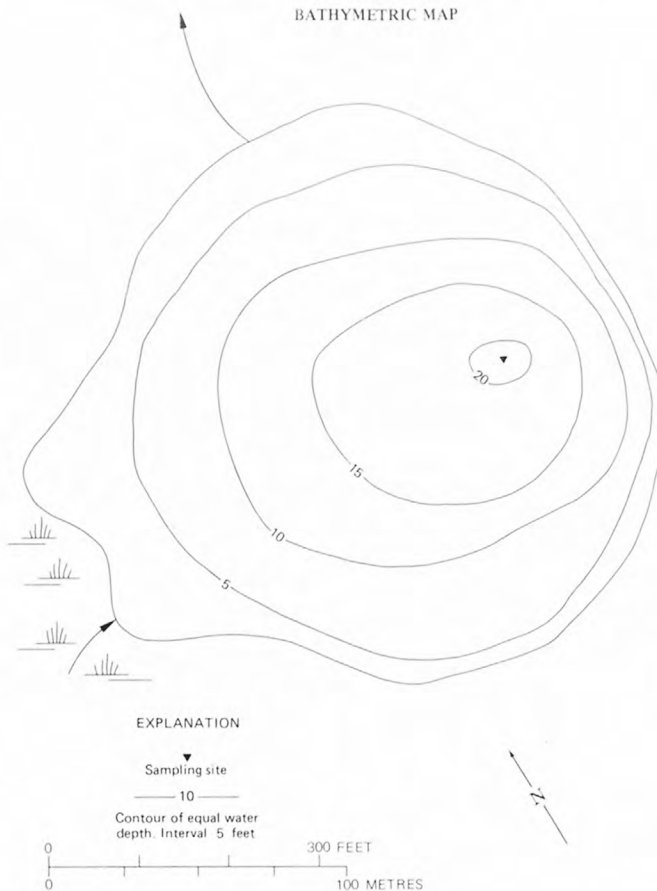
	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.5	19
BOTTOM	--	18

ALKALINITY (mg/l as CaCO ₃)	--
TOTAL HARDNESS (mg/l as CaCO ₃)	7
DISSOLVED SOLIDS (mg/l)	21
TRANSPARENCY (metres)	4.2
COLOR (Pt-Co units)	5
FECAL COLIFORM (colonies/100 ml)	< 1



Photograph taken August 26, 1975.

BATHYMETRIC MAP



LOCATION: Sec.14, T.4 S., R.3 E., about 4 mi (6.5 km) northeast of Colton and 6 mi (9.5 km) southwest of Estacada. Surface-water outlet at lat 45°13'27", long 122°23'42". Colton 7½-minute quadrangle map, photorevised 1970 (identified as "Millpond" on map).

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 1.01 mi² (2.62 km²).

SURFACE ELEVATION: 1,030 ft (310 m) above mean sea level, from topographic map.

SURFACE AREA: 6 acres (24,000 m²).

VOLUME: 40 acre-ft (49,000 m³).

INFLOW: No flow observed from channel on northwest end of lake.

OUTFLOW: Some flow observed through spillway on east end of reservoir to Swagger Creek.

USE: Private recreation.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly soft mud. Information on surface area, volume, and bathymetry furnished by the Oregon Water Resources Department.

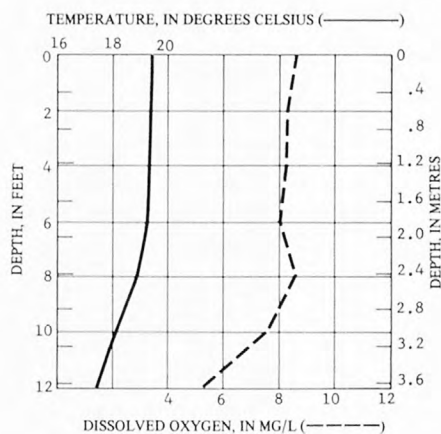
WATER-QUALITY DATA

SAMPLING TIME: 0930 hours

CLOUD COVER: 45 percent

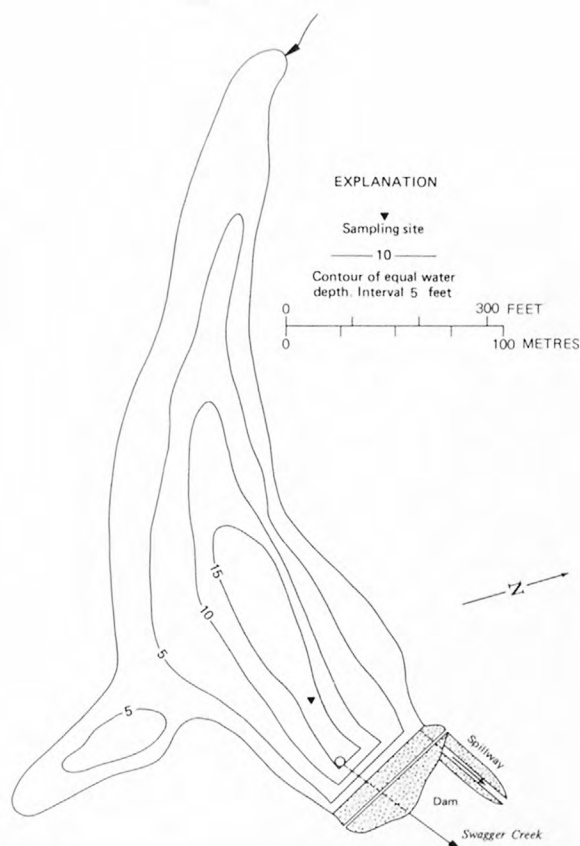
	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.0	<50
BOTTOM	--	<50

ALKALINITY (mg/l as CaCO ₃)	17
TOTAL HARDNESS (mg/l as CaCO ₃)	10
DISSOLVED SOLIDS (mg/l)	31
TRANSPARENCY (metres)	2.9
COLOR (Pt-Co units)	10
FECAL COLIFORM (colonies/100 ml)	25



Photograph taken September 12, 1975.

BATHYMETRIC MAP



LOCATION: Secs. 2, 11, 12, and 13, T.4 S., R.4 E., and secs. 18 and 19, T.4 S., R.5 E., about 4 mi (6.5 km) southeast of Estacada and 9 mi (14.5 km) northeast of Colton. Surface-water outlet at lat 45°14'36", long 122°16'47". Colton and Fish Creek Mtn. 15-minute quadrangle maps (not shown on maps).

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 658 mi² (1,700 km²).

SURFACE ELEVATION: 665 ft (203 m) above mean sea level at normal pool.

SURFACE AREA: 350 acres (140 hm²) at normal pool.

VOLUME: 19,000 acre-ft (23 hm³) at normal pool.

INFLOW: Primarily from the Clackamas and North Fork Clackamas Rivers.

OUTFLOW: Clackamas River.

USE: Public recreation. The lake is stocked monthly during summer with legal-size rainbow trout. There are several public boat launches on the north side of the lake.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly rock and gravel covered by silt.

This recreational lake is popular with people of the Portland metropolitan area and is used quite heavily during summer. The dam, constructed in 1958, is used by the Portland General Electric Co. to store water for electrical power production.

Information on surface area, volume, elevation, and bathymetry furnished by the Oregon Water Resources Department.

Depths on the bathymetric map are shown for a surface elevation of 650 ft (198 m) above mean sea level. For normal pool elevation of 665 ft (203 m) mean sea level, add 15 ft (4.5 m) to depths.

Water-quality data collected at site 2 on September 16, 1975 are shown below.

Reference: 4.

Site 1

WATER-QUALITY DATA

SAMPLING TIME: 1430 hours - September 17, 1975
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.0	63
BOTTOM	--	61

ALKALINITY (mg/l as CaCO₃) 30

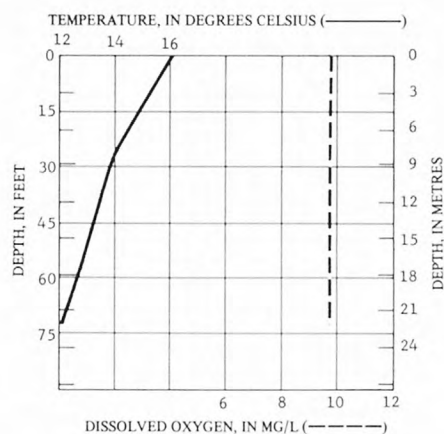
TOTAL HARDNESS (mg/l as CaCO₃) 21

DISSOLVED SOLIDS (mg/l) 47

TRANSPARENCY (metres) 6.0

COLOR (Pt-Co units) 5

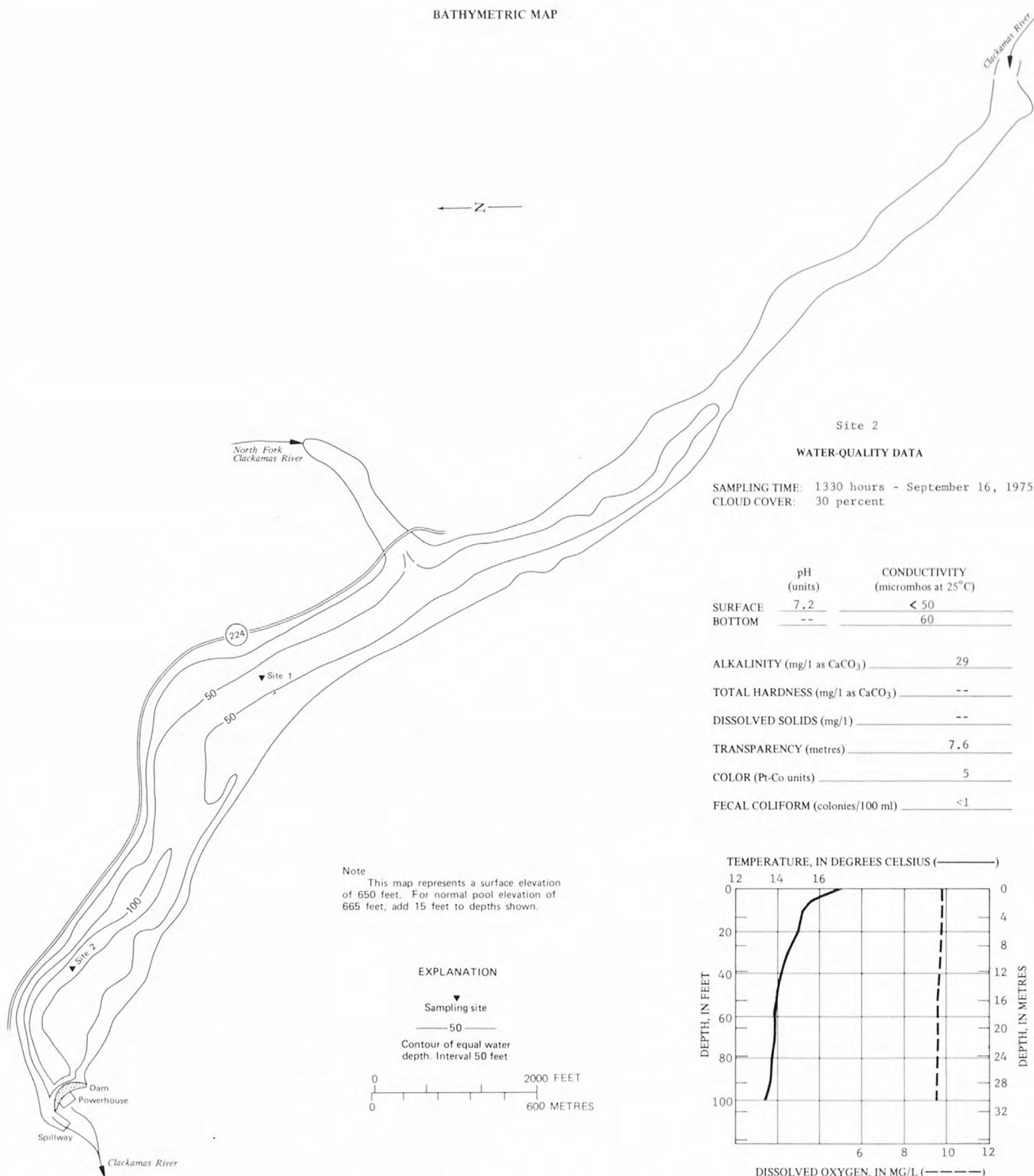
FECAL COLIFORM (colonies/100 ml) < 1



Photograph taken September 5, 1975.



