Quality of Surface Waters of the United States, 1969

Parts 12-16. North Pacific Slope Basins, Alaska, Hawaii, and Other Pacific Areas

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GEOLOGICAL SURVEY WATER-SUPPLY PAPER 2150

Prepared in cooperation with the States of Alaska, Idaho, Montana, Oregon, Washington, Wyoming, U.S. Bureau of Reclamation, and with other agencies

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PREFACE

This report was prepared by the U.S. Geological Survey in cooperation with the States of Alaska, Idaho, Montana, Oregon, Washington, Wyoming, Bureau of Reclamation, and with other agencies, by personnel of the Water Resources Division, J. S. Cragwall, Jr., chief hydrologist, G. W. Whetstone, assistant chief hydrologist for Scientific Publications and Data Management, under the general direction of G. A. Billingsley, chief, Reports Section, and B. A. Anderson, chief, Data Reports Unit.

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[*Letters after station name designate type of data: (c) chemical, (t) water temperature, (s) sediment*]

QUALITY OF SURFACE WATERS OF THE UNITED STATES, 1969

PARTS 12-16

INTRODUCTION

The water-quality investigations of the United States Geological Survey are concerned with chemical and physical characteristics of surface- and ground-water supplies of the Nation. The data herein deal with the amounts of matter in solution and in suspension in streams, and represent that portion of the National Water Data System collected by the U.S. Geological Survey in cooperation with State, municipal, and other Federal agencies.

The records of chemical analysis, water temperature, and suspended sediment of surface waters given in this volume serve as a basis for determining the suitability of waters for various uses. The flow and water quality of a stream are related to variations in rainfall and other forms of precipitation. In general, lower concentrations of dissolved solids may be expected during periods of high flow than during periods of low flow. Conversely, the suspended solids in some streams may change materially with relatively small variations in flow, whereas for other streams the quality of the water may remain relatively uniform throughout large ranges in discharge.

The Geological Survey has published annual records of chemical quality, water temperature, and suspended sediment since 1941. The records prior to 1948 were published each year in a single volume for the entire country, and in two volumes in 1948 and in 1949. From 1950 to 1958, the records were published in 4 volumes; from 1959 to 1963 in 5 volumes; from 1964 to 1967 in 6 volumes; and in 1968 in 10 volumes. The drainage basins covered by the 10 volumes are shown in Figure 1. The shaded area in Figure 1 represents the section of the country covered in this volume for the water year 1969 (October 1, 1968 to September 30, 1969).

To meet interim requirements, water-quality records have been released by the Geological Survey in annual reports, beginning with the 1964 water year, by State. These reports are entitled, "Water Resources Data for (State), Part 2. Water Quality Records." Distribution of these reports is limited and primarily for local needs. Any revisions or corrections found necessary to the records published in these annual State reports have been made and published in this volume without reference.

The records herein are listed by drainage basins in a downstream direction along the main stream. All stations on a tributary entering above a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. In the list of water-quality stations in the front of this volume, the rank of the tributaries is indicated by an indention. Each indention represents one rank.

As an added means of identification, a station number has been assigned for each stream location where regular measurements of water quantity or quality have been made. The numbers have been assigned to conform with the standard downstream order of listing gaging stations. The numbering system consists of an 8-digit number, such as 12010000. The first 2 digits, "12" identifies the Part or hydrologic region used by the Geological Survey for reporting hydrologic data. The next 6 digits is the

station number which represents the location of the station in the standard downstream order within each of the 16 parts (fig. 1). The complete number (12010000) appears just to the left of the station name. The assigned numbers are in numerical order but are not consecutive. Gaps are left in the numbers to allow for new stations that may be established.

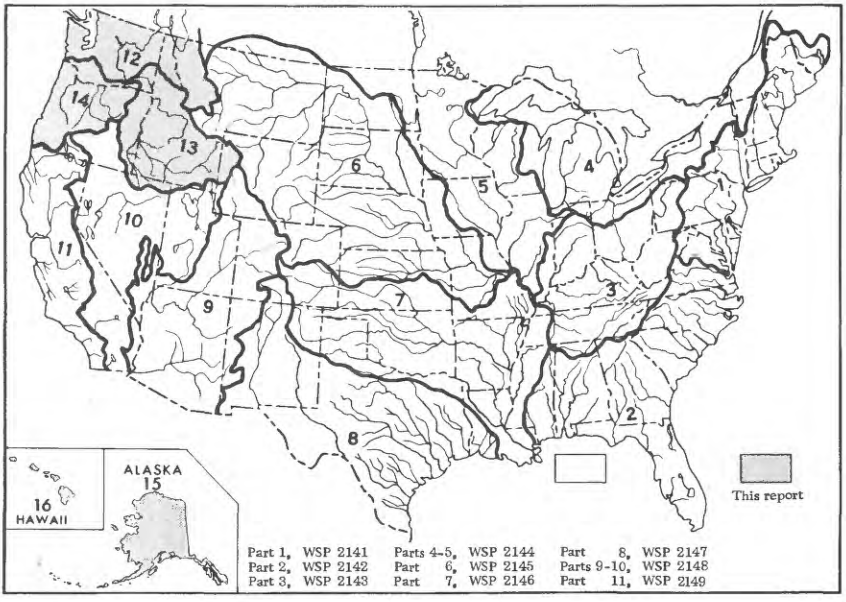

Figure 1.--Map of the United States showing basins covered by the 10 water-supply papers on quality of surface waters in 1969. The shaded part represents the section of the country covered by this volume; the unshaded part represents the section of the country covered by other water-supply papers.

Descriptive statements are given for each sampling station where chemical analyses, temperature measurements, or sediment determinations have been made. These statements include location of the station, drainage area, periods of records available, extremes of dissolved solids, hardness, specific conductance, temperature, sediment loads, and other pertinent data. Records of discharge of the streams at or near the sampling station are included in most tables of analyses.

During the water year ending September 30, 1969, the Geological Survey maintained 261 stations on 182 streams for the study of chemical and physical characteristics of surface water. Samples were collected daily and monthly at 120 of these locations for chemical-quality studies. Samples also were collected less frequently at many other points. Water temperatures were measured continuously at 140 and daily at 23 stations. All surface water samples collected and analyzed during the year have not been included. Single analyses made of daily samples before compositing have not been reported. Specific conductance is determined and reported for almost all daily samples.

At chemical-quality stations where data are continuously recorded at the stream site (monitors), the records consist of daily maximum, minimum, and mean values for each constituent measured. More detailed records (hourly values) may be obtained by writing the district office listed under Division of Work on page 22.

Quantities of suspended sediment are reported for 40 stations during the year ending September 30, 1969. Sediment samples were collected one or more times daily at most stations, depending on the rate of flow and changes in stage of the stream. Particle-size distributions of sediments were determined at 16 stations.

Some of the stations for which data are published in this volume are included in special networks and programs. These stations are identified by their title, set in parentheses, under the station name.

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

International Hydrological Decade (IHD) River Stations provide a general index of runoff and materials in the water balance (discharge of water, and dissolved and transported solids) of the world. In the United States, IHD Stations provide indices of runoff and the general distribution of water in the principal river basins of the conterminous United States and Alaska.

Irrigation network stations are water-quality stations located at or near certain streamflow gaging stations west of the main stem of the Mississippi River. Data collected at these stations are used to evaluate the chemical quality of surface waters used for irrigation and the changes resulting from the drainage of irrigated lands. Prior to water year 1966, these data were published in the annual water-supply paper series, "Quality of Surface Waters for Irrigation, Western States."

Pesticide program is a network of regularly sampled water-quality stations where additional monthly samples are collected to determine the concentration and distribution of pesticides in streams whose waters are used for irrigation or in streams in areas where potential contamination could result from the application of the commonly used insecticides and herbicides.

Radiochemical program is a network of regularly sampled water-quality stations where additional samples are collected twice a year (at high and low flow) to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

COLLECTION AND EXAMINATION OF DATA

Quality of water stations usually are located at or near points on streams where streamflow is measured by the U.S. Geological Survey. The concentration of solutes and sediments at different locations in the stream-cross section may vary widely with different rates of water discharge depending on the source of the material and the turbulence and mixing of the stream. In general, the distribution of sediment in a stream section is much more variable than the distribution of solutes. It is necessary to sample some streams at several verticals across the channel and especially for sediment, to uniformly traverse the depth of flow. These measurements require special sampling equipment to adequately integrate the vertical and lateral variability of the concentration in the section. These procedures yield a velocity-weighted mean concentration for the section.

The near uniformly dispersed ions of the solute load move with the velocity of the transporting water. Accordingly, the mean section concentration of solutes determined from samples is a precise measure of the total solute load. The mean section concentration obtained from suspended sediment samples is a less precise measure of the total sediment load, because the sediment samplers do not traverse the bottom 0.3 foot of the sampling vertical where the concentration of suspended sediment is greatest and because a significant part of the coarser particles in many streams move in essentially continuous contact with the bed and are not represented in the suspended sediment sample. Hence, the computed sediment loads presented

in this report are usually less than the total sediment loads. For most streams the difference between the computed and total sediment loads will be small, in the order of a few percent.

CHEMICAL QUALITY

The methods of collecting and compositing water samples for chemical analysis are described by Brown, Skougstad, and Fishman (1970). No single method of compositing samples is applicable to all problems related to the study of water quality. Composites are made on the basis of dissolved-solids content as indicated by measurements of conductivity of daily samples, supplemented by other information such as chloride content, river stage, weather conditions and other background information of the stream.

TEMPERATURE

Daily water temperatures were measured at most of the stations at the time samples were collected for chemical quality or sediment content. So far as practicable, the water temperatures were taken at about the same time each day. Large streams have a small diurnal temperature change while small, shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where continuously recording thermographs are present, the records consist of maximum and minimum temperatures for each day, and the monthly averages.

SEDIMENT

In general, suspended-sediment samples were collected daily with depth-integrating samplers (U.S. Inter-Agency, 1963). At some stations, samples were collected at a fixed sampling point at one vertical in the cross section. Depth-integrated samples were collected periodically at three or more verticals in the cross section to determine the cross-sectional distribution of the concentration of suspended sediment with respect to that at the daily sampling vertical. In streams where transverse distribution of sediment concentration ranged widely, samples were taken at two or more verticals to define more accurately the average concentration of the cross section. During periods of high or rapidly changing flow, samples generally were taken several times a day and, in some instances, hourly.

Sediment concentrations were determined by filtration-evaporation method. At many stations the daily mean concentration for some days was obtained by plotting the velocity-weighted instantaneous concentrations on the gage-height chart. The plotted concentrations, adjusted if necessary, for cross-sectional distribution were connected or averaged by continuous curves to obtain a concentration graph. This graph represented the estimated velocity-weighted concentration at any time, and for most periods daily mean concentrations were determined from the graph. The days were divided into shorter intervals when the concentration or water discharge were changing rapidly. During some periods of minor variation in concentration, the average concentration of the samples was used as the daily mean concentration. During extended periods of relatively uniform concentration and flow, samples for a number of days were composited to obtain average concentrations and average daily loads for each period. (See Expression of Results, p. 5 .)

For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge. The estimates were further guided by precipitation records and sediment discharge at other stations in the same or adjacent basins.

In many instances where there were no observations for several days, the suspended-sediment loads for individual days were not estimated, because numerous factors influencing the quantities of transported sediment made it very difficult to make accurate estimates for individual days. However, estimated loads of suspended sediment for missing days in an otherwise continuous period of sampling have been included in monthly and annual totals in order to provide a complete record. For some streams, samples were collected weekly, monthly, or less frequently, and only rates of sediment discharge at the time of sampling are shown.

In addition to the records of quantities of suspended sediment transported, records of particle sizes of sediment are included. The particle sizes of suspended sediment for many of the stations, and the particle sizes of the bed material for some of the stations were determined intermittently.

The size of particles carried in suspension by streams commonly ranges from colloids (finer than about 0.24 microns) to coarse sand (2.0 mm). The common methods of particle-size analysis cannot accommodate such a wide range. Hence, it was necessary to separate most samples into two parts, that part coarser than 0.062 mm and that part finer than 0.062 mm. The separations were made by sieve or by fall velocity technique. The coarse fractions were classified by sieve separation or by visual-accumulation tube (U.S. Inter-Agency, 1957). The fine fractions were classified by the pipet method (Kilmer and Alexander, 1949) or the bottom withdrawal tube method (U.S. Inter-Agency, 1943).

EXPRESSION OF RESULTS

The quantities of solute concentrations analyzed in the laboratory are measured in either milligrams per liter or micrograms per liter. Milligrams per liter (mg/l, MG/L) is a unit which represents the weight of solute per unit volume of water. A microgram per liter (ug/l, UG/L) is one thousandth of a milligram per liter.

Milliequivalents per liter are not reported but they can be converted easily from milligrams per liter data. A milliequivalent per liter (me/l) is one thousandth of a gram equivalent weight of a constituent. Chemical equivalence in milliequivalents per liter can be obtained by (a) dividing the concentration in milligrams per liter by the combining weight of that ion, or (b) by multiplying the concentration (in mg/l) by the reciprocals of the combining weights. Table 1 on page 6, lists the reciprocals of the combining atomic weights based on carbon-12 (International Union of Pure and Applied Chemistry, 1961).

The hardness of water is conventionally expressed in all water analyses in terms of an equivalent quantity of calcium carbonate. Such a procedure is required because hardness is caused by several different cations, present in variable proportions. It should be remembered that hardness is an expression in conventional terms of a property of water. The actual presence of calcium carbonate in the concentration given is not to be assumed. The hardness caused by calcium and magnesium (and other cations if significant) equivalent to the carbonate and bicarbonate is called carbonate hardness; the hardness in excess of this quantity is called noncarbonate hardness. Hardness or alkalinity values expressed in milligrams per liter as calcium carbonate may be converted to milliequivalents per liter by dividing by 50.