BATHYMETRIC MAP



LOCATION: Sec.18, T.4 S., R.7 E., in Mount Hood National Forest about 7 mi (11 km) northwest of High Rock and 17 mi (27 km) east of Estacada. Surface-water outlet at lat 45°13'42", long 121°59'24". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: 0.10 mi² (0.26 km²).

SURFACE ELEVATION: 3,640 ft (1,110 m) above mean sea level, from topographic map.

SURFACE AREA: 4 acres (16,000 m²).

VOLUME: 27 acre-ft (33,000 m³).

INFLOW: No channels observed and none indicated on topographic map. Several springs feed the lake from the steep slopes surrounding the lake.

OUTFLOW: No measurable flow through channel on northeast end of lake.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly sand covered by detritus. Access by Forest Service Trail 788 from Forest Service Road S469.

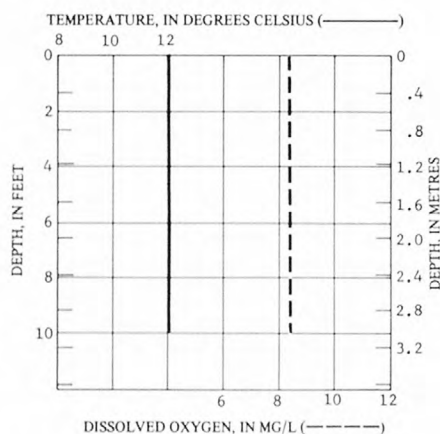
References: 2, 4, 7.

WATER-QUALITY DATA

SAMPLING TIME: 1030 hours
CLOUD COVER: None

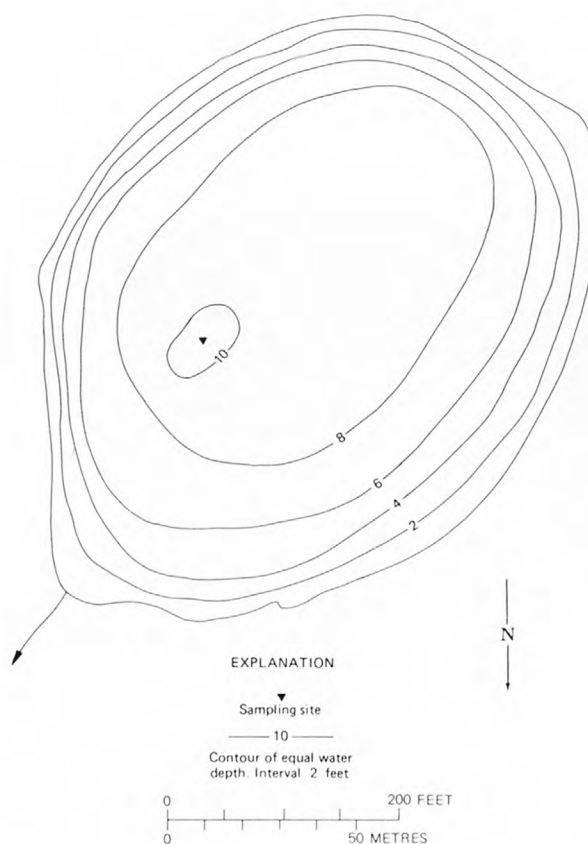
	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.2	16
BOTTOM	6.9	16

ALKALINITY (mg/l as CaCO ₃)	8
TOTAL HARDNESS (mg/l as CaCO ₃)	4
DISSOLVED SOLIDS (mg/l)	13
TRANSPARENCY (metres)	(bottom) 3.0
COLOR (Pt-Co units)	5
FECAL COLIFORM (colonies/100 ml)	<1



Photograph taken August 26, 1975.

BATHYMETRIC MAP



LOCATION: Secs.10 and 11, T.5 S., R.7 E., in Mount Hood National Forest about 2 mi (3 km) southwest of High Rock and 6 mi (9.5 km) west of Timothy Lake outlet. Southernmost tip of lake at lat 45°08'48", long 121°55'26". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River, noncontributing.)

DRAINAGE AREA: 0.10 mi² (0.26 km²).

SURFACE ELEVATION: 3,980 ft (1,210 m) above mean sea level, from topographic map.

SURFACE AREA: 5 acres (20,000 m²).

VOLUME: 14 acre-ft (17,000 m³).

INFLOW: No channels observed and none indicated on topographic map.

OUTFLOW: No channels observed and none indicated on topographic map.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife. There are several campsites at the lake.

REMARKS: There is considerable emergent grass on the perimeter of the lake, and about 40 percent of the lake bottom is covered with vegetation. Bottom material is mostly mud covered by detritus.

Access by forest road from Shellrock Road (Forest Service Road S58).

References: 2, 4, 7.

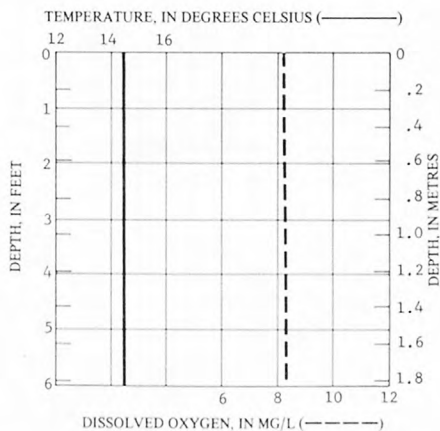


Photograph taken August 26, 1975.

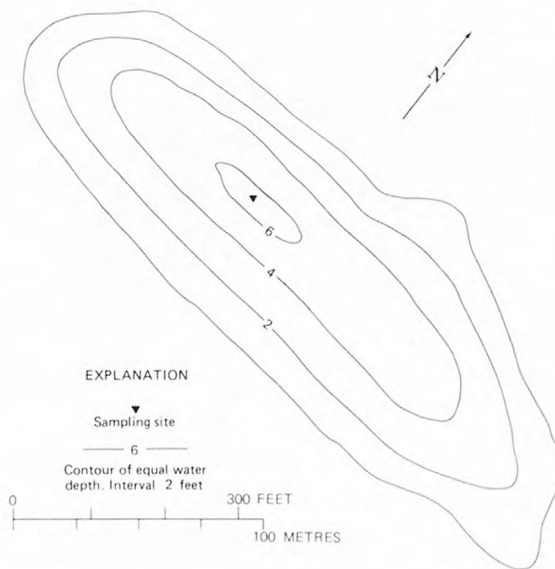
WATER-QUALITY DATA

SAMPLING TIME: 1100 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	--	14
BOTTOM	--	--
ALKALINITY (mg/l as CaCO ₃)		6
TOTAL HARDNESS (mg/l as CaCO ₃)		5
DISSOLVED SOLIDS (mg/l)		14
TRANSPARENCY (metres)	(bottom)	1.8
COLOR (Pt-Co units)		5
FECAL COLIFORM (colonies/100 ml)		<1



BATHYMETRIC MAP



LOCATION: Sec.11, T.2 S., R.1 E., just east of the Willamette River, southwest of Oak Grove, and 8 mi (13 km) south of Portland city center. Surface-water outlet at lat 45°24'56", long 122°39'10". Lake Oswego 7½-minute quadrangle map, photorevised 1970.

DRAINAGE BASIN: Willamette River.

DRAINAGE AREA: 1.23 mi² (3.19 km²). (From a drainage study of the Oak Lodge area by Stevens, Thompson & Runyan, Inc.)

SURFACE ELEVATION: 25 ft (8 m) above mean sea level, from topographic map.

SURFACE AREA: 11 acres (44,000 m²).

VOLUME: 50 acre-ft (62,000 m³).

INFLOW: No measurable flow from channel on northeast side of lake.

OUTFLOW: No measurable flow through channel on northwest side of lake.

USE: Private recreation for lakeside residents only.

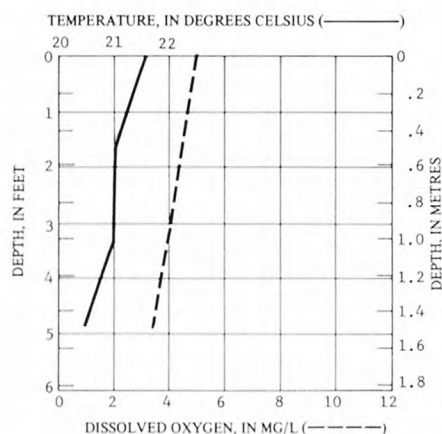
REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly mud and detritus.

WATER-QUALITY DATA

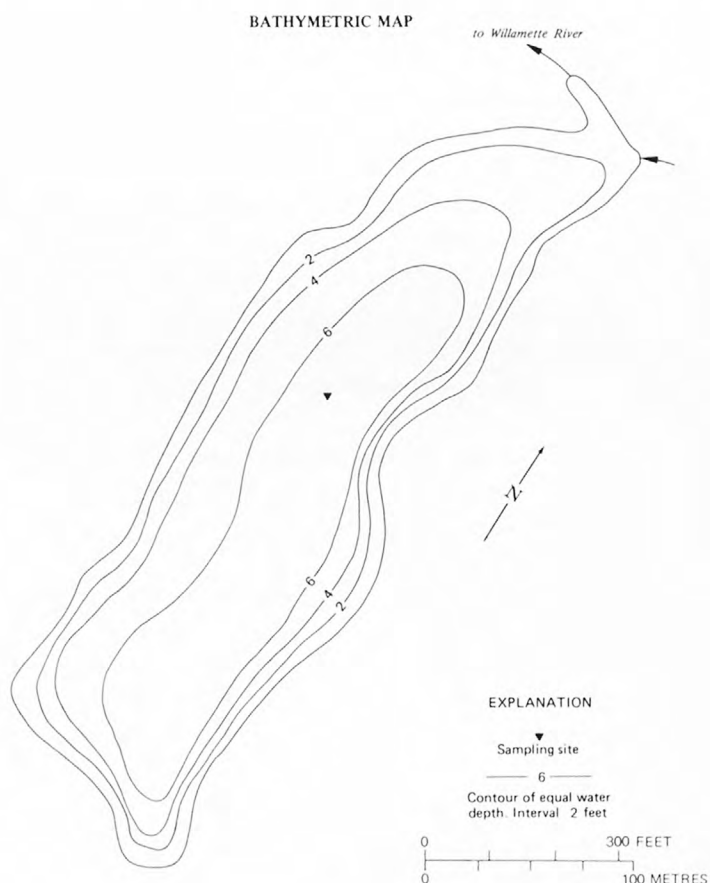
SAMPLING TIME: 1330 hours
CLOUD COVER: 100 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.1	209
BOTTOM	--	207

ALKALINITY (mg/l as CaCO ₃)	90
TOTAL HARDNESS (mg/l as CaCO ₃)	79
DISSOLVED SOLIDS (mg/l)	119
TRANSPARENCY (metres)	.3
COLOR (Pt-Co units)	75
FECAL COLIFORM (colonies/100 ml)	250



Photograph taken September 12, 1975.



LOCATION: NW $\frac{1}{4}$ sec. 8, T. 5 S., R. 7 E., about 4.5 mi (7 km) west of High Rock and 19.5 mi (31 km) southeast of Estacada. Surface-water outlet at lat 45°09'13", long 121°58'47". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.17 mi² (0.44 km²).

SURFACE ELEVATION: 4,120 ft (1,260 m) above mean sea level, from topographic map.

SURFACE AREA: 8 acres (32,000 m²).

VOLUME: 50 acre-ft (62,000 m³).

INFLOW: No channels observed and none indicated on topographic map. Several springs contribute to the lake.

OUTFLOW: No measurable flow through channel on west side of lake.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife.

REMARKS: Floating pond lilies were observed in shallow-water areas near shore; there was also some bottom vegetation. Bottom material is mostly sand covered by detritus.

This is the northernmost lake of the three Rock Lakes shown on the topographic map. (See also Middle Rock Lake, p. 58).

Information on bathymetry furnished by the Oregon Department of Fish and Wildlife.

Access is by Forest Service Trail 512 from Indian Ridge Road (S456) and Frazier Turnaround.

References: 2, 4, 7.



Photograph taken August 26, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1300 hours

CLOUD COVER: 100 percent (dense fog)

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.2	15
BOTTOM	--	15

ALKALINITY (mg/l as CaCO₃) 8

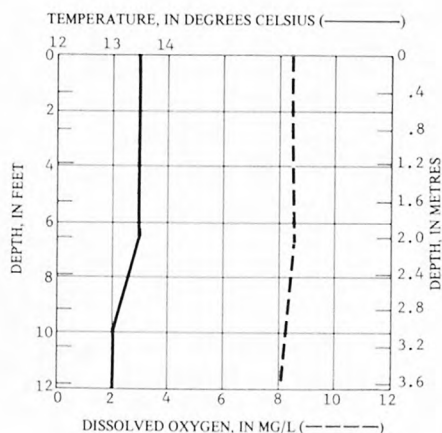
TOTAL HARDNESS (mg/l as CaCO₃) 4

DISSOLVED SOLIDS (mg/l) 22

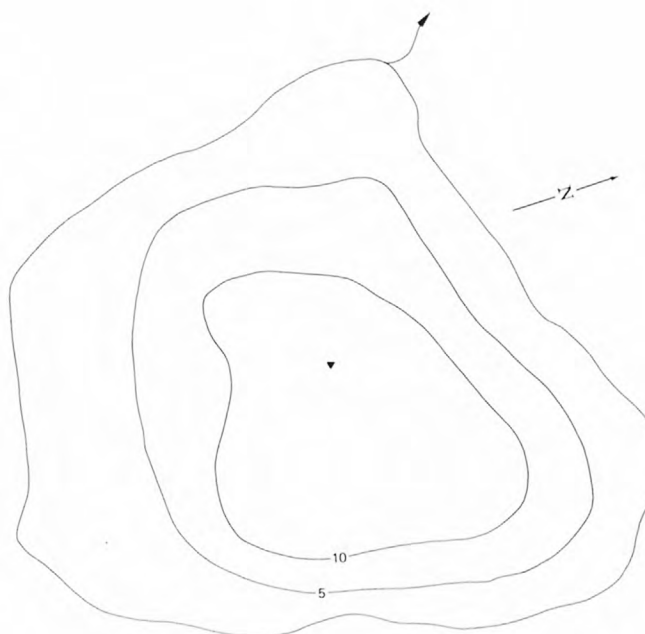
TRANSPARENCY (metres) (bottom) 4.0

COLOR (Pt-Co units) 5

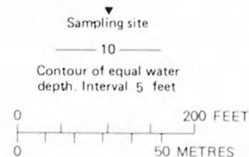
FECAL COLIFORM (colonies/100 ml) <1



BATHYMETRIC MAP



EXPLANATION



LOCATION: SW $\frac{1}{4}$ sec. 8 T. 5 S., R. 7 E., in Mount Hood National Forest about 4.5 mi (7 km) west of High Rock and 19 mi (31 km) southeast of Estacada. Surface-water outlet at lat 45°08'48", long 121°58'47". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.26 mi² (0.67 km²).

SURFACE ELEVATION: 4,360 ft (1,330 m) above mean sea level, from topographic map.

SURFACE AREA: 12 acres (49,000 m²).

VOLUME: 160 acre-ft (200,000 m³).

INFLOW: No channel observed and none indicated on topographic map. Several springs contribute to the lake.

OUTFLOW: Estimated 0.75 ft³/s (0.02 m³/s) in the South Fork of the Roaring River at north end of lake.

USE: Public recreation. The lake is stocked annually with fingerling rainbow trout by the Oregon Department of Fish and Wildlife.

REMARKS: No floating aquatic growth observed, although some bottom vegetation was evident. Bottom material is mostly sand and rock.

This is the largest of the three Rock Lakes shown on the topographic map. (See also Lower Rock Lake, p. 57.) Upper Rock Lake, which is only about 3 acres (12,000 m²) in size, is about 400 ft (122 m) south of Middle Rock Lake.

Access is by Forest Service Trail 512 from Frazier Turnaround and Indian Ridge Road (S456).

References: 2, 4, 7.



Photograph taken August 26, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1030 hours

CLOUD COVER: 100 percent (dense fog)

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.0	15
BOTTOM	--	21

ALKALINITY (mg/l as CaCO₃) 10

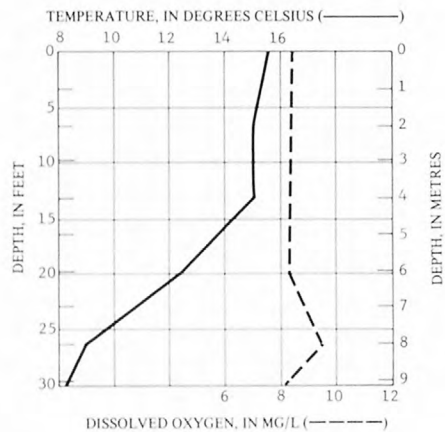
TOTAL HARDNESS (mg/l as CaCO₃) 6

DISSOLVED SOLIDS (mg/l) 18

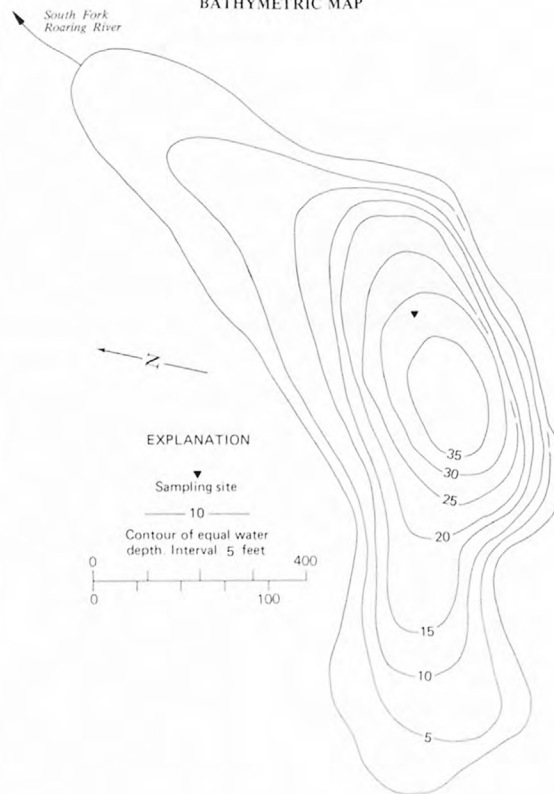
TRANSPARENCY (metres) 8.5

COLOR (Pt-Co units) <5

FECAL COLIFORM (colonies/100 ml) <1



BATHYMETRIC MAP



LOCATION: SE $\frac{1}{4}$ sec.17, NE $\frac{1}{4}$ sec.20, T.5 S., R.1 E., about 1.5 mi (2.4 km) west of Yoder and 6 mi (9.5 km) northwest of Scotts Mills. Surface-water outlet at lat 45°07'55", long 122°42'19". Yoder and Scotts Mills 7 $\frac{1}{2}$ -minute quadrangle maps, photorevised 1970 (not shown on map).

DRAINAGE BASIN: Pudding River (Clackamas River).

DRAINAGE AREA: 1.20 mi² (3.11 km²).

SURFACE ELEVATION: 166 ft (51 m) above mean sea level at normal pool.

SURFACE AREA: 29 acres (120,000 m²) at normal pool.

VOLUME: 350 acre-ft (430,000 m³) at normal pool.

INFLOW: No measurable flow from channel on south end of reservoir.

OUTFLOW: No measurable flow through channel to Rock Creek on north end of reservoir.

USE: No public recreation.

REMARKS: There are many dead trees throughout the reservoir, and there is extensive shoreline vegetation. Algae was observed and was quite dense along the shoreline. Bottom material is mostly silt.

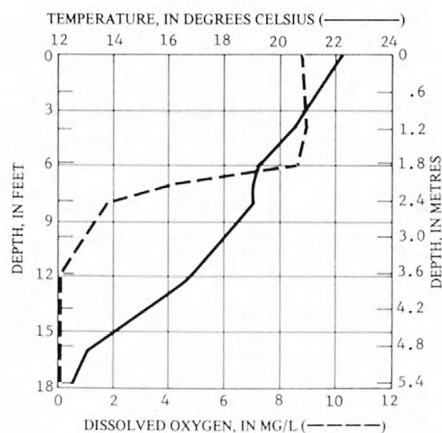
Information on surface area, elevation, volume, and bathymetry furnished by the Oregon Water Resources Department.

Water-rights permit issued for storage of 350 acre-ft (430,000 m³) and use of 339.3 acre-ft (418,000 m³) for irrigation.

WATER-QUALITY DATA

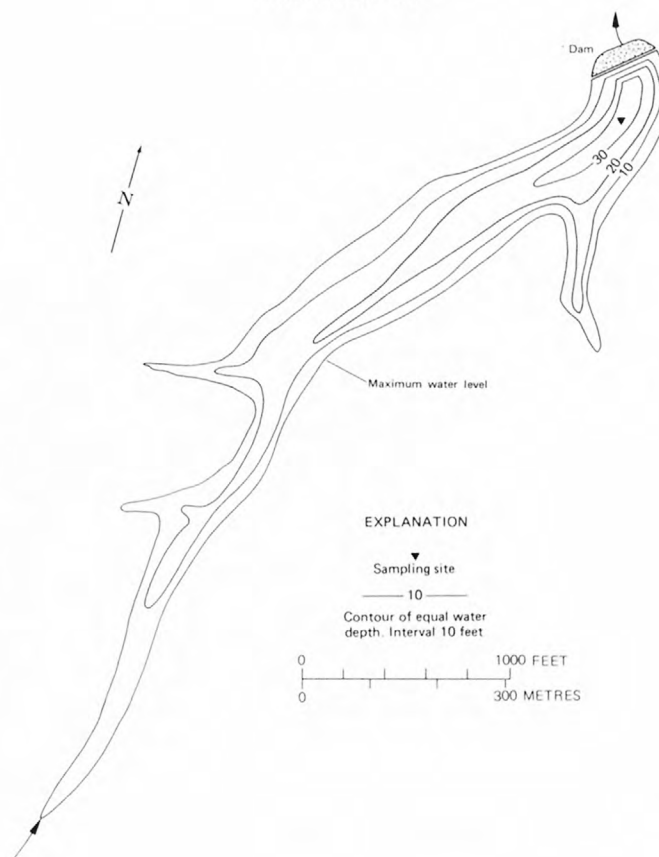
SAMPLING TIME: 1330 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.5	220
BOTTOM	--	350
ALKALINITY (mg/l as CaCO ₃)	89	
TOTAL HARDNESS (mg/l as CaCO ₃)	84	
DISSOLVED SOLIDS (mg/l)	172	
TRANSPARENCY (metres)	2.2	
COLOR (Pt-Co units)	20	
FECAL COLIFORM (colonies/100 ml)	60	



Photograph taken September 12, 1975.