The value usually reported as dissolved solids is the residue on evaporation after drying at 180°C for 1 hour. For some waters, particularly those containing moderately large quantities of soluble salts, the value reported is calculated from the quantities of the various determined constituents using the carbonate equivalent of the reported bicarbonate. The calculated sum of the constituents may be given instead of or in addition to the residue. In the analyses of most waters used for irrigation, the quantity of dissolved solids is given in tons per acre-foot as well as in milligrams per liter.

Table 1.--Factors for conversion of chemical constituents in milligrams per liter to milliequivalents per liter

Ion	Multiply by	Ion	Multiply by
Aluminum (Al^{+3})*	0.11119	Iodide (I^{-1})	0.00788
Ammonia as NH^{+1}	.05544	Iron (Fe^{+3})*	.05372
Arsenic (As^{+3})*	.04004	Lead (Pb^{+2})*	.00965
Barium (Ba^{+2})	.01456	Lithium (Li^{+1})	.14411
Bicarbonate (HCO_3^{-1})	.01639	Magnesium (Mg^{+2})	.08226
Bromide (Br^{-1})	.01251	Manganese (Mn^{+2})*	.03640
Cadmium (Cd^{+2})*	.01779	Mercury (Hg^{+2})*	.00997
Calcium (Ca^{+2})	.04990	Nickel (Ni^{+2})*	.03406
Carbonate (CO_3^{-2})	.03333	Nitrate (NO_3^{-1})	.01613
Chloride (Cl^{-1})	.02821	Nitrite (NO_2^{-1})	.02174
Chromium (Cr^{+6})*	.11539	Phosphate (PO_4^{-3})	.03159
Cobalt (Co^{+2})*	.03394	Potassium (K^{+1})	.02557
Copper (Cu^{+2})*	.03148	Sodium (Na^{+1})	.04350
Cyanide (CN^{-1})	.03844	Strontium (Sr^{+2})*	.02283
Fluoride (F^{-1})	.05264	Sulfate (SO_4^{-2})	.02082
Hydrogen (H^{+1})	.99209	Sulfide (S^{-2})	.06238
Hydroxide (OH^{-1})	.05880	Zinc (Zn^{+2})*	.03060

*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

Specific conductance is given for most analyses and was determined by means of a conductance bridge and using a standard potassium chloride solution as reference. Specific conductance values are expressed in micromhos per centimeter at 25°C. Specific conductance in micromhos is 1 million times the reciprocal of specific resistance at 25°C. Specific resistance is the resistance in ohms of a column of water 1 centimeter long and 1 square centimeter in cross section.

The discharge of the streams is reported in cubic feet per second (see Streamflow, p. 19) and the temperature in degrees Celsius (°C). Color is expressed in units of the platinum-cobalt scale proposed by Hazen (1892). A unit of color is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Hydrogen-ion concentration is expressed in terms of pH units. By definition the pH value of a solution is the negative logarithm of the concentration of gram ions of hydrogen.

An average of analyses for the water year is given for most daily sampling stations. Most of these averages are arithmetical, time-weighted, or discharge-weighted; when analyses during a year are all on 10-day composites of daily samples with no missing days, the arithmetical and time-weighted averages are equivalent. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the river each day for the water year. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all of the water passing a given station during the year. A discharge-weighted average is computed by multiplying the discharge for the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. For most streams, discharge-weighted averages are lower than arithmetical averages because at times of high discharge the rivers generally have low concentrations of dissolved solids.

A program for computing these averages by digital computer was instituted in the 1962 water year. This program extended computations to include averages for pH values expressed in terms of hydrogen ion and averages for the concentration of individual constituents expressed in tons per day. Concentrations in tons per day are computed the same as daily sediment loads.

The concentration of sediment in milligrams per liter is computed as 1,000,000 times the ratio of the weight of sediment to the weight of water-sediment mixture. Daily

sediment loads are expressed in tons per day and except for subdivided days, are usually obtained by multiplying daily mean sediment concentrations in mg/l by the daily mean discharge in cubic feet per second, and the conversion factor, normally 0.0027.

For those days when the published sediment discharge value differs from the value computed, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method.

Particle-size analyses are expressed in percentages of material finer than classified sizes (in millimeters). The size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation
Silt	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all the particle sizes of sediment in transport in the natural stream. Most of the organic matter is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis (Guy 1969).

Prior to the 1968 water year, data for chemical constituents and concentrations of suspended sediment were reported in parts per million (ppm) and water temperatures were reported in degrees Fahrenheit (°F). In October 1967, the U.S. Geological Survey began reporting data for chemical constituents and concentrations of suspended sediment in milligrams per liter (mg/l) and water temperatures are given in degrees Celsius (centigrade, °C). In waters with a density of 1.000 g/ml (grams per milliliter), parts per million and milligrams per liter can be considered equal. In waters with a density greater than 1.000 g/ml, values in parts per million should be multiplied by the density to convert to milligrams per liter. (See table 2 on page 8.) Temperature, in degrees Celsius may be converted to degrees Fahrenheit by using the table on page 8.

COMPOSITION OF SURFACE WATERS

All natural waters contain dissolved mineral matter. The quantity of dissolved mineral matter in a natural water depends primarily on the type of rocks or soils with which the water has been in contact and the length of time of contact. Ground water is generally more highly mineralized than surface runoff because it remains in contact with the rocks and soils for much longer periods. Some streams are fed by both surface runoff and ground water from springs or seeps. Such streams reflect the chemical character of their concentrated underground sources during dry periods and are more dilute during periods of heavy rainfall. The dissolved-solids content in a river is frequently increased by drainage from mines or oil fields, by the addition of industrial or municipal wastes, or--in irrigated regions--by drainage from irrigated lands.

The mineral constituents and physical properties of natural waters reported in the tables of analyses include those that have a practical bearing on water use. The results of analyses generally include silica, iron, calcium, magnesium, sodium, potassium (or sodium and potassium together calculated as sodium), carbonate, bicarbonate, sulfate, chloride, fluoride, nitrate, boron, pH, dissolved solids, and specific conductance. Aluminum, manganese, color, acidity, dissolved oxygen, and other dissolved constituents and physical properties are reported for certain streams. Microbiologic (coliforms) and organic components (pesticides, total organic carbon) and minor elements (arsenic, cobalt, cadmium, copper, lead, mercury, nickel, strontium, zinc, etc.) are determined occasionally for some streams in connection with specific problems and the results are reported. The source and significance of the different constituents and properties of natural waters are discussed in the following paragraphs. The constituents are arranged in the order that they appear in the tables.

Table 2.--Factors for conversion of sediment concentration in milligrams per liter to parts per million*
(All values calculated to three significant figures)

Range of concentration in 1000 mg/g	Divide by	Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by
0 - 8	1.00	201-217	1.13	411-424	1.26	619-634	1.39
8.05- 24	1.01	218-232	1.14	427-440	1.27	636-650	1.40
24.2 - 40	1.02	234-248	1.15	443-457	1.28	652-666	1.41
40.5 - 56	1.03	250-264	1.16	460-473	1.29	668-682	1.42
56.5 - 72	1.04	266-280	1.17	476-489	1.30	684-698	1.43
72.5 - 88	1.05	282-297	1.18	492-506	1.31	700-715	1.44
88.5 -104	1.06	299-313	1.19	508-522	1.32	717-730	1.45
105 -120	1.07	315-329	1.20	524-538	1.33	732-747	1.46
121 -136	1.08	331-345	1.21	540-554	1.34	749-762	1.47
137 -152	1.09	347-361	1.22	556-570	1.35	765-780	1.48
153 -169	1.10	363-378	1.23	572-585	1.36	782-796	1.49
170 -185	1.11	380-393	1.24	587-602	1.37	798-810	1.50
186 -200	1.12	395-409	1.25	604-617	1.38		

*Based on water density of 1.000 g/ml and a specific gravity of sediment of 2.65 g/cc.

Table 3.--Degrees Celsius (°C) to degrees Fahrenheit (°F)*
(Temperature reported to nearest 0.5°C)

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
0.0	32	10.0	50	20.0	68	30.0	86	40.0	104
.5	33	10.5	51	20.5	69	30.5	87	40.5	105
1.0	34	11.0	52	21.0	70	31.0	88	41.0	106
1.5	35	11.5	53	21.5	71	31.5	89	41.5	107
2.0	36	12.0	54	22.0	72	32.0	90	42.0	108
2.5	36	12.5	54	22.5	72	32.5	90	42.5	108
3.0	37	13.0	55	23.0	73	33.0	91	43.0	109
3.5	38	13.5	56	23.5	74	33.5	92	43.5	110
4.0	39	14.0	57	24.0	75	34.0	93	44.0	111
4.5	40	14.5	58	24.5	76	34.5	94	44.5	112
5.0	41	15.0	59	25.0	77	35.0	95	45.0	113
5.5	42	15.5	60	25.5	78	35.5	96	45.5	114
6.0	43	16.0	61	26.0	79	36.0	97	46.0	115
6.5	44	16.5	62	26.5	80	36.5	98	46.5	116
7.0	45	17.0	63	27.0	81	37.0	99	47.0	117
7.5	45	17.5	63	27.5	81	37.5	99	47.5	117
8.0	46	18.0	64	28.0	82	38.0	100	48.0	118
8.5	47	18.5	65	28.5	83	38.5	101	48.5	119
9.0	48	19.0	66	29.0	84	39.0	102	49.0	120
9.5	49	19.5	67	29.5	85	39.5	103	49.5	121

*C = 5/9 (°F - 32) or °F = 9/5 (°C) + 32.

MINERAL CONSTITUENTS IN SOLUTION

Silica (SiO_2)

Silica is dissolved from practically all rocks. Some natural surface waters contain less than 5 milligrams per liter of silica and few contain more than 50 mg/l, but the more common range is from 10 to 30 mg/l. Silica affects the usefulness of a water because it contributes to the formation of boiler scale; it usually is removed from feed water for high-pressure boilers. Silica also forms troublesome deposits on the blades of steam turbines. However, it is not physiologically significant to humans, livestock, or fish, nor is it of importance in irrigation water.

Aluminum (Al)

Aluminum is usually present only in negligible quantities in natural waters except in areas where the waters have been in contact with the more soluble rocks of high aluminum content such as bauxite and certain shales. Acid waters often contain large amounts of aluminum. It may be troublesome in feed waters where it tends to be deposited as a scale on boiler tubes.

Iron (Fe)

Iron is dissolved from many rocks and soils. On exposure to air, normal basic waters that contain more than 1 mg/l of iron soon become turbid with the insoluble reddish ferric compounds produced by oxidation. Surface waters, therefore, seldom contain as much as 1 mg/l of dissolved iron, although some acid waters carry large quantities of iron in solution. Iron causes reddish-brown stains on porcelain or enameled ware and fixtures and on fabrics washed in the water. The highest desirable level of concentrations of iron in culinary and drinking-water is 0.1 mg/l (100 ug/l) with a maximum permissible level of 1.0 mg/l (1000 ug/l). (International Standards for Drinking-Water (ISD-W), 1971).

Manganese (Mn)

Manganese is dissolved in appreciable quantities from rocks in some sections of the country. It resembles iron in its chemical behavior and in its occurrence in natural waters. However, manganese in rocks is less abundant than iron. As a result the concentration of manganese is much less than that of iron and is not regularly determined in many areas. It is especially objectionable in water used in laundry work and in textile processing. Concentrations as low as 0.2 mg/l (200 ug/l) may cause a dark-brown or black stain on fabrics and porcelain fixtures. Appreciable quantities of manganese are often found in waters containing objectionable quantities of iron.

Calcium (Ca)

Calcium is dissolved from almost all rocks and soils, but the highest concentrations are usually found in waters that have been in contact with limestone, dolomite, and gypsum. Calcium and magnesium make water hard and are largely responsible for the formation of boiler scale. Most waters associated with granite or silicious sands contain less than 10 mg/l of calcium; waters in areas where rocks are composed of dolomite and limestone contain from 30 to 100 mg/l; and waters that have come in contact with deposits of gypsum may contain several hundred mg/l.

Magnesium (Mg)

Magnesium is dissolved from many rocks, particularly from dolomitic rocks. Its effect in water is similar to that of calcium. The magnesium in soft waters may amount to only 1 or 2 mg/l, but water in areas that contain large quantities of dolomite or other magnesium-bearing rocks may contain from 20 to 100 mg/l or more of magnesium.

Sodium and potassium (Na and K)

Sodium and potassium are dissolved from practically all rocks. Sodium is the predominant cation in some of the more highly mineralized waters found in the western United States. Natural waters that contain only 3 or 4 mg/l of the two together are likely to carry almost as much potassium as sodium. As the total quantity of these

constituents increases, the proportion of sodium becomes much greater. Moderate quantities of sodium and potassium have little effect on the usefulness of the water for most purposes, but waters that carry more than 50 to 100 mg/l of the two may require careful operation of steam boilers to prevent foaming. More highly mineralized waters that contain a large proportion of sodium salts may be unsatisfactory for irrigation.

Bicarbonate, carbonate and hydroxide (HCO_3,CO_3, OH)

Bicarbonate, carbonate, or hydroxide is sometimes reported as alkalinity. The alkalinity of a water is produced by anions or molecular species of weak acids which are not fully dissociated above a pH of 4.5. Since the major causes of alkalinity in most natural waters are carbonate and bicarbonate ions dissolved from carbonate rocks, the results are usually reported in terms of these constituents. Although alkalinity may suggest the presence of definite amounts of carbonate, bicarbonate or hydroxide, there are other ions that contribute to alkalinity such as silicates, phosphates, borates, possibly fluoride, and certain organic anions which may occur in colored waters. The significance of alkalinity to the domestic, agricultural, and industrial user is usually dependent upon the nature of the cations (Ca, Mg, Na, K) associated with it. Alkalinity in moderate amounts does not adversely affect most users.

Hydroxide may occur in water that has been softened by the lime process. Its presence in streams usually can be taken as an indication of contamination and does not represent the natural chemical character of the water.