BATHYMETRIC MAP



LOCATION: Sec.6, T.2 S., R.5 E., about 2 mi (3.2 km) north of Sandy and 10 mi (16 km) southeast of Gresham. Surface-water outlet at lat 45°25'43", long 122°14'26". Cherryville 15-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: Indeterminate.

SURFACE ELEVATION: 650 ft (198 m) above mean sea level, from topographic map.

SURFACE AREA: 135 acres (546,000 m²).

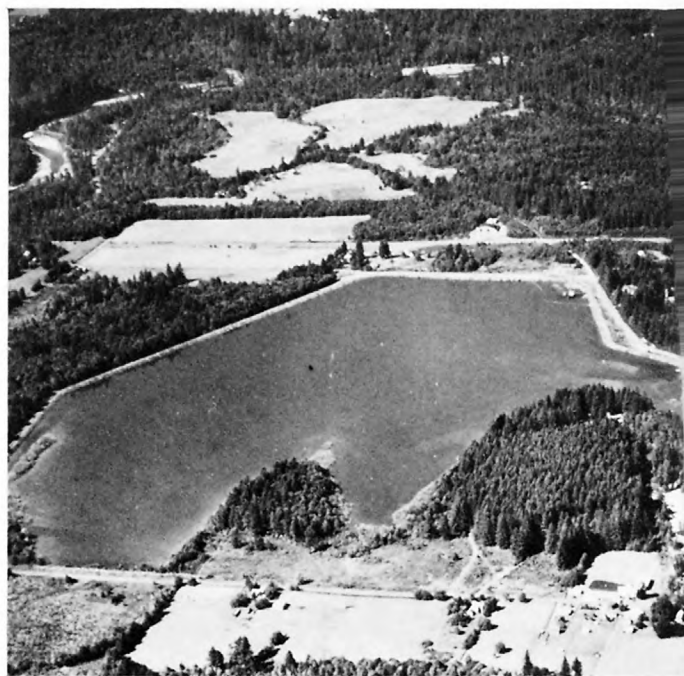
VOLUME: 970 acre-ft (1.2 km³) usable storage, from Willamette Basin Task Force report.

INFLOW: Primary inflow is diverted from the Sandy River about 5 mi (8 km) east and carried to the reservoir by tunnel and flume. Excess water from Portland's Bull Run water supply is periodically diverted into the reservoir.

OUTFLOW: Through control structure and dike on north end of reservoir to the Sandy River.

USE: Public recreation. The lake is stocked annually with fingerling rainbow trout by the Oregon Department of Fish and Wildlife. During summer, legal-size rainbow trout are planted monthly. Motor boats are prohibited. Portland General Electric Co. operates a park on the east side of the lake.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly sand.
This artificial lake was built by Portland General Electric Co. as a storage reservoir for power generation
Reference: 4.



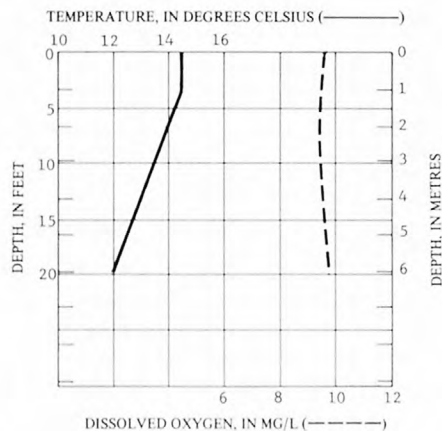
Photograph taken September 5, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1330 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.2	50
BOTTOM	--	49

ALKALINITY (mg/l as CaCO ₃)	21
TOTAL HARDNESS (mg/l as CaCO ₃)	13
DISSOLVED SOLIDS (mg/l)	46
TRANSPARENCY (metres)	1.2
COLOR (Pt-Co units)	5
FECAL COLIFORM (colonies/100 ml)	1



BATHYMETRIC MAP



LOCATION: Sec. 7, T. 5 S., R. 7 E., in Mount Hood National Forest about 5.5 mi (9 km) west of High Rock and 3.5 mi (5.6 km) northeast of Three Lynx. Surface-water outlet at lat 45°08'58", long 122°00'16". Fish Creek Mtn. 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.30 mi² (0.78 km²).

SURFACE ELEVATION: 4,280 ft (1,300 m) above mean sea level, from topographic map.

SURFACE AREA: 25 acres (100,000 m²).

VOLUME: 490 acre-ft (600,000 m³).

INFLOW: No channels observed and none indicated on topographic map. Several springs contribute to the lake.

OUTFLOW: No flow observed through channel on north side of lake.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife. There is a forest camp at the lake.

REMARKS: No floating aquatic growth evident, although some bottom vegetation was observed. Bottom material is mostly sand and rock.

Access to lake via Forest Service Trail 512 from Frazier Turnaround, or by Roaring River and Dry Ridge trails from the west.

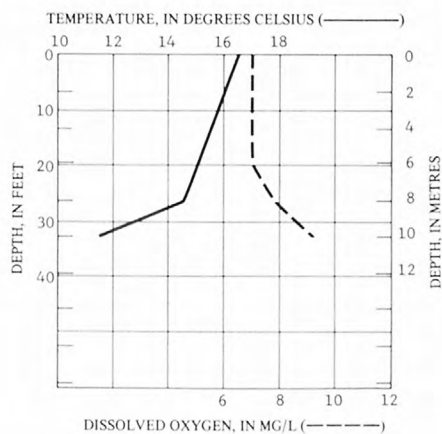
References: 2, 4, 7.

WATER-QUALITY DATA

SAMPLING TIME: 1300 hours
CLOUD COVER: 5 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.4	18
BOTTOM	--	19

ALKALINITY (mg/l as CaCO ₃)	10
TOTAL HARDNESS (mg/l as CaCO ₃)	6
DISSOLVED SOLIDS (mg/l)	22
TRANSPARENCY (metres)	10.5
COLOR (Pt-Co units)	0
FECAL COLIFORM (colonies/100 ml)	<1



Photograph taken August 26, 1975.

BATHYMETRIC MAP



LOCATION: Sec.23, T.3 S., R.1 E., about 4 mi (6.5 km) south of West Linn and 3 mi (5 km) northeast of Canby. Surface-water outlet at lat 45°18'00", long 122°39'19". Canby 7½-minute quadrangle map.

DRAINAGE BASIN: Willamette River.

DRAINAGE AREA: 31.7 mi² (82 km²).

SURFACE ELEVATION: 75 ft (23 m) above mean sea level, from topographic map.

SURFACE AREA: 10 acres (40,000 m²).

VOLUME: Not determined.

INFLOW: No measurable flow from Beaver Creek or Parrot Creek.

OUTFLOW: Estimated 3 ft³/s (0.08 m³/s) through control. No flow through spillway.

USE: No public recreation.

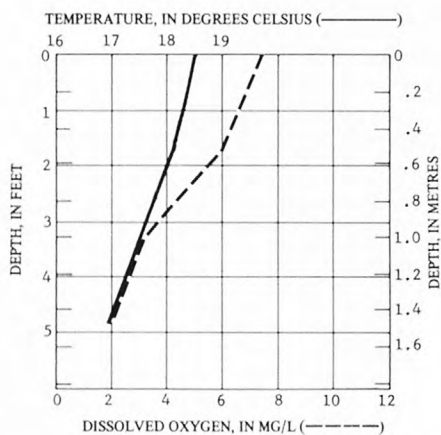
REMARKS: Considerable floating and submerged aquatic growth was observed. Large algal mats indicated recent bloom. Bottom material is mostly soft mud and detritus. Heavy accumulation of silt has reduced the depth of the pond considerably, so it is now quite shallow.

WATER-QUALITY DATA

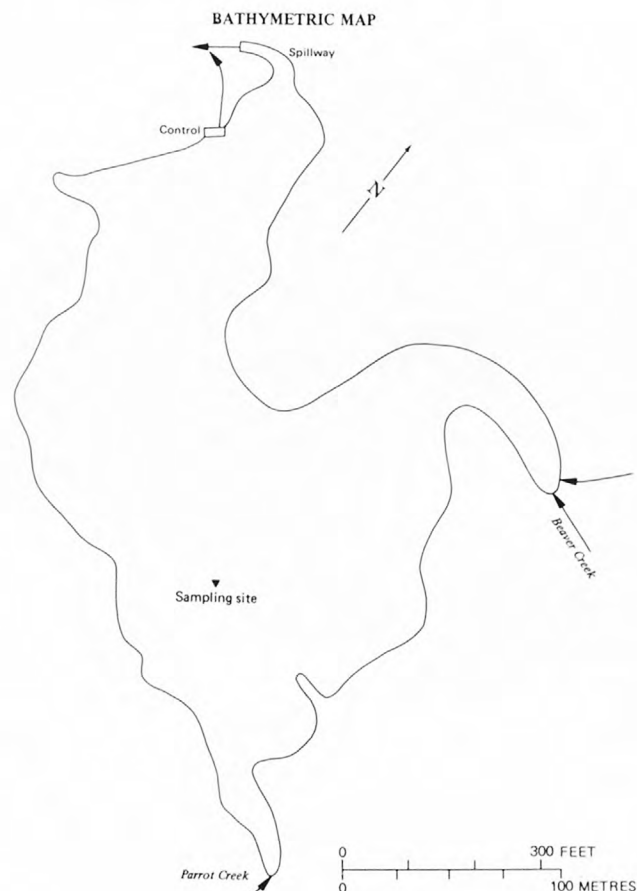
SAMPLING TIME: 1130 hours
CLOUD COVER: 100 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.2	165
BOTTOM	--	171

ALKALINITY (mg/l as CaCO ₃)	67
TOTAL HARDNESS (mg/l as CaCO ₃)	70
DISSOLVED SOLIDS (mg/l)	108
TRANSPARENCY (metres)	.8
COLOR (Pt-Co units)	40
FECAL COLIFORM (colonies/100 ml)	24
(Chemical analysis in table 2, p. 4)	



Photograph taken September 12, 1975.



LOCATION: Sec.17, T.5 S., R.7 E., in the Mount Hood National Forest about 4 mi (6.5 km) southwest of High Rock and 20 mi (32 km) southeast of Estacada. Surface-water outlet at lat 45°08'02", long 121°58'16". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.33 mi² (0.85 km²).

SURFACE ELEVATION: 4,200 ft (1,280 m) above mean sea level, from topographic map.

SURFACE AREA: 18 acres (73,000 m²).

VOLUME: 120 acre-ft (148,000 m³).

INFLOW: No channels observed and none indicated on topographic map. Several springs contribute to the lake.

OUTFLOW: No measurable flow through channel on south side of lake.

USE: Public recreation. The lake is stocked annually with fingerling rainbow and Eastern brook trout by the Oregon Department of Fish and Wildlife.

REMARKS: Small amounts of both floating and submerged aquatic growth observed. Bottom material is mostly sand, with detritus near shore.

The lake is accessible by a 0.5-mi (0.8 km) Forest Service trail from Forest Service Road S596, not shown on the quadrangle map.

References: 2, 4, 7.