Sulfide (S)

Sulfide occurs in water as a result of bacterial and chemical processes. It usually is present as hydrogen sulfide. Variable amounts may be found in waters receiving sewage and (or) industrial wastes, such as from tanneries, papermills, chemical plants, and gas manufacturing work (California State Water Quality Control Board, 1963).

Waters containing sulfides, especially hydrogen sulfide, may be considered undesirable because of their odor. The toxicity to aquatic organisms differs significantly with the species and the nature of associated ions.

Sulfate (SO_4)

Sulfate is dissolved from most sedimentary rocks. Large quantities may be derived from beds of gypsum, sodium sulfate deposits, and some types of shale. Organic material containing sulfur adds sulfate to the water as a phase of the sulfur cycle. In natural waters, concentrations range from a few mg/l to several thousand mg/l.

ISD-W (1971) recommends 200 mg/l as the highest desirable level of sulfate concentration in drinking and culinary water.

Sulfates are less toxic to crops than chlorides.

Chloride (Cl)

Chloride is dissolved from rock materials in all parts of the country. Surface waters in the humid regions are usually low in chloride, whereas streams in arid or semiarid regions may contain several hundred mg/l of chloride leached from soils and rocks, especially where the streams receive return drainage from irrigated lands or are affected by ground-water inflow carrying appreciable quantities of chloride. Large quantities of chloride in water that contains a high content of calcium and magnesium increases the water's corrosiveness. The presence of abnormal concentrations of chloride and nitrogenous material together in water supplies indicates possible pollution by human or animal wastes.

Fluoride (F)

Fluoride has been reported as being present in some rocks to about the same extent as chloride. However, the quantity of fluoride in natural surface waters is ordinarily very small compared to that of chloride. Investigations have proved that fluoride concentrations of about 0.6 to 1.7 mg/l reduced the incidence of dental caries and that concentrations greater than 1.7 mg/l also protect the teeth from cavities

but cause an undesirable black stain (Durfor and Becker, 1964, p. 20). Public Health Service, 1962, states, "When fluoride is naturally present in drinking water, the concentration should not average more than the appropriate upper control limit (0.6 to 1.7 mg/l). Presence of fluoride in average concentration greater than two times the optimum values shall constitute grounds for rejection of the supply." Concentration higher than the stated limits may cause mottled enamel in teeth, endemic cumulative fluorosis, and skeletal effects.

Bromide (Br)

Bromine is a very minor element in the earth's crust and is normally present in surface waters in only minute quantities. Measurable amounts may be found in some streams that receive industrial wastes, and some natural brines may contain rather high concentrations. It resembles chloride in that it tends to be concentrated in sea water.

Iodide (I)

Iodide is considerably less abundant both in rocks and water than bromine. Measurable amounts may be found in some streams that receive industrial wastes, and some natural brines may contain rather high concentrations. It occurs in sea water to the extent of less than 1 mg/l. Rankama and Sahama (1950) report iodide present in rainwater to the extent of 0.001 to 0.003 mg/l and in river water in about the same amount. Few waters will contain over 2.0 mg/l.

Nitrogen, organic (N)

Organic nitrogen includes all nitrogenous organic compounds, such as amino acid, polypeptides, and proteins. It is present naturally in all surface waters as the result of inflow of nitrogenous products from the watershed and the normal biological life of the stream.

Organic nitrogen is not pathologically significant but is sometimes an indication of pollution.

Nitrogen, ammonia (NH_4, as N)

Ammonia nitrogen includes nitrogen in the forms of NH_3 and NH_4^{+1}. As a component of the nitrogen cycle, it is often present in water, but usually in only small amounts. More than 0.1 mg/l usually indicates organic pollution (Rudolph, 1931).

There is no evidence that ammonia nitrogen in water is physiologically significant to man or livestock. Fish, however, cannot tolerate large quantities.

Nitrite (NO_2)

Nitrite is unstable in the presence of oxygen and is, therefore, absent or present in only minute quantities in most natural waters under aerobic condition. The presence of nitrite in water is sometimes an indication of organic pollution.

Recommended tolerances of nitrite in domestic water supplies differ widely. A generally accepted limit is 2 mg/l, but as little as 0.1 mg/l has been proposed (California State Water Quality Control Board, 1963).

Nitrate (NO_3)

Nitrate in water is considered a final oxidation product of nitrogenous material and may indicate contamination by sewage or other organic matter, such as agricultural runoff, or industrial waste. The quantities of nitrate present in surface waters are generally less than 5 mg/l (as NO_3) and have no effect on the value of the water for ordinary uses.

It has been reported that as much as 2 mg/l of nitrate in boiler water tends to decrease intercrystalline cracking of boiler steel. Studies made by Faucett and Miller (1946), Waring (1949) and by the National Research Council (Maxcy, 1950) concluded that drinking water containing nitrates in excess of 44 mg/l (as NO_3) should be regarded as unsafe for infant feeding. ISD-W (1971) sets 45 mg/l as the upper limit.

Phosphorus (P)

Phosphorus is an essential element in the growth of plants and animals. It occurs in water as organically bound phosphorus or as phosphate (PO_4). Some sources that contribute nitrate, such as organic wastes are also important sources of phosphorus. The addition of phosphates in water treatment constitutes a possible source although the dosage is usually small. In some areas phosphate fertilizers may yield some phosphorus to water. Another important source is the use of phosphates in detergents. Domestic and industrial sewage effluents often contain considerable amounts of phosphorus. Concentrations of phosphorus found in water are not reported to be toxic to man, animal, or fish. However, the element can stimulate the growth of algae, which may cause taste and odor problems in public water treatment and esthetic problems in recreation areas.

Boron (B)

Boron in small quantities has been found essential for plant growth, but irrigation water containing more than 1 mg/l boron is detrimental to citrus and other boron-sensitive crops. Boron is reported in Survey analyses of surface waters in arid and semiarid regions of the Southwest and West where irrigation is practiced or contemplated, but few of the surface waters analyzed have harmful concentrations of boron.

Dissolved solids

The reported quantity of dissolved solids--the residue on evaporation--consists mainly of the dissolved mineral constituents in the water. It may also contain some organic matter and water of crystallization. Waters with less than 500 mg/l of dissolved solids are usually satisfactory for domestic and some industrial uses. Water containing several thousand mg/l of dissolved solids are sometimes successfully used for irrigation where practices permit the removal of soluble salts through the application of large volumes of water on well-drained lands, but generally water containing more than about 2,000 mg/l is considered to be unsuitable for long-term irrigation under average conditions.

Arsenic (As)

Arsenic compounds are present naturally in some waters, but the occurrence of quantities detrimental to health is rare. Weed killers, insecticides and many industrial effluents contain arsenic and are potential sources of water pollution. The upper limits of arsenic concentration in drinking-water should not exceed 0.05 mg/l (50 ug/l) and it would seem wiser to keep the level as low as possible (ISD-W, 1971). Concentrations of 2-4 mg of arsenic per liter are reported not to interfere with the self-purification of streams (Rudolfs and others, 1944) but concentrations in excess of 15 mg/l may be harmful to some fish.

Barium (Ba)

Barium may replace potassium in some of the igneous rock minerals, especially feldspar, and barium sulfate (barite) is a common barium mineral of secondary origin. Only traces of barium are present in surface water and sea water. Because natural water contains sulfate, barium will dissolve only in trace amounts. Barium sometimes occurs in brines from oil-well wastes.

Barium concentrations in excess of 1.0 mg/l is not suitable for drinking and culinary use because of the serious toxic effects of barium on heart, blood vessels, and nerves.

Cadmium (Cd)

This element is found in nature largely in the form of the sulfide, and as an impurity in zinc-lead ores. The carbonate and hydroxide are not very soluble in water and will precipitate at high pH values; the chloride, nitrate, and sulfate are soluble and remain in solution under most pH conditions.

The extensive use of the element and its salts in metallurgy, electroplating, ceramics, and photography make it a frequent component of industrial wastes.

The results of animal studies suggest that very small amounts of cadmium can produce nephrotoxic and cardiovascular effects. The reproductive organs of animals are specifically affected after parenteral administration of very small amounts of cadmium salts. The level of cadmium concentration proposed for water use is 0.01 mg/l (10 ug/l) or the lowest concentration that can be conveniently measured (ISD-W, 1971).

Chromium (Cr)

Few if any waters contain chromium from natural sources. Natural waters can probably contain only traces of chromium as a cation unless the pH is very low. When chromium is present in water, it is usually the result of pollution by industrial wastes. Concentrations of more than 0.05 mg/l of chromium in the hexavalent form constitute grounds for rejection of a water for domestic use on the basis of the standards of the U.S. Public Health Service (1962).

Cobalt (Co)

Cobalt occurs in nature in the minerals smaltite, $(Co,Ni)As_2$, and cobaltite, CoAsS. Alluvial deposits and soils derived from shales often contain cobalt in the form of phosphate or sulfate, but other soil types may be markedly deficient in cobalt in any form (Bear, 1955). Ruminant animals may be adversely affected by grazing on land deficient in cobalt.

For domestic water supplies, no maximum safe concentration has been established.

Copper (Cu)

Copper is a fairly common trace constituent of natural water. Small amounts may be introduced into water by solution of copper and brass water pipes and other copper-bearing equipment in contact with the water, or from copper salts added to control algae in open reservoirs. Copper salts such as the sulfate and chloride are highly soluble in waters with a low pH but in water of normal alkalinity the salts hydrolyze and the copper may be precipitated. In the normal pH range of natural water containing carbon dioxide, the copper might be precipitated as carbonate. The oxidized portions of sulfide-copper ore bodies contain other copper compounds. The presence of copper in mine water is common.

Copper imparts a disagreeable metallic taste to water. As little as 1.5 mg/l can usually be detected, and 5 mg/l can render the water unpalatable. Copper is not considered to be a cumulative systemic poison like lead and mercury; most copper ingested is excreted by the body and very little is retained. The pathological effects of copper are controversial, but it is generally believed very unlikely that humans could unknowingly ingest toxic quantities from palatable drinking water. The U.S. Public Health Service (1962) recommends that copper should not exceed 1.0 mg/l (10 ug/l) in drinking and culinary water. ISD-W, 1971 gives 0.05 mg/l (50 ug/l) as the highest desirable level.

Lead (Pb)

Lead seldom occurs in most natural waters, but industrial mine and smelter effluents may contain relatively large amounts of lead which contaminates the streams. Also, atmospheric contamination which is produced from several types of engine exhausts has considerably increased the availability of this element for solution in rainfall, resulting in contamination of lead in streams (Hem, 1970).

Lead in the form of sulfate is reported to be soluble in water to the extent of 31 mg/l (Seidell, 1940) at 25°C. In natural water this concentration would not be approached, however, since a pH of less than 4.5 would probably be required to prevent formation of lead hydroxide and carbonate. It is reported (Pleissner, 1907) that at 18°C water free of carbon dioxide will dissolve the equivalent of 1.4 mg/l of lead and the solubility is increased nearly four fold by the presence of 2.8 mg/l of carbon dioxide in the solution. Presence of other ions may increase the solubility of lead. Reports on human tolerance of lead vary widely. U.S. Public Health Service (1962) states that lead shall not exceed 0.05 mg/l (50 ug/l) in drinking and culinary water on carriers subject to Federal quarantine regulations. ISD-W, 1971 gives 0.10 mg/l (100 ug/l) as the upper limit.

Lithium (Li)

Lithium is present in some minerals but is not abundant in nature. From available information, most fresh waters rarely contain lithium of concentrations exceeding 10 mg/l, but larger quantities may be present in brines and thermal waters. Lithium is used in metallurgy, medicinal water, and some types of glass and storage batteries. Waste from such industries may contain lithium.

Mercury (Hg)

Mercury is the only common metal which is liquid at ordinary temperatures. It occurs free in nature but its chief source is cinnabar (HgS). Mercury compounds are virulent culminative poisons which are readily absorbed through the respiratory and gastrointestinal tracts or through unbroken skin (Weast and Selby, 1967).

The main source of high concentrations of dissolved mercury in water, in the form of highly toxic methyl mercury, $Hg(CH_3)_2$, comes from waste discharges from industrial users of mercury and from mercurial pesticides.

Fish from streams and lakes subject to mercury contamination have been found to contain amounts of mercury above the safe limits for food consumption. The U.S. Public Health Service has proposed that the upper limits of dissolved mercury in water for domestic use should not exceed 5 micrograms per liter (0.005 mg/l). ISD-W, 1971 recommends 0.01 mg/l (1 ug/l) as the upper limits of concentration.

Nickel (Ni)

Elemental nickel seldom occurs in nature, but its compounds are found in many ores and minerals. Many nickel salts are quite soluble and may contribute to water pollution, especially when discharged from metal-plating industries.

No set limit of nickel concentration has been established for public water supply.

Strontium (Sr)

Strontium is a typical alkaline-earth element and is similar chemically to calcium. Strontium may be present in natural water in amounts up to a few mg/l much more frequently than the available data indicate. In most surface water the amount of strontium is small in proportion to calcium. However, in sea water the ratio of strontium to calcium is 1:30.

Zinc (Zn)

Zinc is abundant in rocks and ores but is only a minor constituent in natural water because the free metal and its oxides are only sparingly soluble. In most alkaline surface waters it is present only in trace quantities, but more may be present in acid water. Chlorides and sulfates of zinc are highly soluble. Zinc is used in many commercial products, and industrial wastes may contain large amounts.

Zinc in water does not cause serious effects on health, but produces undesirable esthetic effects. ISD-W, 1971 gives 5 mg/l (5000 ug/l) of zinc content as the highest desirable level for drinking water and 15 mg/l as the maximum permissible level.

PROPERTIES AND CHARACTERISTS OF WATER

Dissolved solids

Theoretically, dissolved solids are anhydrous residues of the dissolved substances in water.

All solutes affect the chemical and physical properties of the water and result in an osmotic pressure. Water with several thousand mg/l of dissolved solids is generally not palatable, although those accustomed to highly mineralized water may complain that less concentrated water tastes flat. The U.S. Public Health Service (1962) recommends that the maximum concentration of dissolved solids not exceed 500 mg/l in drinking and culinary water on carriers subject to Federal quarantine regulations, but permits 1,000 mg/l if no better water is available. ISD-W (1971) recommends 500 mg/l as the highest desirable level and 1500 mg/l as the maximum permissible level. Reported livestock

tolerances range from 3,000 mg/l (Colorado Agricultural Experiment Station, 1943) to 15,000 mg/l (Heller, 1933).

Industrial tolerances for dissolved solids differ widely, but few industrial processes will permit more than 1,000 mg/l. The Geological Survey classifies the degree of salinity of these more mineralized bodies of water as follows (Swenson and Baldwin, 1965):

Dissolved solids (mg/l)	Degree of salinity
Less than 1,000	Nonsaline.
1,000 to 3,000	Slightly saline.
3,000 to 10,000.	Moderately saline.
10,000 to 35,000	Very saline.

Hardness

Hardness is the characteristic of water that receives the most attention in industrial and domestic use. It is commonly recognized by the increased quantity of soap required to produce lather. The use of hard water is also objectionable because it contributes to the formation of scale in boilers, water heaters, radiators, and pipes, with the resultant decrease in rate of heat transfer, possibility of boiler failure, and loss of flow.

Hardness is caused almost entirely by compounds of calcium and magnesium. Other constituents--such as iron, manganese, aluminum, barium, strontium, and free acid--also cause hardness, although they usually are not present in quantities large enough to have any appreciable effect.

Generally, bicarbonate and carbonate determine the proportions of "carbonate" hardness of water. Carbonate hardness is the amount of hardness chemically equivalent to the amount of bicarbonate and carbonate in solution. Carbonate hardness is approximately equal to the amount of hardness that is removed from water by boiling.

Noncarbonate hardness is the difference between the hardness calculated from the total amount of calcium and magnesium in solution and the carbonate hardness. The scale formed at high temperatures by the evaporation of water containing noncarbonate hardness commonly is tough, heat resistant, and difficult to remove.

Although many people talk about soft water and hard water, there has been no firm line of demarcation. Water that seems hard to an easterner may seem soft to a westerner. In this report hardness of water is classified as follows:

Hardness range (calcium carbonate in mg/l)	Hardness description
0-60	Soft
61-120	Moderately hard
121-180	Hard
More than 180	Very hard

Durfor and Becker, 1964, p. 23-27.

Acidity (H^{+1})

The use of the terms acidity and alkalinity is widespread in the literature of water analysis and is a cause of confusion to those who are more accustomed to seeing a pH of 7.0 used as a neutral point. Acidity of a natural water represents the content of free carbon dioxide and other uncombined gases, organic acids and salts of strong acids and weak bases that hydrolyze to give hydrogen ions. Sulfates of iron and aluminum in mine and industrial wastes are common sources of acidity.

Sodium adsorption ratio (SAR)

The term "sodium adsorption ratio (SAR)" was introduced by the U.S. Salinity Laboratory Staff (1954). It is a ratio expressing the relative activity of sodium ions

in exchange reaction with soil and is an index of the sodium or alkali hazard to the soil. Sodium adsorption ratio is expressed by the equation:

$$SAR = \frac{Na^{+}}{\sqrt{\frac{Ca^{++}+Mg^{++}}{2}}}$$

where the concentrations of the ions are expressed in milliequivalents per liter.

Waters are divided into four classes with respect to sodium or alkali hazard: low, medium, high, and very high, depending upon the SAR and the specific conductance. At a conductance of 100 micromhos per centimeter the dividing points are at SAR values of 10, 18, and 26, but at 5,000 micromhos the corresponding dividing points are SAR values of approximately 2.5, 6.5, and 11. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Specific conductance (micromhos per centimeter at 25°C)

Specific conductance is a convenient, rapid determination used to estimate the amount of dissolved solids in water. It is a measure of the ability of water to transmit a small electrical current (see p. 6). The more dissolved solids in water that can transmit electricity the greater the specific conductance of the water. Commonly, the amount of dissolved solids (in mg/l) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream or from well to well and it may even vary in the same source with changes in the composition of the water (Durfor and Becker, 1964 p. 27-29).

Specific conductance of most waters in the eastern United States is less than 1,000 micromhos, but in the arid western parts of the country, a specific conductance of more than 1,000 micromhos is common.

Hydrogen-ion concentration (pH)

Hydrogen-ion concentration is expressed in terms of pH units (see p. 6). The values of pH often are used as a measure of the solvent power of water or as an indicator of the chemical behavior certain solutions may have toward rock minerals.

The degree of acidity or alkalinity of water, as indicated by the hydrogen-ion concentration, expressed as pH, is related to the corrosive properties of water and is useful in determining the proper treatment for coagulation that may be necessary at water-treatment plants. A pH of 7.0 indicates that the water is neither acid nor alkaline. pH readings progressively lower than 7.0 denote increasing acidity and those progressively higher than 7.0 denote increasing alkalinity. The pH of most natural surface waters ranges between 6 and 8. Some alkaline surface waters have pH values greater than 8.0 and waters containing free mineral acid or organic matter usually have pH values less than 4.5.

The investigator who utilizes pH data in his interpretations of water analyses should be careful to place pH values in their proper perspective.

Temperature

Temperature is an important factor in properly determining the quality of water. This is very evident for such a direct use as an industrial coolant. Temperature is also important, but perhaps not so evident, for its indirect influence upon aquatic biota, concentrations of dissolved gases, and distribution of chemical solutes in lakes and reservoirs as a consequence of thermal stratification and variation.

Surface water temperatures tend to change seasonally and daily with air temperatures, except for the outflow of large springs. Superimposed upon the annual temperature cycle is a daily fluctuation of temperature which is greater in warm seasons than in cold and greater in sunny periods than with a cloud cover. Natural warming is due mainly to absorption of a solar radiation by the water and secondarily to transfer of heat from the air. Condensation of water vapor at the water surface is reported to furnish measurable quantities of heat. Heat loss takes place largely through radiation, with further

losses through evaporation and conduction to the air and to the streambed. Thus the temperature of a small stream generally reaches a maximum in mid- to late afternoon due to solar heating and reaches a minimum from early to mid-morning after nocturnal radiation.

Color

In water analysis the term "color" refers to the appearance of water that is free from suspended solids. Many turbid waters that appear yellow, red, or brown when viewed in the stream show very little color after the suspended matter has been removed. The yellow-to-brown color of some waters is usually caused by organic matter extracted from leaves, roots, and other organic substances in the ground. In some areas objectionable color in water results from industrial wastes and sewage. Clear deep water may appear blue as the result of a scattering of sunlight by the water molecules. Water for domestic use and some industrial uses should be free from any perceptible color. A color less than 15 units generally passes unnoticed (U.S. Public Health Service, 1962). Some swamp waters have natural color in excess of 300 units.

The extent to which a water is colored by material in solution is commonly reported as a part of a water analysis because a significant color in water may indicate the presence of organic material that may have some bearing on the dissolved solids content. Color in water is expressed in terms of units between 0 and 500 or more based on the above standard (see p. 6).

Turbidity

Turbidity is the optical property of a suspension with reference to the extent to which the penetration of light is inhibited by the presence of insoluble material. Turbidity is a function of both the concentration and particle size of the suspended material. It is reported in terms of mg/l of silica or Jackson turbidity units (JTU).

Turbid water is abrasive in pipes, pumps, and turbine blades. Although turbidity does not directly measure the safety of drinking water, it is related to the consumer's acceptance of the water. The highest desirable level of turbidity for drinking water is 5 JTU with a maximum permissible level of 25 JTU (ISD-W, 1971).

Density at 20°C

Density is the mass of any substance per unit volume at a designated standard temperature. Density should not be confused with specific gravity, which is a mass-to-mass relation.

The density value has some use in industries that utilize brines and whose basic unit of concentration of dissolved material is density. Density is used primarily by the chemist in the computation of milligrams per liter for highly mineralized waters.

Dissolved oxygen (DO)

Oxygen dissolved in water is derived from the air and from the oxygen given off in the process of photosynthesis by aquatic plants.

Dissolved oxygen in water has no adverse physiological effect and actually increases the palatability of the water. No minimum concentration of dissolved oxygen required to support fish life has been listed because the oxygen requirements of fish vary with the species and age, with temperature, and with concentration of other substances in the water.

Dissolved oxygen is responsible for many of the corrosion problems in industry.

Chemical oxygen demand (COD)

Chemical oxygen demand is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural-water color or with carbonaceous organic pollution from sewage or industrial wastes.

Biochemical oxygen demand (BOD)

Biochemical oxygen demand is a measure of the oxygen required to oxidize the organic material usable as a source of food by aerobic organisms.

Biological and microbiological information

Biological and microbiological information is an important aspect in the evaluation of water quality. The kinds and amount of aquatic biota in a stream or lake can be useful "indicators" of environmental conditions and particularly of the degree of pollution of water with organic wastes (Doudoroff and Warren, 1957). Biological information includes qualitative and quantitative analyses of plankton, bottom organisms, and particulate inorganic and amorphous matter present. Microbiological information includes quantitative identification of certain bacteriological indicator organisms.

Chlorophyll (plant pigment).--The concentrations of photosynthetic pigments in natural waters vary with time and changing aquatic conditions. Concentrations of chlorophyll a, b, and c (spectrophotometric determination) are used to estimate the biomass and photosynthetic capacity of phytoplankton (blue-green algae). Ratios between the different forms of chlorophyll are thought to indicate the taxonomic composition or the physiological state of the algae community (Slack, 1970).

Plankton.--Plankton is the floating (or weakly swimming) animal or plant life in a body of water consisting, chiefly of minute plants (as diatomes and blue-green algae) and of minute animals (as protozoan, entomostracans and various larvae). Algae are known to cause tastes and odor in water supply.

Plankton population in water is obtained by count level (the number of organisms per milliliter).

Coliform bacteria.--Coliform organisms have long been used as indicators of sewage pollution, although the group includes bacteria from diverse natural sources and habitats. For example, members of the coliform group are indigenous to soil and vegetation as well as feces. Standards for drinking-water quality provide definite minimums as to number of samples examined and the maximum number of coliform organisms allowable per 100 milliliters (ml) of finished water (Slack, 1970). The coliform population of water is determined either by the most probable number (MPN), or by the incubation membrane filter method, a direct count of coliform colonies per plate.

Fecal coliform bacteria.--Fecal coliform is that portion of the coliform group that is present in the intestinal tract of warm-blooded animals and is capable of producing gas from lactos in suitable culture medium at 44.5°C. Organisms from other sources generally cannot produce gas in this manner. (American Public Health Assoc. and others, 1965). Thus, in general, the presence of fecal coliform organisms indicates recent pollution (Slack, 1970).

Organics

Phenols.--Phenolic material in water resources is invariably the result of pollution. Phenols are widely used as disinfectants and in the synthesis of many organic compounds. Waste products from oil refineries, coke areas, and chemical plants may contain high concentrations. Fortunately, phenols decompose in the presence of oxygen and micro-organisms, and their persistence downstream from point of entry is relatively short lived. The rate of decomposition is dependent on the environment.

Very low concentrations impart such a disagreeable taste to water that it is highly improbable that harmful amounts could be consumed unknowingly. Reported thresholds of detection of taste and odor range from 0.001 to 0.01 mg/l.

Cyanide (CN).--Cyanides are not found free in nature, but may become contaminants of water supplies by means of effluents from gasworks, coke ovens, steel mills, electroplating processes, and chemical industries. In natural streams and organic soils, simple cyanides are decomposed by bacterial action, whereas the metal-cyanide complexes are often quite stable and more resistant to degradation. The U.S. Public Health Service (1962) set a recommended limit of 0.01 mg cyanide per liter and a

mandatory limit of 0.2 mg/l for waters subject to interstate regulations. ISD-W (1971) sets the upper limit for drinking water as 0.05 mg/l.

Detergents (methylene blue active substance, MBAS).--Anionic surfactants in detergents resist chemical oxidation and biological breakdown. Soap is an example of this class and the synthetic members are sodium salts of organic sulfonates or sulfates. (Rose, 1966). Their persistence in water over long periods of time contributes to pollution of both ground water and surface water. Some of the effects produced from detergent pollution are unpleasant taste, odor, and foaming (Wayman, and others, 1962). Although the physiological implications of MBAS to human beings is unknown, prolonged ingestion of this material by rats is believed to be nontoxic (Paynter, 1960). The U.S. Public Health Service (1962) recommends that MBAS should not exceed 0.5 mg/l in drinking and culinary waters. ISD-W (1971) sets 0.2 mg/l as the highest desirable level and 1.0 mg/l as the maximum permissible level.

Total Organic Carbon (TOC).--Total organic carbon is a measure of the organically related carbonaceous content of water. It includes all natural and manmade organic compounds which are combustable at a temperature of 950°C.

Sediment

Fluvial sediment generally is regarded as that material which is transported by, suspended in, or deposited by water. Suspended sediment is that part which remains in suspension in water owing to the upward components of turbulent currents or by colloidal suspension. Much fluvial sediment results from the natural process of erosion, which in turn is part of the geologic cycle of rock transformation. This natural process may be accelerated by agricultural practices. Sediment also is contributed by a number of industrial and construction activities. In certain sections, waste materials from mining, logging, oil-field, and other industrial operations introduce large quantities of suspended material.