WATER-QUALITY DATA

SAMPLING TIME: 1130 hours

CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.4	14
BOTTOM	--	13

ALKALINITY (mg/l as CaCO₃) 7

TOTAL HARDNESS (mg/l as CaCO₃) 7

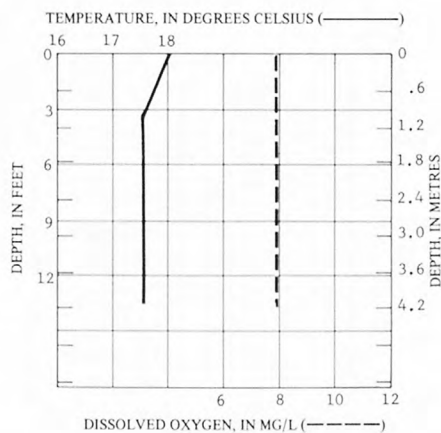
DISSOLVED SOLIDS (mg/l) 13

TRANSPARENCY (metres) (bottom) 4.0

COLOR (Pt-Co units) 5

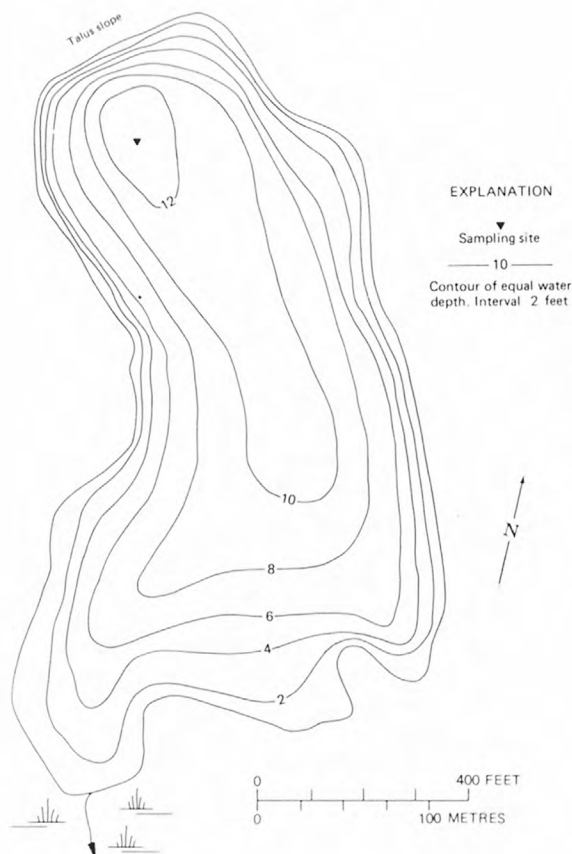
FECAL COLIFORM (colonies/100 ml) <1

(Chemical analysis in table 2, p. 4)



Photograph taken August 26, 1975.

BATHYMETRIC MAP



LOCATION: Sec. 36, T. 4 S., R. 6 E., in the Mount Hood National Forest about 6 mi (9.5 km) west of High Rock and 17 mi (27 km) southeast of Estacada. Surface-water outlet at lat 45°11'14", long 122°00'45". Fish Creek Mtn. 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.30 mi² (0.78 km²).

SURFACE ELEVATION: 3,960 ft (1,210 m) above mean sea level, from topographic map.

SURFACE AREA: 16 acres (65,000 m²).

VOLUME: 220 acre-ft (270,000 m³).

INFLOW: No channels observed and none indicated on topographic map. Several springs contribute to the lake.

OUTFLOW: No measurable flow through channel on north side of lake.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly sand and rock. Trees and ground cover are very sparse on the steep slopes surrounding the lake.

The high ratio of dissolved solids to conductivity is probably due to a large concentration of nonionized silica in solution.

Dissolved-oxygen and temperature profiles taken on September 24, 1975, at 1300 hours are also shown below. Access to lake by short Forest Service Trail (510) from Indian Ridge Road (S456).

References: 2, 4, 7.



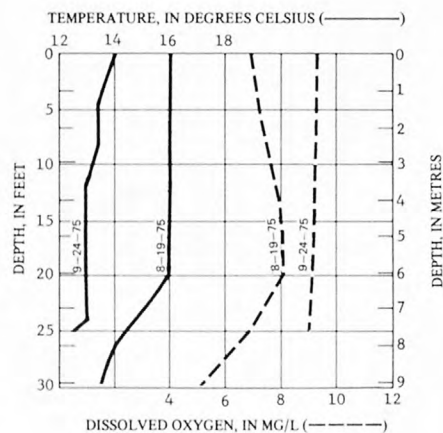
Photograph taken September 5, 1975.

WATER-QUALITY DATA

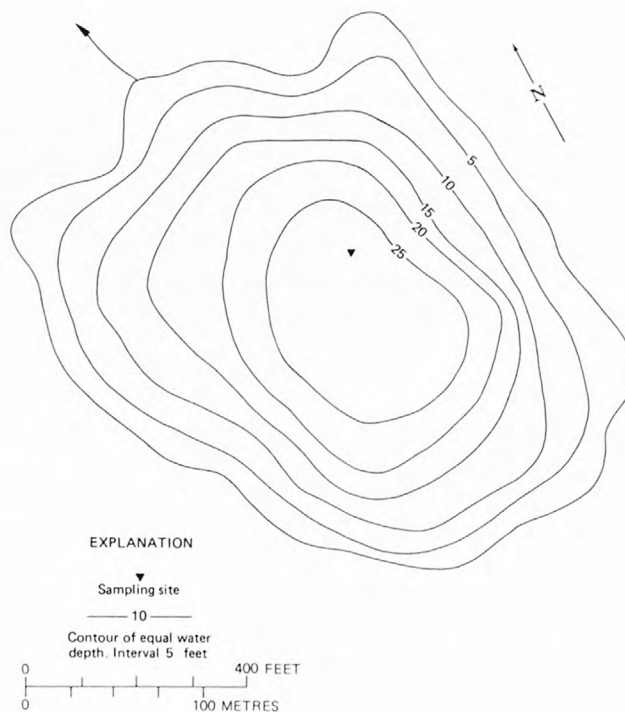
SAMPLING TIME: 1600 hours
CLOUD COVER: 100 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.1	15
BOTTOM	--	18

ALKALINITY (mg/l as CaCO ₃)	7
TOTAL HARDNESS (mg/l as CaCO ₃)	4
DISSOLVED SOLIDS (mg/l)	24
TRANSPARENCY (metres) (bottom)	9.0
COLOR (Pt-Co units)	0
FECAL COLIFORM (colonies/100 ml)	< 1



BATHYMETRIC MAP



LOCATION: Sec.35, T.6 S., R.5 E., in the Mount Hood National Forest about 6 mi (9.5 km) southwest of Fish Creek Mountain and 8.5 mi (14 km) northwest of Bull of the Woods lookout. Southernmost tip of lake at lat 44°59'50", long 122°09'48". Battle Ax 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River, non-contributing).

DRAINAGE AREA: 0.14 mi² (0.36 km²).

SURFACE ELEVATION: 4,200 ft (1,280 m) above mean sea level, from topographic map.

SURFACE AREA: 3 acres (12,000 m²).

VOLUME: 33 acre-ft (41,000 m³).

INFLOW: No channel observed and none indicated on topographic map. Several springs contribute to the lake.

OUTFLOW: No channel observed and none indicated on topographic map.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife. There is a forest camp on the west side of the lake.

REMARKS: No floating aquatic growth evident, although considerable bottom vegetation was observed. Bottom material is mostly soft mud covered by detritus.

Access to lake is via Forest Service Road S505.

References: 2, 4, 7.

WATER-QUALITY DATA

SAMPLING TIME: 1300 hours
CLOUD COVER: 50 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.1	21
BOTTOM	6.8	21

ALKALINITY (mg/l as CaCO₃) 7

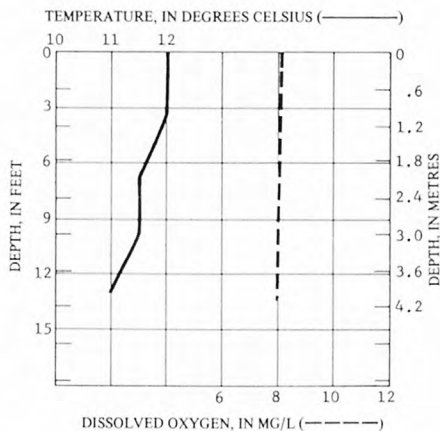
TOTAL HARDNESS (mg/l as CaCO₃) --

DISSOLVED SOLIDS (mg/l) 18

TRANSPARENCY (metres) (bottom) 4.6

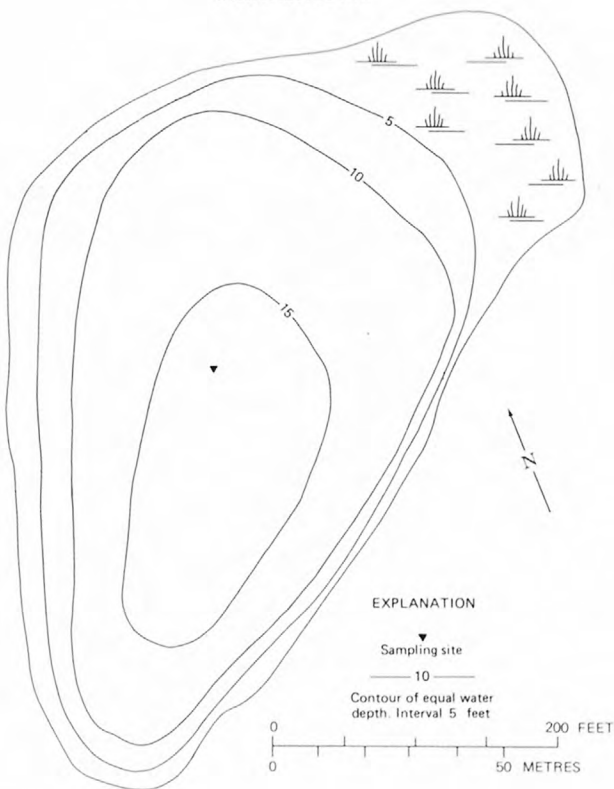
COLOR (Pt-Co units) 5

FECAL COLIFORM (colonies/100 ml) < 1



Photograph taken September 5, 1975.

BATHYMETRIC MAP



LOCATION: Secs. 23 and 24, T.6 S., R.8 E., in Mount Hood National Forest about 2.5 mi (4 km) northeast of Peavine Mountain and 5.5 mi (9 km) south of Timothy Lake outlet. Surface-water outlet at lat 45°01'58", long 121°47'20". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.72 mi² (1.86 km²).

SURFACE ELEVATION: 4,200 ft (1,280 m) above mean sea level, from topographic map.

SURFACE AREA: 10 acres (40,000 m²).

VOLUME: 15 acre-ft (18,000 m³).

INFLOW: No measurable flow from marsh on south end of lake.

OUTFLOW: No flow observed in channel at northwest end of lake.

USE: Public recreation. The lake is not stocked because it cannot support fish life. There is a forest camp on the northwest side of lake.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly soft mud covered by detritus.

Bathymetry is from Stout (1961).

Access is by Peavine Road (S633).

References: 2, 15.