The quantity of sediment, transported or available for transportation, is affected by climatic conditions, form or nature of precipitation, character of the solid mantle, plant cover, topography, and land use. The mode and rate of sediment erosion, transport, and deposition is determined largely by the size distribution of the particles or more precisely by the fall velocities of the particles in water. Sediment particles in the sand size range (larger than 0.062 mm) do not appear to be affected by flocculation or dispersion resulting from the mineral constituents in solution. In contrast, the sedimentation diameter of clay and silt particles in suspension may vary considerably from point to point in a stream or reservoir, depending on the mineral matter in solution and in suspension and the degree of turbulence present. The size of sediment particles in transport at any point depends on the type of erodible and soluble material in the drainage area, the degree of flocculation present, time in transport, and characteristics of the transporting flow. The flow characteristics include velocity of water, turbulence, and the depth, width, and roughness of the channel. As a result of these variable characteristics, the size of particles transported, as well as the total sediment load, is in constant adjustment with the characteristics and physical features of the stream and drainage area.

STREAMFLOW

Most of the records of stream discharge, used in conjunction with the chemical analyses and in the computation of sediment loads in this volume, are published in the Geological Survey water-supply paper series, "Surface Water Supply of the United States, 1966-70." The discharge reported for a composite sample is usually the average of daily mean discharges for the composite period. The discharges reported in the tables of single analyses are either daily mean discharges or discharges obtained at the time samples were collected and computed from a stage-discharge relation or from a discharge measurement.

PUBLICATIONS

Reports giving records of chemical quality and temperatures of surface waters and suspended-sediment loads of streams in the area covered by this volume for the water years 1941-69, are listed below:

Numbers of water-supply papers containing records for Parts 12-16, 1941-69

Year	WSP	Year	WSP	Year	WSP	Year	WSP
1941	942	1949	1163	1957	1523	1965	1966
1942	950	1950	1189	1958	1574	1966	1996
1943	970	1951	1200	1959	1645	1967	2016
1944	1022	1952	1253	1960	1745	1968	2100
1945	1030	1953	1293	1961	1885	1969	2150
1946	1050	1954	1353	1962	1945		
1947	1102	1955	1403	1963	1951		
1948	1133	1956	1453	1964	1959		

Geological Survey reports containing chemical quality, temperature, and sediment data obtained before 1941 are listed below. Publications dealing largely with the quality of ground-water supplies and only incidentally covering the chemical composition of surface waters are not included. Publications that are out of print are preceded by an asterisk.

PROFESSIONAL PAPER

*135. Composition of river and lake waters of the United States, 1924.

BULLETINS

*479. The geochemical interpretation of water analyses, 1911.
770. The data of geochemistry, 1924.

WATER-SUPPLY PAPERS

*108. Quality of water in the Susquehanna River drainage basin, with an introductory chapter on physiographic features, 1904.
*161. Quality of water in the upper Ohio River basin and at Erie, Pa., 1906.
*193. The quality of surface waters in Minnesota, 1907.
*236. The quality of surface waters in the United States, Part 1, Analyses of waters east of the one hundredth meridian, 1909.
*237. The quality of the surface waters of California, 1910.
*239. The quality of surface waters of Illinois, 1910.
*273. Quality of the water supplies of Kansas, with a preliminary report on stream pollution by mine waters in southeastern Kansas, 1911.
*274. Some stream waters of the western United States, with chapters on sediment carried by the Rio Grande and the industrial application of water analyses, 1911.
*339. Quality of the surface waters of Washington, 1914.
*363. Quality of the surface waters of Oregon, 1914.
*418. Mineral springs of Alaska, with a chapter on the chemical character of some surface waters of Alaska, 1917.
*596-B. Quality of water of Colorado River in 1925-26, 1928.
*596-D. Quality of water of Pecos River in Texas, 1928.
*596-E. Quality of the surface waters of New Jersey, 1928.
*636-A. Quality of water of the Colorado River in 1926-28, 1930.
*636-B. Suspended matter in the Colorado River in 1925-28, 1930.
*638-D. Quality of water of the Colorado River in 1928-30, 1932.
*839. Quality of water of the Rio Grande basin above Fort Quitman, Tex., 1938.

*889-E. Chemical character of surface water of Georgia, 1944.
*998. Suspended sediment in the Colorado River, 1925-41, 1947.
1048. Discharge and sediment loads in the Boise River drainage basin, Idaho, 1939-40, 1948.
1110-C. Quality of water of Conchas Reservoir, New Mexico, 1939-49, 1952.

Many of the reports listed are available for consultation in the larger public and institutional libraries. Copies of Geological Survey publications still in print may be purchased at a nominal cost from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, who will, upon request, furnish lists giving prices.

COOPERATION

Many municipal, State, and Federal agencies assisted in collecting records for quality-of-water investigations. Many of the investigations were supported by funds appropriated directly to the U.S. Geological Survey. The State, local, and Federal agencies that cooperated in these quality-of-water investigations are as follows:

Alaska--Alaska Department of Health and Welfare, J. S. McDonald, commissioner; Alaska Department of Fish and Game, W. H. Noerenberg, commissioner; Greater Anchorage Area Borough, J. M. Asplund, chairman; Greater Juneau Borough, M. R. Charney, chairman; Kenai Peninsula Borough, G. A. Navarre, chairman; Kodiak Island Borough, W. T. White, chairman; city of Anchorage, G. M. Sullivan, mayor; city of Kenai, E. H. Morin, mayor, city of Petersburg, Edward Hagerman, mayor. Agencies assisting in the collection of records: Alaska Power Administration; Forest Service, U. S. Department of Agriculture; Alaska Air Command; Atomic Energy Commission; U.S. Air Force; Corps of Engineers, U.S. Army; Public Health Service, U.S. Department of Health, Education and Welfare; Fish and Wildlife Service, and Bureau of Indian Affairs, U.S. Department of the Interior.

Hawaii--City and county of Honolulu; Corps of Engineers, U.S. Army.

Idaho--Idaho Department of Reclamation, R. K. Higginson, State Reclamation engineer; Corps of Engineers, U.S. Army; Forest Service, U.S. Department of Agriculture; U.S. Department of State; Bureau of Commercial Fisheries, U.S. Department of the Interior.

Montana--Montana Fish and Game Commission, Division of Fisheries, A. N. Whitney, chief; Corps of Engineers, U.S. Army; Environmental Protection Agency.

Oregon--State Engineer of Oregon; Oregon Board of Higher Education; Oregon State Game Commission; counties of Douglas and Lane; cities of Coos Bay, North Bend, Portland, and Astoria; Portland General Electric Company; Corps of Engineers, U.S. Army; Bureau of Fish and Wildlife and Bureau of Reclamation, U.S. Department of the Interior; Forest Service, U.S. Department of Agriculture; counties of Clark and Cowlitz, Washington; Public Utilities Districts; Atomic Energy Commission.

Washington--Washington State Department of Water Resources, H. M. Ahliquist, director; Washington State Water Pollution Control Commission, J. P. Behlke, director; Washington State Department of Fisheries, T. C. Tollefson, director; city of Tacoma, Department of Public Utilities, C. A. Erdahl, director; Corps of Engineers, U.S. Army.

Wyoming--Wyoming Department of Agriculture, G. J. Hertzler, commissioner.

DIVISION OF WORK

The quality-of-water work was performed by the Water Resources Division of the Geological Survey, J. S. Cragwall, Jr., chief hydrologist, and under the direction of the district chiefs listed in the preface.

Correspondence regarding the records in this report or any additional information should be directed to the district chief of the appropriate Geological Survey-Water Resources Division district office as indicated below.

State	District Office	Address
Alaska	Anchorage 99501	218 E Street Skyline Bldg.
Hawaii	Honolulu 96814	Room 330 First Insurance Bldg. 1100 Ward Avenue
Idaho	Boise 83702	Box 036, Federal Bldg. and U.S. Court House Room 365 550 West Fort Street
Montana	Helena 59601	421 Federal Bldg. 316 N. Park Avenue P. O. Box 1696
Oregon	Portland 97208	830 N.E. Holladay Street P. O. Box 3202
Washington	Tacoma 98402	Room 300 1305 Tacoma Avenue South
Wyoming	Cheyenne 82001	4015 Warren Avenue P. O. Box 2087

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PART 12. PACIFIC SLOPE BASINS IN WASHINGTON AND UPPER COLUMBIA RIVER BASIN

NASELLE RIVER BASIN

12010000 NASELLE RIVER NEAR NASELLE, WASH.

LOCATION.--Lat 46°22'25", long 123°44'30", in SW¼SW¼ sec.1, T.10 N., R.9 W., Pacific County, at bridge on county highway, 1,350 ft downstream from gaging station, 2.5 miles upstream from Salmon Creek, 3.5 miles east of Naselle, and at mile 17.4.

DRAINAGE AREA.--54.8 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969.
Water temperatures: August 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C June 17, Aug. 14, 15; minimum, 2.0°C Dec. 31, Jan. 27-31.

Period of record:
Water temperatures: Maximum, 23.0°C July 30, 1965, Aug. 15, 17, 1967; minimum, 2.0°C Dec. 31, 1968, Jan. 27-31, 1969.

REMARKS.--Temperature recorder at gaging station 1,350 ft upstream from sampling site.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
15...	595	9.7	4.2	1.2	4.2	.3	18	0	5.0
NOV.									
06...	302	12	4.4	1.4	4.3	.3	20	0	3.8
DEC.									
16...	812	11	3.7	1.0	4.2	.8	18	0	2.6
JAN.									
06...	1580	11	3.2	.9	3.7	.3	15	0	2.6
FEB.									
04...	640	9.4	3.6	1.0	3.8	.2	15	0	2.2
APR.									
01...	441	11	3.6	1.0	3.8	.2	17	0	2.8
MAY									
05...	206	11	4.1	1.1	4.2	.3	20	0	3.5
JUNE									
09...	130	11	4.3	1.1	4.5	.4	21	0	3.6
JULY									
07...	116	--	5.3	1.3	4.5	.3	23	0	--
AUG.									
06...	51	12	5.1	1.4	5.1	.4	26	0	4.0
SEPT.									
02...	33	12	5.1	1.4	5.3	.4	25	0	3.8

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
15...	2.8	.1	1.5	--	47	16	1	51	7.0
NOV.									
06...	2.8	.1	1.3	--	41	17	0	55	7.2
DEC.									
16...	3.1	.1	1.5	--	36	1	0	48	7.1
JAN.									
06...	2.9	.0	1.4	20	34	12	0	44	7.2
FEB.									
04...	3.6	.0	1.4	--	35	13	1	47	7.0
APR.									
01...	3.8	.1	1.4	--	40	13	0	47	7.2
MAY									
05...	3.7	.0	.7	--	36	15	0	53	7.4
JUNE									
09...	4.3	.0	.5	--	38	15	0	54	7.3
JULY									
07...	--	.0	--	--	--	19	0	57	7.1
AUG.									
06...	3.6	.1	.2	--	49	19	0	62	7.5
SEPT.									
02...	4.2	.1	.5	--	46	19	0	64	7.3

12010000 NASELLE RIVER NEAR NASELLE, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
15...	10	14	10.2	120	--	--	--
NOV.							
06...	0	8	11.5	150	--	--	--
DEC.							
16...	0	6	11.2	160	--	--	--
JAN.							
06...	10	7	11.0	290	0	0	0
FEB.							
04...	5	5	12.8	80	--	--	--
APR.							
01...	5	8	11.9	240	--	--	--
MAY							
05...	0	12	11.7	90	--	--	--
JUNE							
09...	0	15	10.1	320	--	--	--
JULY							
07...	5	14	10.4	430	0	0	0
AUG.							
06...	0	14	9.9	950	--	--	--
SEPT.							
02...	0	16	9.6	1100	--	--	--

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.0	9.0	8.0	8.0	8.0	5.0	3.0	3.0	3.0	6.0	6.0
2	11.0	9.0	9.0	8.0	8.0	7.0	5.0	5.0	3.0	3.0	6.0	6.0
3	11.0	9.0	9.0	8.0	8.0	8.0	6.0	5.0	4.0	3.0	6.0	6.0
4	12.0	11.0	8.0	8.0	8.0	8.0	6.0	6.0	4.0	4.0	6.0	6.0
5	11.0	10.0	9.0	8.0	8.0	7.0	7.0	6.0	4.0	4.0	6.0	6.0
6	11.0	11.0	8.0	8.0	7.0	7.0	7.0	7.0	4.0	4.0	6.0	6.0
7	11.0	10.0	8.0	8.0	7.0	7.0	7.0	7.0	4.0	4.0	6.0	5.0
8	10.0	9.0	9.0	8.0	7.0	7.0	7.0	6.0	4.0	4.0	6.0	5.0
9	9.0	9.0	9.0	9.0	7.0	7.0	6.0	6.0	5.0	4.0	6.0	5.0
10	11.0	9.0	9.0	9.0	7.0	7.0	6.0	6.0	5.0	5.0	6.0	4.0
11	11.0	10.0	9.0	9.0	7.0	7.0	6.0	6.0	6.0	5.0	5.0	4.0
12	10.0	10.0	9.0	9.0	7.0	7.0	6.0	6.0	6.0	6.0	5.0	4.0
13	10.0	9.0	9.0	9.0	7.0	7.0	6.0	6.0	6.0	6.0	5.0	4.0
14	10.0	9.0	9.0	9.0	7.0	7.0	6.0	5.0	6.0	6.0	6.0	4.0
15	10.0	9.0	9.0	8.0	7.0	7.0	5.0	4.0	6.0	6.0	7.0	6.0
16	10.0	9.0	8.0	8.0	7.0	7.0	4.0	4.0	6.0	6.0	7.0	6.0
17	10.0	9.0	9.0	8.0	7.0	7.0	4.0	4.0	6.0	6.0	6.0	6.0
18	9.0	9.0	9.0	9.0	7.0	7.0	4.0	4.0	6.0	6.0	7.0	6.0
19	9.0	9.0	9.0	9.0	7.0	6.0	4.0	4.0	6.0	6.0	7.0	7.0
20	10.0	9.0	9.0	9.0	6.0	6.0	4.0	4.0	6.0	6.0	7.0	7.0
21	10.0	9.0	9.0	9.0	6.0	6.0	4.0	3.0	6.0	6.0	7.0	7.0
22	10.0	9.0	9.0	9.0	6.0	5.0	3.0	3.0	6.0	6.0	7.0	7.0
23	11.0	10.0	9.0	9.0	7.0	5.0	3.0	3.0	6.0	6.0	7.0	7.0
24	11.0	11.0	9.0	9.0	7.0	7.0	3.0	3.0	6.0	5.0	7.0	6.0
25	11.0	11.0	9.0	9.0	7.0	7.0	3.0	3.0	6.0	5.0	8.0	7.0
26	11.0	9.0	9.0	8.0	7.0	7.0	3.0	3.0	6.0	6.0	8.0	7.0
27	9.0	9.0	9.0	8.0	7.0	7.0	3.0	2.0	6.0	5.0	8.0	8.0
28	10.0	9.0	9.0	8.0	7.0	6.0	2.0	2.0	6.0	5.0	8.0	7.0
29	11.0	10.0	9.0	8.0	6.0	4.0	2.0	2.0	--	--	8.0	7.0
30	11.0	9.0	8.0	8.0	4.0	3.0	2.0	2.0	--	--	9.0	8.0
31	9.0	9.0	--	--	3.0	2.0	3.0	2.0	--	--	9.0	8.0
AVG	10.3	9.5	8.8	8.4	6.8	6.4	4.5	4.2	5.2	5.0	6.7	6.0