WATER-QUALITY DATA

SAMPLING TIME: 1400 hours

CLOUD COVER: 30 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.5	9
BOTTOM	--	9

ALKALINITY (mg/l as CaCO₃) _____ 15

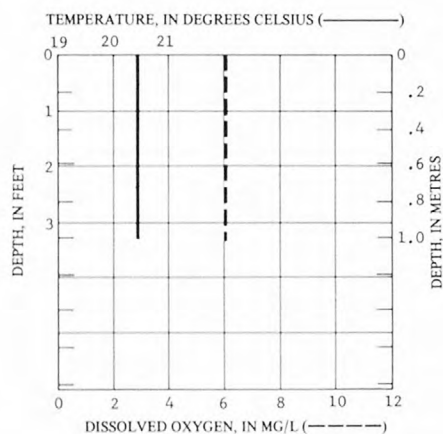
TOTAL HARDNESS (mg/l as CaCO₃) _____ 2

DISSOLVED SOLIDS (mg/l) _____ <10

TRANSPARENCY (metres) _____ (bottom) 1.2

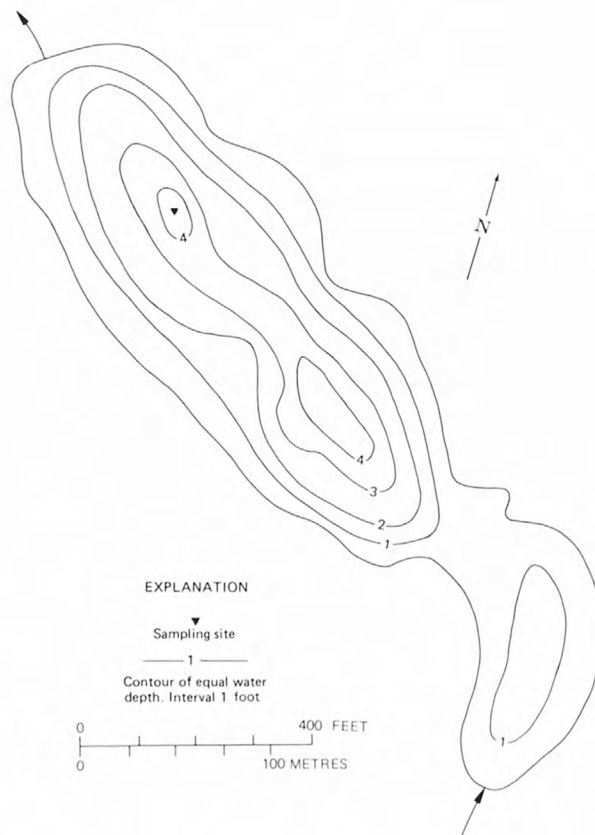
COLOR (Pt-Co units) _____ 5

FECAL COLIFORM (colonies/100 ml) _____ <1



Photograph taken August 26, 1975.

BATHYMETRIC MAP



LOCATION: Sec.27, T.6 S., R.5 E., in Mount Hood National Forest about 5 mi (8 km) southwest of Fish Creek Mountain and 20 mi (32 km) southwest of Estacada. Surface-water outlet at lat 45°01'12", long 122°10'51". Fish Creek Mtn. 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 0.06 mi² (0.15 km²).

SURFACE ELEVATION: 4,042 ft (1,230 m) above mean sea level, from topographic map.

SURFACE AREA: 5 acres (20,000 m²).

VOLUME: 11 acre-ft (14,000 m³).

INFLOW: No channel observed and none indicated on topographic map.

OUTFLOW: No flow observed through channel on northeast side of lake.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife.

REMARKS: No floating aquatic vegetation evident, although some bottom vegetation was observed. Bottom material is mostly sand covered by detritus.

Access to lake via Forest Service Road S647 and S505.

References: 2, 4, 7.

WATER-QUALITY DATA

SAMPLING TIME: 1230 hours
CLOUD COVER: 100 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.3	18
BOTTOM	--	18

ALKALINITY (mg/l as CaCO₃) _____ 10

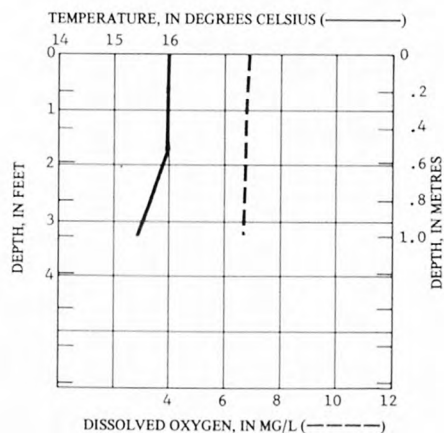
TOTAL HARDNESS (mg/l as CaCO₃) _____ 6

DISSOLVED SOLIDS (mg/l) _____ 17

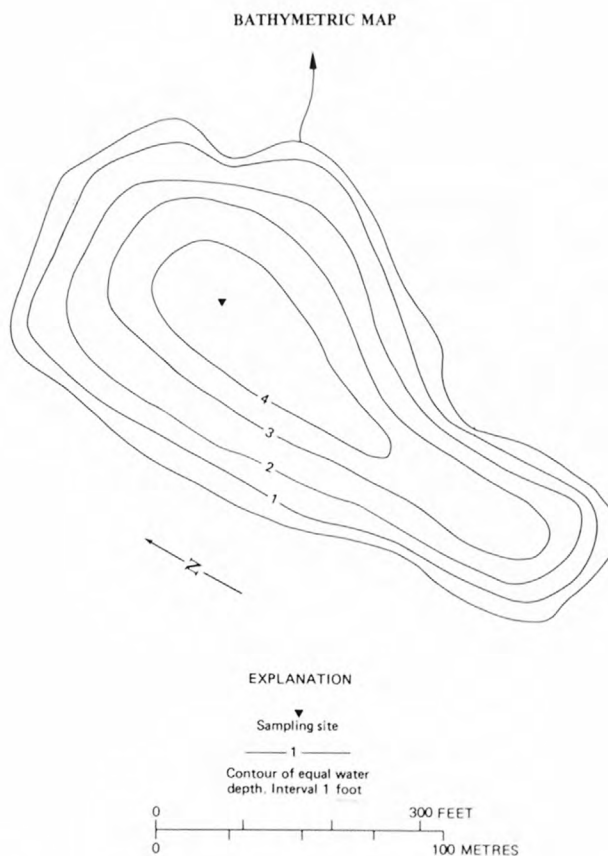
TRANSPARENCY (metres) (bottom) _____ 1.2

COLOR (Pt-Co units) _____ 15

FECAL COLIFORM (colonies/100 ml) _____ < 1



Photograph taken September 5, 1975.



LOCATION: Secs. 28 and 29, T.5 S., R.2 E., about 3 mi (5 km) south of Molalla and 4 mi (6.5 km) north of Wilhoit. Surface-water outlet at lat 45°06'23", long 122°34'49". Wilhoit 7½-minute quadrangle map, photorevised 1970 (not shown on map).

DRAINAGE BASIN: Molalla River (Willamette River).

DRAINAGE AREA: 4.13 mi² (10.7 km²).

SURFACE ELEVATION: 390 ft (120 m) above mean sea level, from topographic map.

SURFACE AREA: 12 acres (48,000 m²).

VOLUME: 55 acre-ft (68,000 m³).

INFLOW: Estimated 3 ft³/s (0.08 m³/s) from Teasel Creek on east side of reservoir.

OUTFLOW: No flow observed through dam or spillway.

USE: No public recreation.

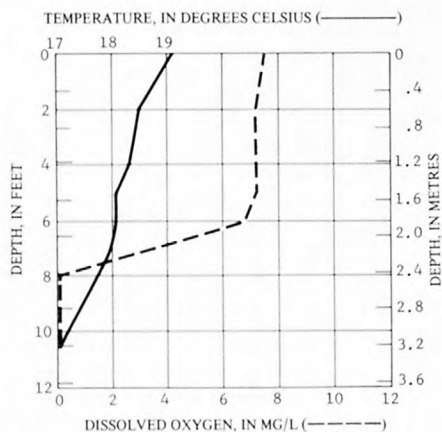
REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly soft mud. Information on surface area, volume, and bathymetry furnished by the Oregon Water Resources Department. Water-rights permit issued for storage of 55.14 acre-ft (67,988 m³) for irrigation and fish culture.

WATER-QUALITY DATA

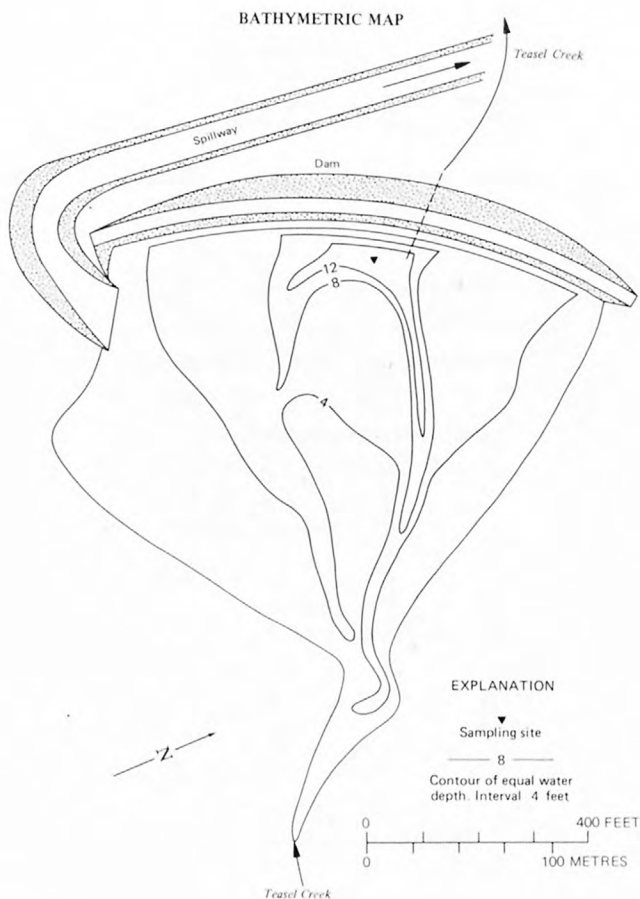
SAMPLING TIME: 1000 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.6	60
BOTTOM	--	65

ALKALINITY (mg/l as CaCO ₃)	29
TOTAL HARDNESS (mg/l as CaCO ₃)	21
DISSOLVED SOLIDS (mg/l)	51
TRANSPARENCY (metres)	.4
COLOR (Pt-Co units)	30
FECAL COLIFORM (colonies/100 ml)	7



Photograph taken September 12, 1975.



LOCATION: Sec. 34, T.5 S., R.6 E., in the Mount Hood National Forest about 2.5 mi (4 km) south of Three Lynx and 19 mi (30 km) southeast of Estacada. Surface-water outlet at lat 45°05'33", long 122°03'47". Fish Creek Mtn. 15-minute quadrangle map (not named on map).

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: Indeterminate.

SURFACE ELEVATION: 1,480 ft (451 m) above mean sea level, from topographic map.

SURFACE AREA: 14 acres (57,000 m²).

VOLUME: 100 acre-ft (120,000 m³).

INFLOW: No measurable flow from Bull Creek on north side of lake.

OUTFLOW: Estimated 5 ft³/s (0.14 m³/s) through spillway on west end of lake.

USE: Public recreation. The lake is stocked monthly during summer with legal-size rainbow trout by the Oregon Department of Fish and Wildlife.

REMARKS: No floating aquatic growth observed, although the entire lake bottom appeared to be covered with vegetation. Large algal mats were observed throughout the lake, indicating a recent bloom. The east end of lake is mostly a marsh.

This artificial lake was originally constructed for log storage. Presently the lake is maintained by the U.S. Forest Service as part of the Job Corps complex.

Information on surface area, volume, and bathymetry furnished by the Oregon Water Resources Department.



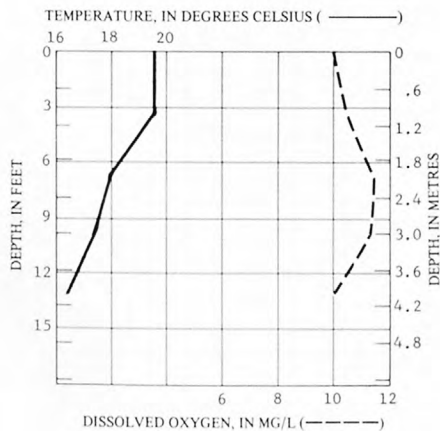
Photograph taken August 26, 1975.