12010000 NASELLE RIVER NEAR NASELLE, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969--Continued

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	8.0	7.0	7.0	13.0	11.0	16.0	14.0	17.0	14.0	17.0	15.0
2	8.0	7.0	7.0	7.0	13.0	12.0	15.0	14.0	17.0	14.0	17.0	16.0
3	7.0	7.0	8.0	7.0	15.0	13.0	14.0	13.0	15.0	13.0	16.0	15.0
4	7.0	7.0	9.0	7.0	15.0	14.0	13.0	13.0	14.0	14.0	15.0	14.0
5	8.0	7.0	11.0	8.0	14.0	13.0	13.0	13.0	14.0	14.0	14.0	13.0
6	8.0	7.0	12.0	9.0	13.0	12.0	13.0	13.0	16.0	13.0	14.0	13.0
7	8.0	7.0	13.0	11.0	13.0	12.0	13.0	13.0	16.0	14.0	16.0	13.0
8	8.0	7.0	13.0	12.0	14.0	12.0	16.0	13.0	17.0	14.0	16.0	15.0
9	8.0	8.0	13.0	13.0	14.0	13.0	16.0	14.0	17.0	16.0	17.0	16.0
10	8.0	7.0	13.0	12.0	13.0	13.0	15.0	14.0	17.0	16.0	17.0	16.0
11	9.0	7.0	14.0	12.0	13.0	13.0	14.0	13.0	17.0	16.0	16.0	16.0
12	9.0	8.0	14.0	12.0	13.0	13.0	14.0	13.0	17.0	16.0	16.0	16.0
13	8.0	8.0	13.0	12.0	16.0	13.0	14.0	13.0	18.0	16.0	16.0	16.0
14	8.0	8.0	13.0	12.0	15.0	14.0	14.0	13.0	19.0	17.0	16.0	13.0
15	9.0	8.0	13.0	11.0	17.0	14.0	16.0	13.0	19.0	18.0	14.0	12.0
16	8.0	8.0	13.0	11.0	18.0	17.0	16.0	13.0	18.0	16.0	13.0	13.0
17	8.0	8.0	14.0	11.0	19.0	17.0	16.0	13.0	17.0	15.0	13.0	13.0
18	8.0	8.0	14.0	13.0	18.0	17.0	16.0	13.0	16.0	16.0	13.0	13.0
19	8.0	8.0	13.0	12.0	17.0	16.0	17.0	13.0	16.0	16.0	13.0	13.0
20	8.0	8.0	13.0	12.0	16.0	14.0	17.0	14.0	16.0	16.0	13.0	13.0
21	8.0	7.0	15.0	12.0	14.0	14.0	17.0	14.0	17.0	16.0	13.0	13.0
22	8.0	8.0	16.0	13.0	14.0	14.0	17.0	14.0	17.0	16.0	13.0	13.0
23	8.0	8.0	16.0	14.0	14.0	14.0	18.0	16.0	17.0	16.0	13.0	13.0
24	8.0	7.0	15.0	13.0	14.0	13.0	18.0	16.0	17.0	16.0	13.0	13.0
25	8.0	7.0	14.0	12.0	13.0	12.0	17.0	15.0	17.0	16.0	13.0	13.0
26	8.0	7.0	13.0	12.0	13.0	12.0	17.0	14.0	17.0	15.0	13.0	12.0
27	9.0	8.0	12.0	11.0	13.0	12.0	17.0	15.0	15.0	14.0	12.0	12.0
28	9.0	8.0	11.0	11.0	13.0	12.0	17.0	16.0	15.0	14.0	13.0	12.0
29	8.0	7.0	11.0	11.0	13.0	12.0	17.0	14.0	15.0	13.0	13.0	13.0
30	8.0	7.0	11.0	9.0	14.0	12.0	17.0	15.0	16.0	14.0	13.0	13.0
31	--	--	11.0	9.0	--	--	17.0	16.0	16.0	14.0	--	--
AVG	8.1	7.5	12.4	10.9	14.4	13.3	15.7	13.8	16.5	15.0	14.3	13.7

12011500 WILLAPA RIVER AT LEBAM, WASH.

LOCATION (revised).--Lat 46°33'50", long 123°33'49", in SW¼SW¼ sec.33, T.13 N., R.7 W., Pacific County, temperature recorder at gaging station on left bank, 0.1 mile downstream from bridge on State Highway 6, 0.5 mile west of Lebam, 1.0 mile upstream from Walker Creek, and at mile 33.9.

DRAINAGE AREA.--41.4 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to July 1961.
Water temperatures: March 1952 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 20.0°C June 17, 18; minimum, 1.0°C Jan. 28, 29.

Period of record:
Water temperatures: Maximum, 22.5°C July 19, 20, 1956; minimum, freezing point Jan. 28-30, 1957, Jan. 21-23, 1962.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.0	9.0	8.0	8.0	8.0	5.0	5.0	4.0	3.0	6.0	4.0
2	11.0	10.0	10.0	8.0	8.0	8.0	5.0	5.0	5.0	4.0	6.0	6.0
3	11.0	10.0	10.0	9.0	9.0	8.0	7.0	5.0	5.0	5.0	7.0	6.0
4	12.0	11.0	9.0	7.0	8.0	8.0	7.0	7.0	6.0	5.0	7.0	6.0
5	12.0	10.0	9.0	8.0	8.0	8.0	7.0	7.0	6.0	5.0	6.0	6.0
6	11.0	11.0	9.0	8.0	8.0	7.0	7.0	7.0	5.0	5.0	6.0	6.0
7	11.0	10.0	9.0	8.0	8.0	7.0	7.0	7.0	5.0	5.0	6.0	4.0
8	10.0	9.0	10.0	9.0	8.0	8.0	7.0	7.0	6.0	5.0	6.0	6.0
9	11.0	10.0	10.0	9.0	8.0	8.0	7.0	7.0	6.0	6.0	7.0	5.0
10	11.0	10.0	9.0	9.0	8.0	8.0	7.0	7.0	6.0	6.0	6.0	4.0
11	11.0	11.0	10.0	9.0	8.0	8.0	7.0	7.0	6.0	6.0	7.0	4.0
12	11.0	10.0	10.0	10.0	8.0	8.0	7.0	6.0	6.0	6.0	7.0	5.0
13	11.0	9.0	10.0	9.0	8.0	8.0	6.0	6.0	7.0	6.0	7.0	4.0
14	11.0	10.0	9.0	9.0	8.0	8.0	6.0	6.0	7.0	6.0	7.0	4.0
15	11.0	11.0	9.0	8.0	8.0	8.0	6.0	5.0	7.0	6.0	8.0	7.0
16	11.0	10.0	8.0	8.0	8.0	7.0	5.0	5.0	7.0	6.0	8.0	7.0
17	11.0	10.0	9.0	8.0	7.0	7.0	5.0	5.0	6.0	6.0	7.0	7.0
18	11.0	10.0	10.0	9.0	7.0	7.0	5.0	5.0	6.0	5.0	7.0	7.0
19	11.0	11.0	10.0	10.0	7.0	5.0	5.0	4.0	6.0	5.0	8.0	7.0
20	11.0	11.0	10.0	10.0	5.0	4.0	4.0	4.0	7.0	6.0	8.0	7.0
21	11.0	10.0	10.0	9.0	4.0	4.0	4.0	3.0	7.0	6.0	8.0	6.0
22	11.0	10.0	9.0	9.0	5.0	4.0	3.0	3.0	7.0	6.0	8.0	7.0
23	12.0	11.0	9.0	8.0	7.0	5.0	3.0	2.0	7.0	6.0	8.0	6.0
24	12.0	11.0	9.0	8.0	7.0	7.0	3.0	3.0	7.0	5.0	8.0	5.0
25	12.0	11.0	9.0	8.0	7.0	7.0	3.0	2.0	6.0	5.0	9.0	6.0
26	11.0	9.0	8.0	7.0	7.0	7.0	2.0	2.0	6.0	5.0	9.0	7.0
27	11.0	9.0	8.0	8.0	7.0	6.0	2.0	2.0	6.0	4.0	9.0	7.0
28	11.0	10.0	8.0	8.0	6.0	4.0	2.0	1.0	6.0	4.0	10.0	8.0
29	11.0	11.0	8.0	8.0	4.0	3.0	2.0	1.0	--	--	9.0	8.0
30	11.0	10.0	8.0	8.0	3.0	2.0	2.0	2.0	--	--	11.0	9.0
31	10.0	9.0	--	--	5.0	2.0	3.0	2.0	--	--	10.0	8.0
AVG	11.1	10.1	9.1	8.4	7.0	6.4	4.8	4.5	6.1	5.2	7.6	6.0

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	8.0	9.0	7.0	16.0	12.0	17.0	14.0	17.0	16.0	15.0	14.0
2	8.0	7.0	9.0	8.0	17.0	14.0	17.0	15.0	17.0	15.0	16.0	15.0
3	8.0	6.0	9.0	8.0	18.0	15.0	15.0	14.0	16.0	14.0	16.0	14.0
4	8.0	7.0	11.0	8.0	18.0	16.0	15.0	14.0	14.0	14.0	14.0	13.0
5	9.0	7.0	12.0	9.0	18.0	16.0	15.0	14.0	15.0	14.0	13.0	13.0
6	8.0	7.0	13.0	9.0	17.0	15.0	14.0	14.0	15.0	14.0	13.0	13.0
7	9.0	7.0	16.0	11.0	16.0	14.0	14.0	14.0	14.0	14.0	14.0	13.0
8	9.0	7.0	16.0	12.0	17.0	15.0	16.0	14.0	15.0	14.0	15.0	14.0
9	9.0	7.0	16.0	13.0	17.0	16.0	16.0	16.0	16.0	15.0	16.0	15.0
10	8.0	7.0	15.0	13.0	17.0	16.0	16.0	14.0	16.0	16.0	16.0	16.0
11	11.0	7.0	16.0	12.0	16.0	16.0	14.0	14.0	16.0	15.0	16.0	16.0
12	11.0	9.0	16.0	12.0	16.0	15.0	14.0	14.0	16.0	15.0	16.0	16.0
13	9.0	8.0	14.0	13.0	17.0	15.0	14.0	13.0	16.0	15.0	16.0	14.0
14	9.0	8.0	14.0	12.0	17.0	16.0	14.0	13.0	17.0	16.0	14.0	13.0
15	9.0	8.0	14.0	12.0	18.0	16.0	15.0	14.0	17.0	16.0	13.0	12.0
16	9.0	7.0	14.0	12.0	19.0	18.0	15.0	14.0	16.0	14.0	13.0	12.0
17	9.0	8.0	16.0	12.0	20.0	19.0	16.0	15.0	14.0	14.0	13.0	13.0
18	9.0	8.0	16.0	13.0	20.0	19.0	16.0	15.0	15.0	14.0	14.0	13.0
19	8.0	8.0	13.0	12.0	19.0	17.0	16.0	15.0	15.0	15.0	13.0	13.0
20	8.0	8.0	14.0	12.0	17.0	16.0	17.0	16.0	16.0	15.0	13.0	13.0
21	11.0	8.0	16.0	13.0	16.0	16.0	16.0	16.0	16.0	15.0	13.0	13.0
22	10.0	9.0	17.0	15.0	16.0	16.0	17.0	16.0	16.0	14.0	14.0	13.0
23	10.0	9.0	17.0	16.0	16.0	16.0	18.0	17.0	15.0	14.0	14.0	13.0
24	9.0	8.0	16.0	15.0	16.0	14.0	18.0	17.0	16.0	15.0	13.0	12.0
25	9.0	7.0	15.0	13.0	14.0	13.0	17.0	16.0	16.0	15.0	13.0	13.0
26	11.0	7.0	14.0	13.0	14.0	14.0	16.0	14.0	16.0	14.0	13.0	12.0
27	11.0	9.0	14.0	12.0	14.0	13.0	16.0	15.0	14.0	14.0	13.0	12.0
28	11.0	9.0	13.0	11.0	14.0	14.0	17.0	16.0	14.0	13.0	14.0	13.0
29	9.0	8.0	12.0	12.0	14.0	14.0	17.0	16.0	14.0	13.0	14.0	14.0
30	9.0	7.0	13.0	11.0	16.0	13.0	17.0	16.0	14.0	13.0	14.0	13.0
31	--	--	15.0	11.0	--	--	17.0	16.0	14.0	14.0	--	--
AVG	9.2	7.6	14.0	11.6	16.6	15.3	15.8	14.8	15.4	14.4	14.1	13.4

12013500 WILLAPA RIVER NEAR WILLAPA, WASH.

LOCATION.--Lat 46°39'00", long 123°38'50", in NE¼NW¼ sec.2, T.13 N., R.8 W., Pacific County, at bridge on county road, 200 ft downstream from gaging station, 350 ft downstream from Mill Creek, 2.5 miles southeast of Willapa, and at mile 18.2.

DRAINAGE AREA.--130 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
15...	750	12	4.1	1.3	5.1	.7	18	0	4.4
NOV.									
06...	373	13	4.3	1.2	5.4	.5	22	0	3.0
DEC.									
16...	1390	13	3.5	1.1	4.7	.5	17	0	2.8
JAN.									
06...	2040	13	3.1	1.1	4.5	.5	16	0	3.2
FEB.									
04...	1350	12	3.3	1.1	4.6	.5	15	0	2.8
MAR.									
04...	471	13	3.6	1.2	4.5	.4	18	0	3.0
APR.									
01...	740	12	3.3	1.1	4.2	.4	17	0	3.0
MAY									
05...	303	13	4.1	1.3	5.1	.5	22	0	4.1
JUNE									
09...	140	13	4.4	1.4	5.3	.6	24	0	4.2
JULY									
07...	109	--	5.3	1.6	5.7	.7	26	0	--
AUG.									
06...	45	13	5.2	1.7	6.3	.7	31	0	3.6
SEPT.									
02...	29	14	5.7	1.9	6.3	.8	33	0	3.4

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
15...	4.0	.1	1.9	--	50	16	1	57	6.7
NOV.									
06...	3.2	.1	1.6	--	50	16	0	61	7.0
DEC.									
16...	3.1	.1	2.2	--	47	13	0	53	6.9
JAN.									
06...	3.1	.0	2.6	10	37	12	0	49	7.1
FEB.									
04...	3.5	.0	2.3	--	44	13	0	50	6.9
MAR.									
04...	2.7	.0	1.2	--	44	14	0	51	7.3
APR.									
01...	3.6	.1	2.2	--	52	13	0	48	7.0
MAY									
05...	4.0	.0	.9	--	44	16	0	59	7.3
JUNE									
09...	4.3	.0	.7	--	48	17	0	61	7.6
JULY									
07...	--	.0	--	--	--	20	0	65	7.1
AUG.									
06...	4.0	.1	.5	--	49	20	0	71	7.5
SEPT.									
02...	5.3	.0	.5	--	51	22	0	76	6.9

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
15...	10	12	10.1	5000	--	--	--
NOV.							
06...	5	8	11.1	540	--	--	--
DEC.							
16...	10	6	11.3	1100	--	--	--
JAN.							
06...	10	7	10.7	370	0	0	0
FEB.							
04...	10	5	12.4	240	--	--	--
MAR.							
04...	5	7	12.2	90	--	--	--
APR.							
01...	10	8	11.7	710	--	--	--
MAY							
05...	5	13	11.2	200	--	--	--
JUNE							
09...	5	17	8.9	700	--	--	--
JULY							
07...	5	--	9.6	1200	0	0	0
AUG.							
06...	5	16	8.5	740	--	--	--
SEPT.							
02...	5	18	7.5	1300	--	--	--

12017000 NORTH RIVER NEAR RAYMOND, WASH.

LOCATION.--Lat 46°48'27", long 123°50'58", in SE¼SW¼ sec.6, T.15 N., R.9 W., Grays Harbor County (revised), temperature recorder at gaging station on left bank, 1.2 miles upstream from Salmon Creek, 10 miles northwest of Raymond, and at mile 6.9.

DRAINAGE AREA.--219 sq mi.

PERIOD OF RECORD.--Water temperatures: July 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C June 17, July 23-26; minimum, 1.0°C Jan. 28-31.

Period of record:
Water temperatures: Maximum, 23.0°C Aug. 15, 18, 19, 1967; minimum, 1.0°C Jan. 28-31, 1969.

REMARKS.--Recorder stopped Oct. 8-21; range in temperature, 9.0°C to 11.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	12.0	9.0	9.0	8.0	7.0	3.0	2.0	2.0	2.0	6.0	6.0
2	12.0	12.0	8.0	8.0	7.0	7.0	4.0	3.0	3.0	2.0	6.0	6.0
3	12.0	11.0	8.0	7.0	8.0	7.0	5.0	4.0	4.0	3.0	6.0	6.0
4	12.0	12.0	7.0	7.0	8.0	8.0	6.0	5.0	4.0	4.0	6.0	6.0
5	12.0	12.0	7.0	7.0	8.0	7.0	7.0	6.0	4.0	4.0	6.0	6.0
6	12.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	4.0	6.0	6.0
7	12.0	11.0	7.0	7.0	7.0	7.0	7.0	7.0	4.0	4.0	6.0	6.0
8	--	--	8.0	7.0	7.0	7.0	7.0	6.0	4.0	4.0	6.0	6.0
9	--	--	9.0	8.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	6.0
10	--	--	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	6.0
11	--	--	9.0	9.0	7.0	7.0	6.0	6.0	5.0	4.0	6.0	5.0
12	--	--	9.0	9.0	7.0	7.0	6.0	6.0	5.0	5.0	6.0	5.0
13	--	--	9.0	9.0	7.0	7.0	6.0	6.0	5.0	5.0	6.0	5.0
14	--	--	9.0	8.0	7.0	7.0	6.0	5.0	5.0	5.0	6.0	5.0
15	--	--	8.0	8.0	7.0	7.0	5.0	4.0	5.0	5.0	6.0	6.0
16	--	--	8.0	8.0	7.0	7.0	4.0	4.0	6.0	5.0	6.0	6.0
17	--	--	8.0	8.0	7.0	7.0	4.0	4.0	6.0	6.0	7.0	6.0
18	--	--	8.0	8.0	7.0	7.0	4.0	4.0	6.0	6.0	7.0	7.0
19	--	--	9.0	8.0	7.0	6.0	4.0	4.0	6.0	6.0	7.0	7.0
20	--	--	9.0	9.0	6.0	6.0	4.0	4.0	6.0	6.0	7.0	7.0
21	--	--	9.0	9.0	6.0	5.0	4.0	3.0	6.0	6.0	7.0	7.0
22	9.0	9.0	9.0	9.0	5.0	5.0	3.0	3.0	6.0	6.0	7.0	7.0
23	10.0	9.0	9.0	9.0	6.0	5.0	3.0	2.0	6.0	6.0	7.0	7.0
24	11.0	10.0	9.0	9.0	7.0	6.0	2.0	2.0	6.0	6.0	7.0	7.0
25	11.0	11.0	9.0	9.0	7.0	7.0	2.0	2.0	6.0	6.0	7.0	7.0
26	11.0	11.0	9.0	8.0	7.0	7.0	2.0	2.0	6.0	6.0	8.0	7.0
27	11.0	10.0	8.0	8.0	7.0	6.0	2.0	2.0	6.0	6.0	8.0	8.0
28	10.0	10.0	8.0	8.0	6.0	5.0	2.0	1.0	6.0	6.0	9.0	8.0
29	10.0	10.0	8.0	8.0	5.0	4.0	1.0	1.0	--	--	9.0	8.0
30	10.0	10.0	8.0	8.0	4.0	2.0	1.0	1.0	--	--	9.0	8.0
31	10.0	9.0	--	--	2.0	2.0	2.0	1.0	--	--	9.0	9.0
AVG	--	--	8.3	8.1	6.6	6.2	4.2	3.8	5.0	4.8	6.8	6.5

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	9.0	9.0	9.0	14.0	13.0	17.0	15.0	20.0	18.0	17.0	16.0
2	9.0	8.0	9.0	9.0	15.0	14.0	17.0	17.0	19.0	18.0	17.0	17.0
3	8.0	8.0	9.0	9.0	17.0	15.0	17.0	16.0	19.0	18.0	17.0	16.0
4	8.0	8.0	10.0	9.0	18.0	16.0	16.0	16.0	18.0	18.0	16.0	16.0
5	8.0	7.0	11.0	10.0	17.0	17.0	17.0	16.0	18.0	17.0	16.0	15.0
6	8.0	8.0	12.0	11.0	17.0	17.0	17.0	16.0	18.0	17.0	16.0	15.0
7	8.0	8.0	13.0	12.0	17.0	16.0	16.0	16.0	17.0	17.0	17.0	15.0
8	8.0	8.0	14.0	13.0	17.0	16.0	17.0	16.0	18.0	17.0	16.0	16.0
9	8.0	8.0	14.0	14.0	17.0	17.0	17.0	17.0	17.0	17.0	16.0	16.0
10	8.0	8.0	14.0	14.0	17.0	16.0	17.0	16.0	18.0	17.0	17.0	16.0
11	9.0	8.0	15.0	14.0	16.0	16.0	16.0	16.0	18.0	17.0	16.0	16.0
12	9.0	9.0	16.0	14.0	16.0	16.0	17.0	16.0	17.0	17.0	16.0	16.0
13	9.0	9.0	16.0	15.0	16.0	16.0	17.0	16.0	18.0	17.0	16.0	16.0
14	9.0	9.0	15.0	14.0	16.0	16.0	17.0	17.0	19.0	18.0	16.0	15.0
15	9.0	9.0	15.0	14.0	18.0	16.0	18.0	17.0	19.0	18.0	16.0	14.0
16	9.0	9.0	15.0	14.0	19.0	17.0	18.0	17.0	19.0	18.0	15.0	14.0
17	9.0	9.0	15.0	14.0	21.0	19.0	18.0	17.0	18.0	17.0	14.0	14.0
18	9.0	9.0	15.0	14.0	20.0	19.0	19.0	17.0	18.0	17.0	14.0	13.0
19	9.0	9.0	14.0	14.0	19.0	19.0	19.0	18.0	17.0	17.0	13.0	13.0
20	9.0	9.0	15.0	14.0	19.0	18.0	19.0	18.0	17.0	17.0	13.0	13.0
21	9.0	9.0	16.0	14.0	18.0	17.0	19.0	18.0	18.0	17.0	13.0	13.0
22	9.0	9.0	17.0	16.0	17.0	17.0	20.0	18.0	18.0	17.0	13.0	13.0
23	11.0	9.0	17.0	17.0	17.0	16.0	21.0	19.0	18.0	17.0	13.0	13.0
24	11.0	10.0	17.0	17.0	16.0	16.0	21.0	19.0	18.0	17.0	13.0	13.0
25	10.0	9.0	17.0	16.0	16.0	15.0	21.0	19.0	18.0	17.0	13.0	13.0
26	10.0	9.0	16.0	16.0	16.0	15.0	21.0	19.0	18.0	17.0	13.0	13.0
27	10.0	9.0	16.0	15.0	16.0	15.0	20.0	19.0	17.0	17.0	13.0	13.0
28	10.0	10.0	15.0	14.0	15.0	14.0	19.0	18.0	17.0	17.0	13.0	13.0
29	10.0	10.0	14.0	13.0	15.0	14.0	19.0	18.0	17.0	16.0	13.0	13.0
30	10.0	9.0	13.0	12.0	16.0	14.0	19.0	18.0	18.0	17.0	13.0	13.0
31	--	--	13.0	12.0	--	--	19.0	19.0	17.0	16.0	--	--
AVG	9.0	8.7	14.0	13.3	16.9	16.0	18.2	17.2	17.9	17.1	14.8	14.4

12020000 CHEHALIS RIVER NEAR DOTY, WASH.

LOCATION.--Lat 46°38'05" long 123°15'20", in NW¼NW¼ sec.12, T.13 N., R.5 W., Lewis County, at county road bridge at Dryad, 0.5 mile downstream from Dunn Creek, 3.5 miles downstream from gaging station, and at mile 98.3.

DRAINAGE AREA.--113 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).
Sediment records: October 1961 to December 1964 (partial-records).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. Prior to November 1961, station published as "at Dryad."

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
21...	545	14	5.1	1.5	4.4	.4	25	0	3.0
JAN.									
06...	2160	14	4.0	1.2	3.9	.3	19	0	2.8
APR.									
01...	1240	13	4.0	1.2	3.4	.3	21	0	2.0
JULY									
07...	104	--	6.5	1.8	5.0	.5	31	0	--

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
21...	2.7	.1	.3	--	55	19	0	56	7.2
JAN.									
06...	2.4	.0	1.5	10	43	15	0	49	7.2
APR.									
01...	2.4	.1	1.4	--	51	15	0	46	7.1
JULY									
07...	--	.0	--	--	--	24	0	68	7.2

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
21...	10	10	11.3	600	--	--	--
JAN.							
06...	10	6	11.7	230	0	0	0
APR.							
01...	0	8	12.2	480	--	--	--
JULY							
07...	5	15	9.7	800	0	0	0

12025000 NEWAUKUM RIVER NEAR CHEHALIS, WASH.

LOCATION.--Lat 46°37'13" long 122°56'38", in SW¼SW¼ sec.9, T.13 N., R.2 W., Lewis County, at gaging station at highway bridge, 3.0 miles southeast of Chehalis and at mile 4.1.

DRAINAGE AREA.--155 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1960 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).
Sediment records.--October 1961 to June 1965 (partial-records).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
21...	865	15	4.6	1.3	3.5	.4	23	0	.0
JAN.									
06...	2760	12	3.2	.9	2.7	.4	16	0	.8
APR.									
15...	305	14	4.8	1.4	3.8	.2	26	0	.2
JULY									
07...	176	--	7.3	1.6	4.3	.4	32	0	--
AUG.									
20...	42	16	8.4	2.1	6.6	.7	39	0	1.2

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
21...	2.4	.1	1.0	--	53	17	0	49	7.0
JAN.									
06...	1.7	.0	1.8	10	41	12	0	37	7.0
APR.									
15...	2.7	.0	.5	--	49	18	0	56	7.3
JULY									
07...	--	.0	--	--	--	25	0	66	7.2
AUG.									
20...	7.6	.0	.3	--	62	30	0	95	7.2

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
21...	30	9	11.0	650	--	--	--
JAN.							
06...	20	6	11.0	930	0	0	0
APR.							
15...	5	11	12.5	330	--	--	--
JULY							
07...	5	--	--	--	0	0	0
AUG.							
20...	5	19	10.0	730	0	0	0

12026400 SKOOKUMCHUCK RIVER NEAR BUCODA, WASH.

LOCATION.--Lat 46°46'20", long 122°55'23", in SW¼NW¼ sec.22, T.15 N., R.2 W., Thurston County, at gaging station on left bank, 100 ft downstream from bridge on State Highway 507, 3.3 miles southwest of Bucoda, and at mile 6.4.