WATER-QUALITY DATA

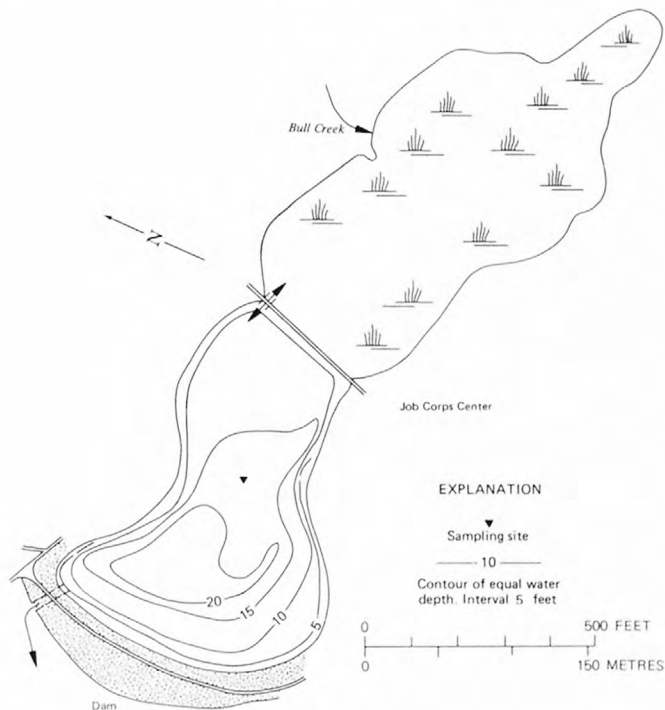
SAMPLING TIME: 1230 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	8.6	54
BOTTOM	--	52

ALKALINITY (mg/l as CaCO ₃)	30
TOTAL HARDNESS (mg/l as CaCO ₃)	19
DISSOLVED SOLIDS (mg/l)	43
TRANSPARENCY (metres)	3.4
COLOR (Pt-Co units)	5
FECAL COLIFORM (colonies/100 ml)	< 1



BATHYMETRIC MAP



LOCATION: Secs. 12, 13, 22, 23, 24, 25, 26, and 27, T.5 S., R.8 E., and secs. 11, 14, 23, and 26, T.5 S., R.8 E., in Mount Hood National Forest about 5 mi (8 km) southeast of High Rock and 12 mi (19 km) south of Government Camp. Surface-water outlet at lat 45°06'54", long 121°48'19". High Rock 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River).

DRAINAGE AREA: 53.8 mi (139 km²).

SURFACE ELEVATION: 3,227 ft (984 m) above mean sea level at normal pool. Lake stage was 2 ft (0.6 m) above normal pool on the survey date.

SURFACE AREA: 1,400 acres (570 hm²) at normal pool.

VOLUME: 66,000 acre-ft (81 hm³) at normal pool.

INFLOW: Principal inflow streams are named on the bathymetric map.

OUTFLOW: Oak Grove Fork Clackamas River.

USE: Public recreation. The lake is stocked annually with fingerling rainbow and cutthroat trout by the Oregon Department of Fish and Wildlife. There is natural reproduction of brook trout and kokanee. The five campgrounds around the lake are maintained by the U.S. Forest Service.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly sand and rock. The bottom is covered with sunken logs and branches that were left during clearing operations.

Phytoplankton analysis made by the Oregon Department of Environmental Quality on October 6, 1971, showed *Dinobryon divergens* and *Fragillaria crotonensis* to be the codominant algae present (McHugh, 1972).

This artificial lake was constructed in 1956 by Portland General Electric Co. to provide a reserve of water for downstream power production. The area was known as Timothy Meadows prior to construction of dam.

A dissolved oxygen-temperature profile from September 15, 1975, for site 1 is included under Water-Quality Data.

Information on surface area, volume, elevation, and bathymetry furnished by the Oregon Water Resources Department.

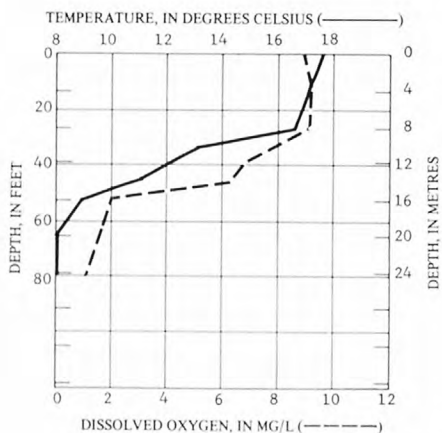
Access by Forest Service roads along Oak Grove Fork Clackamas River and from U.S. Highway 26.

References: 4, 9.

WATER-QUALITY DATA Site 1 - September 15, 1975

SAMPLING TIME: 1530 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.7	49
BOTTOM	--	48

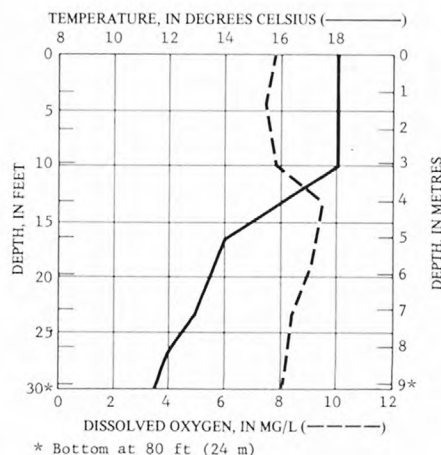


WATER-QUALITY DATA Site 1 - July 16, 1975

SAMPLING TIME: 1000 hours
CLOUD COVER: 100 percent

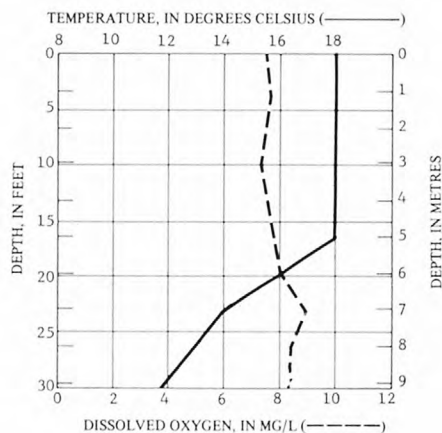
	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.0	44
30 ft (9 m)	--	47

ALKALINITY (mg/l as CaCO ₃)	33
TOTAL HARDNESS (mg/l as CaCO ₃)	17
DISSOLVED SOLIDS (mg/l)	42
TRANSPARENCY (metres)	3.8
COLOR (Pt-Co units)	0
FECAL COLIFORM (colonies/100 ml)	3

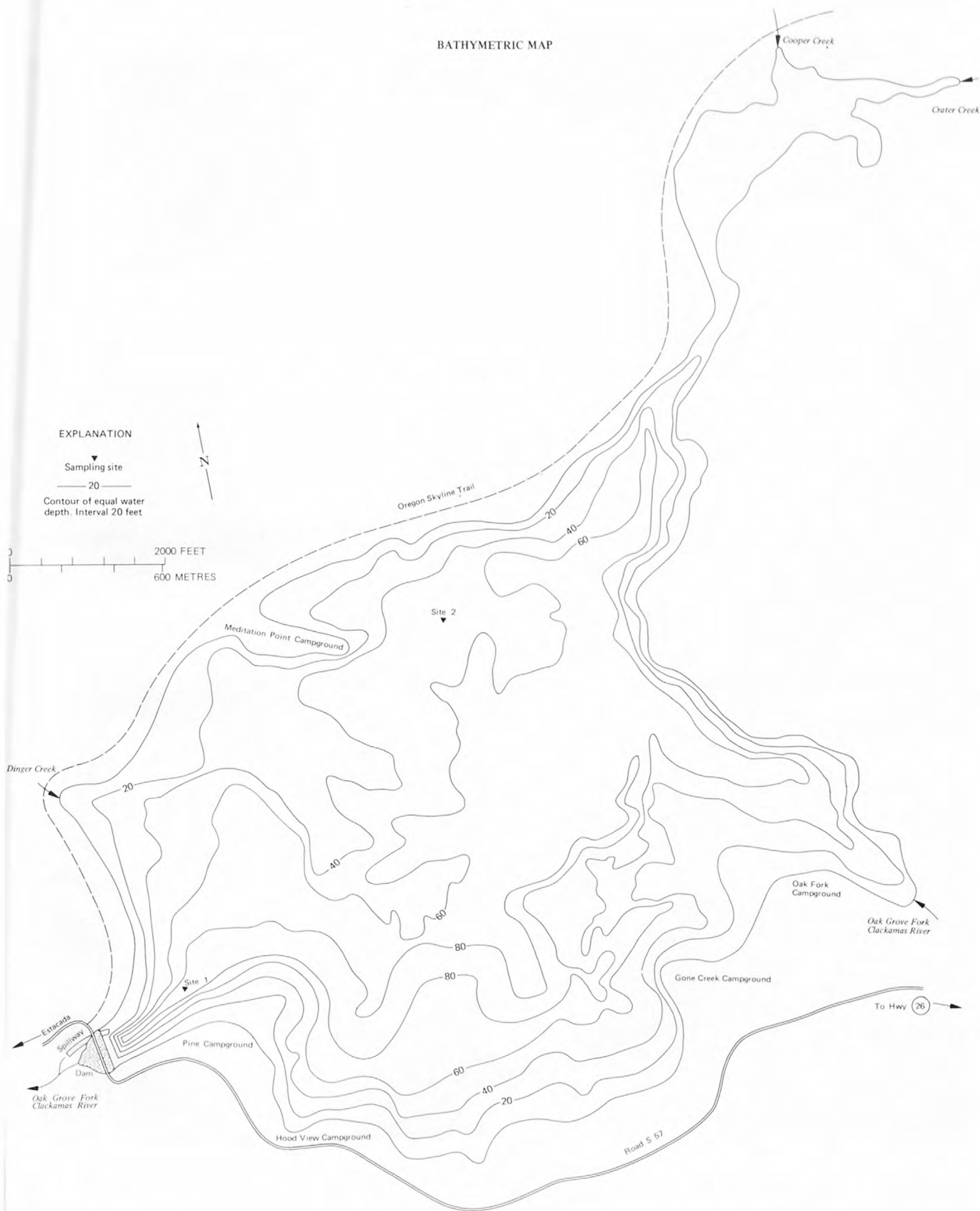


WATER-QUALITY DATA Site 2 - July 16, 1975

SAMPLING TIME: 1030 hours
CLOUD COVER: 100 percent



BATHYMETRIC MAP





Photograph taken September 5, 1975.

LOCATION: Sec. 36, T. 3 S., R. 8 E., in Mount Hood National Forest about 2 mi (3.2 km) south of Government Camp and 1.5 mi (2.5 km) southwest of junction of U.S. Highway 26 and State Highway 35. Surface-water outlet at lat 45°16'04", long 121°44'26". Mount Hood South 7½-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River).

DRAINAGE AREA: 0.73 mi² (1.89 km²).

SURFACE ELEVATION: 3,601 ft (1,098 m) above mean sea level, from topographic map.

SURFACE AREA: 60 acres (240,000 m²) at normal pool.

VOLUME: 350 acre-ft (430,000 m³) at normal pool.

INFLOW: No channel observed and none indicated on topographic map.

OUTFLOW: Estimated less than 0.5 ft³/s (0.01 m³/s) through overflow tube on south end of lake to Mud Creek. No flow through spillway.

USE: Public recreation. The lake is stocked annually with fingerling rainbow trout and monthly with legal-size rainbow during summer by the Oregon Department of Fish and Wildlife. The U.S. Forest Service maintains a campground at the lake.

REMARKS: Floating pond lilies were observed throughout the lake and there was considerable marsh grass on the perimeter of the lake. The lake had a dark tea-like color on the survey date. Bottom material is mostly sand covered by detritus.

The lake was much smaller (≈7 acres [28,000 m²]) prior to construction of the dam at the southwest end.

A phytoplankton analysis by the Oregon Department of Environmental Quality on September 8, 1970, indicates that diatoms were the dominant algal species (McHugh, 1972).

Bathymetric map from a 1959 survey by the Oregon Department of Fish and Wildlife.

Water-rights certificate issued for storage of 352.7 acre-ft (434,900 m³) for public fishing.

Access via Forest Service Road S334 from U.S.

Highway 26.

References: 4, 7, 9.



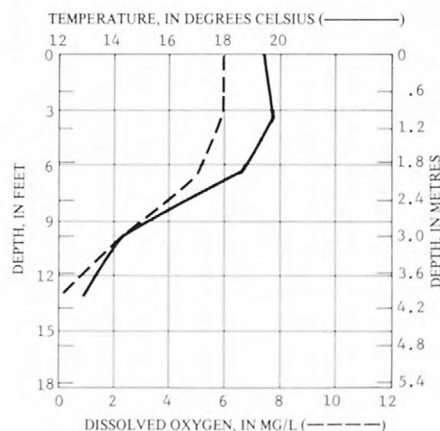
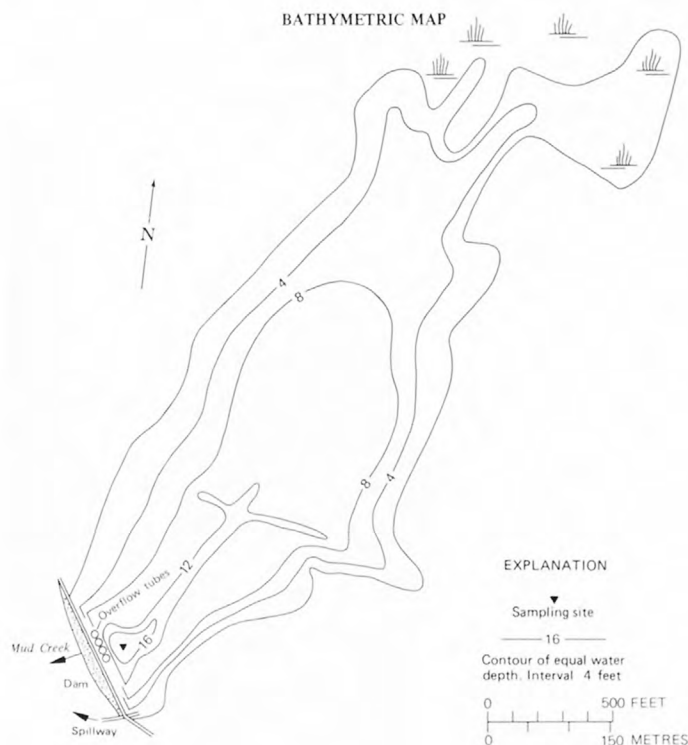
Photograph taken August 26, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1300 hours
CLOUD COVER: Variable - 30-50 percent

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.6	55
BOTTOM	--	60

ALKALINITY (mg/l as CaCO ₃)	10
TOTAL HARDNESS (mg/l as CaCO ₃)	9
DISSOLVED SOLIDS (mg/l)	27
TRANSPARENCY (metres)	1.7
COLOR (Pt-Co units)	20
FECAL COLIFORM (colonies/100 ml)	< 1



LOCATION: Secs. 1 and 2, T. 4 S., R. 8 E., about 3.5 mi (5.5 km) southwest of Government Camp and 8 mi (13 km) southeast of Rhododendron. Southernmost tip of lake at lat 45°15'20", long 121°47'04". Government Camp 7½-minute quadrangle map.

DRAINAGE BASIN: Sandy River (Lower Columbia River, noncontributing).

DRAINAGE AREA: 0.09 mi² (0.23 km²).

SURFACE ELEVATION: 4,200 ft (1,280 m) above mean sea level, from topographic map.

SURFACE AREA: 2 acres (8,000 m²).

VOLUME: 13 acre-ft (16,000 m³).

INFLOW: Estimated a total of 0.4 ft³/s (0.01 m³/s) from two small channels on northeast side of lake. Topographic map indicates a spring on southeast side of lake.

OUTFLOW: No channel observed and none indicated on topographic map.

USE: Public recreation. The lake is stocked annually with fingerling Eastern brook trout by the Oregon Department of Fish and Wildlife.

REMARKS: No evidence of either floating or submerged aquatic growth. Bottom material is mostly sand and rock with detritus near shore.

The lake occupies a shallow depression at the base of some steep talus slopes.

Access to the lake via Forest Service Trail 673 from Sherar Burn Road (S32).

References: 2, 4, 7.



Photograph taken August 26, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1200 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	7.5	33
BOTTOM	--	34

ALKALINITY (mg/l as CaCO₃) 7

TOTAL HARDNESS (mg/l as CaCO₃) --

DISSOLVED SOLIDS (mg/l) 21

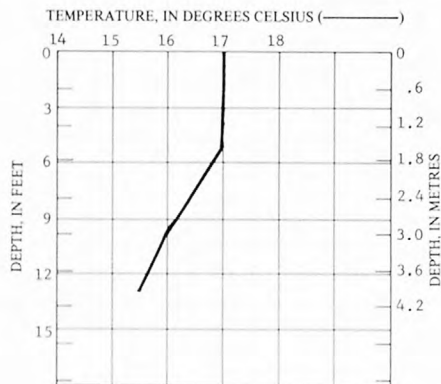
TRANSPARENCY (metres) (bottom) 4.3

COLOR (Pt-Co units) 5

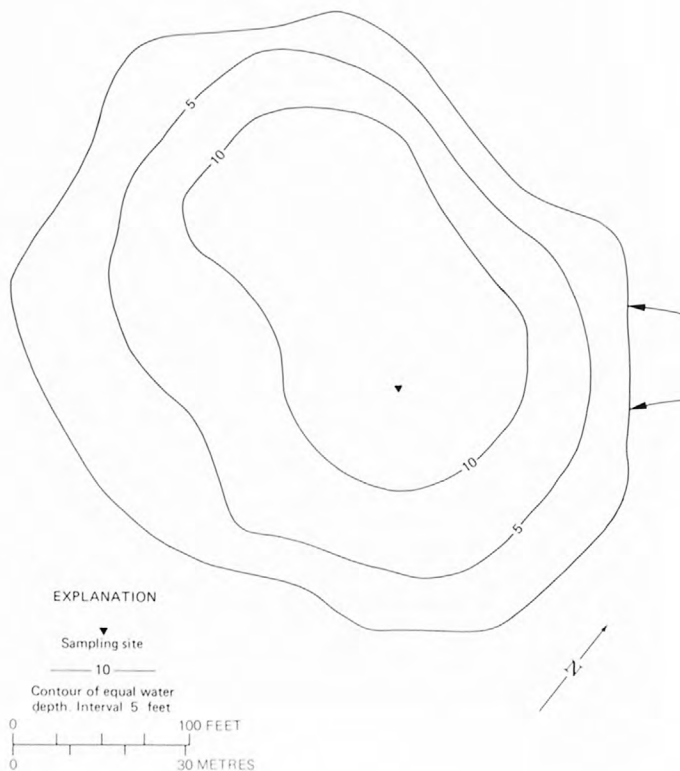
FECAL COLIFORM (colonies/100 ml) < 1

Dissolved oxygen (mg/l)

SURFACE 8.4



BATHYMETRIC MAP



LOCATION: Sec.26, T.5 S., R.4 E., about 9 mi (14.5 km) southeast of Colton and 13 mi (21 km) south of Estacada. Southernmost tip of lake at lat 45°06'10", long 122°16'57". Colton 15-minute quadrangle map.

DRAINAGE BASIN: Clackamas River (Willamette River, noncontributing).

DRAINAGE AREA: 0.09 mi² (0.23 km²).

SURFACE ELEVATION: 3,750 ft (1,140 m) above mean sea level, from topographic map.

SURFACE AREA: 4 acres (16,000 m²).

VOLUME: 5 acre-ft (6,000 m³).

INFLOW: No flow observed from small channel on west side of lake.

OUTFLOW: No channel observed and none indicated on topographic map. Overflow drains through marsh on east side of lake.

USE: Public recreation. The lake is stocked annually with fingerling cutthroat trout by the Oregon Department of Fish and Wildlife.

REMARKS: No floating aquatic growth evident, although bottom vegetation was observed. Bottom material is mostly sand. This Crown Zellerbach lake is open to the general public on weekends, but a permit is required for weekday use because of logging operations in the area. Because of fire danger, area often is closed during late summer. Access to the lake via private forest road (One Hundred Road) from Dickey Prairie. Reference: 15.



Photograph taken September 5, 1975.

WATER-QUALITY DATA

SAMPLING TIME: 1130 hours
CLOUD COVER: None

	pH (units)	CONDUCTIVITY (micromhos at 25°C)
SURFACE	6.8	25
BOTTOM	--	25

ALKALINITY (mg/l as CaCO₃) 7

TOTAL HARDNESS (mg/l as CaCO₃) 8

DISSOLVED SOLIDS (mg/l) 25

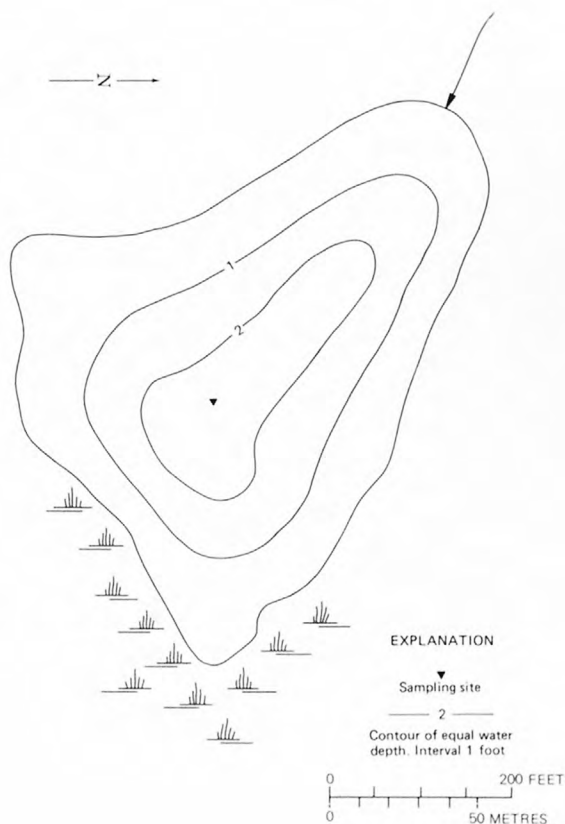
TRANSPARENCY (metres) (bottom) .6

COLOR (Pt-Co units) 5

FECAL COLIFORM (colonies/100 ml) <1

	Dissolved oxygen (mg/l)	Temperature (°C)
SURFACE	9.0	18.0
BOTTOM	9.0	17.5

BATHYMETRIC MAP



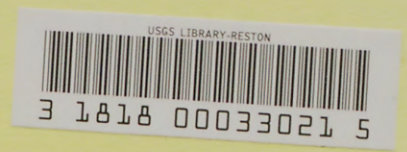
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Timothy Lake



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