DRAINAGE AREA.--112 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1968 to September 1969.
Sediment records.--July 1966 to September 1969.

EXTREMES.--July 1968 to September 1969:
Sediment concentrations: Maximum daily, 131 mg/l Feb. 8, 1969; minimum, 2 mg/l on many days during February, March, and June and on Sept. 22, 1969.
Sediment loads: Maximum daily, 1,060 tons Jan. 7, 1969; minimum, 0.28 ton on several days during September 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	--	--	--	4.0	--	6.0	7.0	--	--	--	--	--
2	--	--	6.0	5.0	--	--	--	--	--	--	18.0	--
3	10.0	8.0	7.0	4.0	4.0	--	--	8.0	--	--	--	--
4	--	6.0	6.0	6.0	4.0	--	7.0	--	--	--	--	--
5	--	--	6.0	7.0	--	--	--	--	--	16.0	--	--
6	--	8.0	6.0	6.0	3.0	--	--	--	--	--	--	18.0
7	12.0	--	6.0	6.0	4.0	7.0	--	--	16.0	--	--	--
8	--	--	6.0	5.0	4.0	--	--	--	--	--	18.0	--
9	--	--	8.0	4.0	4.0	--	--	--	--	--	18.0	--
10	--	--	6.0	4.0	4.0	--	--	--	--	--	--	--
11	--	10.0	8.0	4.0	4.0	--	--	--	--	--	--	--
12	--	9.0	6.0	4.0	5.0	--	8.0	--	--	16.0	--	--
13	--	8.0	6.0	4.0	5.0	--	--	12.0	20.0	--	--	14.0
14	8.0	6.0	8.0	4.0	--	--	--	--	--	--	--	--
15	9.0	--	7.0	4.0	--	--	--	--	--	--	19.0	--
16	--	--	6.0	4.0	6.0	--	--	--	--	--	18.0	--
17	--	9.0	6.0	4.0	--	7.0	--	13.0	--	--	--	--
18	--	--	6.0	4.0	--	6.0	8.0	--	--	--	--	15.0
19	--	--	4.0	4.0	5.0	7.0	8.0	--	--	18.0	--	15.0
20	--	--	4.0	4.0	--	--	--	--	--	--	--	13.0
21	9.0	--	4.0	3.0	--	--	--	--	16.0	--	--	13.0
22	--	--	4.0	2.0	6.0	--	--	19.0	--	--	--	14.0
23	--	6.0	6.0	2.0	--	--	--	--	14.0	--	--	14.0
24	--	6.0	7.0	--	--	--	--	13.0	--	--	18.0	13.0
25	--	8.0	4.0	--	--	--	--	--	14.0	--	--	14.0
26	--	--	5.0	--	--	8.0	9.0	--	14.0	17.0	--	--
27	--	--	5.0	2.0	--	--	--	--	14.0	--	--	--
28	10.0	--	2.0	--	--	--	--	--	15.0	--	--	--
29	--	--	0.0	--	--	--	--	--	15.0	--	18.0	--
30	--	--	0.0	--	--	--	--	11.0	--	--	--	14.0
31	--	--	1.0	--	--	--	--	12.0	--	--	--	--

DAILY SUSPENDED SEDIMENT, JULY TO SEPTEMBER 1968

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	73	4	.79	38	4	.41	127	4	1.4
2	70	4	.76	38	4	.41	117	4	1.3
3	66	4	.71	38	4	.41	97	4	1.0
4	63	4	.68	38	4	.41	86	4	.93
5	61	4	.66	38	4	.41	77	4	.83
6	61	4	.66	38	4	.41	72	4	.78
7	60	4	.65	37	4	.40	65	4	.70
8	56	4	.60	36	4	.39	63	4	.68
9	55	4	.59	33	4	.36	61	4	.66
10	55	4	.59	33	4	.36	58	4	.63
11	55	4	.59	33	4	.36	58	4	.63
12	61	4	.66	33	4	.36	60	4	.65
13	66	4	.71	33	4	.36	58	4	.63
14	60	4	.65	37	4	.40	65	4	.70
15	68	4	.73	47	4	.51	138	4	1.5
16	63	4	.68	46	4	.50	180	4	1.9
17	56	4	.60	41	4	.44	150	4	1.6
18	53	4	.57	40	4	.43	418	4	4.5
19	53	4	.57	60	4	.65	390	4	4.2
20	56	4	.60	65	4	.70	279	4	3.0
21	53	4	.57	53	4	.57	212	4	2.3
22	50	4	.54	47	4	.51	173	4	1.9
23	49	4	.53	55	4	.59	155	4	1.7
24	47	4	.51	229	4	2.5	140	4	1.5
25	46	4	.50	161	4	1.7	127	4	1.4
26	46	4	.50	294	4	3.2	115	4	1.2
27	44	4	.48	238	4	2.6	105	4	1.1
28	43	4	.46	381	4	4.1	97	4	1.0
29	41	4	.44	306	4	3.3	92	4	.99
30	40	4	.43	200	4	2.2	88	4	.95
31	40	4	.43	148	4	1.6	---	--	---
TOTAL	1710	--	18.44	2914	--	31.55	3923	--	42.26

TOTAL DISCHARGE FOR PERIOD (CFS-DAYS) 8547
TOTAL LOAD FOR YEAR (TONS) 9225

12026400 SKOOKUMCHUCK RIVER NEAR BUCODA, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	82	6	1.3	297	9	7.2	647	8	14
2	81	6	1.3	280	9	6.8	558	7	11
3	75	6	1.2	366	9	8.9	1030	47	131
4	79	6	1.3	324	9	7.9	2540	123	844
5	96	6	1.6	280	9	6.8	1580	48	205
6	97	6	1.6	240	9	5.8	1170	28	88
7	113	6	1.8	220	9	5.3	878	18	43
8	99	6	1.6	301	9	7.3	1110	33	99
9	90	6	1.5	729	--	39	1180	30	96
10	143	6	2.3	560	--	15	1860	69	347
11	227	6	3.7	1280	23	79	2550	69	475
12	291	6	4.7	1930	62	323	1580	39	166
13	525	16	23	1210	43	140	1140	20	62
14	444	16	19	822	21	47	910	8	20
15	605	53	87	636	15	26	760	8	16
16	703	42	80	519	15	21	730	10	20
17	501	14	19	432	17	20	660	3	5.3
18	471	9	11	414	8	8.9	690	12	22
19	384	9	9.3	396	8	8.6	640	8	14
20	471	9	11	369	8	8.0	540	7	10
21	441	9	11	354	8	7.6	480	9	12
22	429	9	10	647	8	14	440	7	8.3
23	380	9	9.2	762	8	16	520	9	13
24	321	9	7.8	668	8	14	1100	58	172
25	285	9	6.9	567	8	12	1000	23	62
26	262	9	6.4	480	8	10	738	12	24
27	227	9	5.5	519	8	11	640	18	31
28	207	9	5.0	570	8	12	546	7	10
29	207	9	5.0	584	8	13	480	6	7.8
30	348	9	8.5	686	8	15	420	6	6.8
31	363	9	8.8	--	--	--	474	11	14
TOTAL	9047	--	367.3	17442	--	916.1	29591	--	3049.2

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	1080	78	227	260	5	3.5	251	2	1.4
2	1080	37	108	250	5	3.4	251	2	1.4
3	980	23	61	375	5	5.1	270	2	1.5
4	1050	24	68	565	39	59	276	2	1.5
5	1950	106	558	750	--	58	402	2	2.2
6	2150	67	389	500	9	12	574	2	3.1
7	3050	129	1060	430	4	4.6	480	2	2.6
8	1840	51	253	890	131	510	402	2	2.2
9	1320	29	103	2630	109	846	342	2	1.8
10	1270	34	117	1550	42	176	303	2	1.6
11	1300	26	91	2110	117	667	270	2	1.5
12	956	17	44	1860	49	246	251	2	1.4
13	798	12	26	1140	29	89	233	2	1.3
14	745	11	22	804	--	41	220	2	1.2
15	714	9	17	668	--	25	222	2	1.2
16	682	8	15	682	12	22	256	2	1.4
17	658	8	14	672	--	20	600	61	99
18	594	8	13	598	--	15	1180	53	169
19	535	5	7.2	531	7	10	1000	24	65
20	485	5	6.5	474	--	8.0	787	--	28
21	440	5	5.9	429	--	5.0	626	--	14
22	400	5	5.4	399	2	2.2	546	4	5.9
23	350	5	4.7	372	2	2.0	522	4	5.6
24	305	5	4.1	345	2	1.9	459	4	5.0
25	260	5	3.5	318	2	1.7	414	4	4.5
26	260	5	3.5	294	2	1.6	390	4	4.2
27	260	5	3.5	270	2	1.5	402	4	4.3
28	250	5	3.4	254	2	1.4	438	4	4.7
29	240	5	3.2	--	--	--	417	4	4.5
30	215	5	2.9	--	--	--	432	4	4.7
31	230	5	3.1	--	--	--	498	4	5.4
TOTAL	26447	--	3242.9	20420	--	2837.9	13714	--	451.1

12026400 SKOOKUMCHUCK RIVER NEAR BUCODA, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	510	3	4.1	288	4	3.1	212	2	1.1
2	686	3	5.6	273	4	2.9	173	2	.93
3	619	3	5.0	256	4	2.8	148	2	.80
4	522	3	4.2	238	4	2.6	131	2	.71
5	510	3	4.1	220	4	2.4	119	2	.64
6	474	3	3.8	210	4	2.3	111	2	.60
7	420	3	3.4	204	4	2.2	107	2	.58
8	372	3	3.0	222	4	2.4	101	2	.55
9	339	3	2.7	240	4	2.6	96	2	.52
10	330	3	2.7	243	4	2.6	90	2	.49
11	309	3	2.5	230	4	2.5	88	2	.48
12	309	3	2.5	207	4	2.2	84	2	.45
13	348	3	2.8	190	4	2.1	82	2	.44
14	330	3	2.7	178	4	1.9	76	2	.41
15	288	3	2.3	161	4	1.7	72	2	.39
16	254	3	2.1	148	4	1.6	70	2	.38
17	256	3	2.1	138	4	1.5	68	2	.37
18	468	9	11	133	4	1.4	66	2	.36
19	543	14	21	182	4	2.0	64	2	.35
20	608	--	18	214	4	2.3	62	2	.33
21	510	--	8.0	164	4	1.8	62	2	.33
22	441	3	3.6	150	4	1.6	86	2	.93
23	456	3	3.7	140	4	1.5	119	2	1.3
24	435	3	3.5	138	4	1.5	192	2	2.1
25	375	3	3.0	129	4	1.4	144	2	1.6
26	324	3	2.6	123	4	1.3	173	2	1.9
27	285	3	2.3	121	4	1.3	150	2	1.6
28	279	3	2.3	127	4	1.4	146	2	1.6
29	339	3	2.7	133	4	1.4	136	2	1.5
30	318	3	2.6	456	67	82	129	2	1.4
31	--	--	--	297	10	8.0	--	--	--
TOTAL	12257	--	139.9	6153	--	148.3	3357	--	25.14

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	111	5	1.5	41	4	.44	31	4	.33
2	99	5	1.3	41	4	.44	31	4	.33
3	97	5	1.3	41	4	.44	26	4	.28
4	96	5	1.3	43	4	.46	26	4	.28
5	115	5	1.6	41	4	.44	26	4	.28
6	109	5	1.5	46	4	.50	26	4	.28
7	99	5	1.3	41	4	.44	26	4	.28
8	92	5	1.2	41	4	.44	29	4	.31
9	88	5	1.2	38	4	.41	26	4	.28
10	86	5	1.2	40	4	.43	25	4	.27
11	90	5	1.2	38	4	.41	26	4	.28
12	86	5	1.2	35	4	.38	26	4	.28
13	79	5	1.1	35	4	.38	26	4	.28
14	75	5	1.0	35	4	.38	29	4	.31
15	68	5	.92	32	4	.35	30	4	.32
16	65	5	.88	35	4	.38	26	4	.28
17	63	5	.85	35	4	.38	32	4	.35
18	61	5	.82	32	4	.35	81	6	1.3
19	58	5	.78	29	4	.31	120	40	13
20	56	5	.76	30	4	.32	217	44	26
21	55	5	.74	30	4	.32	111	4	1.2
22	53	5	.72	27	4	.29	90	2	.49
23	52	5	.70	27	4	.29	208	44	25
24	50	5	.68	27	4	.29	207	25	14
25	49	5	.66	30	4	.32	146	7	2.8
26	47	5	.63	29	4	.31	133	4	1.4
27	47	5	.63	29	4	.31	107	4	1.2
28	44	5	.59	35	4	.38	97	4	1.0
29	43	5	.58	32	4	.35	86	4	.93
30	41	5	.55	31	4	.33	96	4	1.0
31	40	5	.54	29	4	.31	--	--	--
TOTAL	2214	--	29.93	1075	--	11.58	2166	--	94.34

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 143883
TOTAL LOAD FOR YEAR (TONS) 11313.69

12026550 HANAFORD CREEK NEAR BUCODA, WASH.

LOCATION.--Lat 46°45'44", long 122°53'47", in NW¼NE¼ sec.26, T.15 N., R.2 W., Lewis County, 0.3 mile upstream from South Hanaford Creek and 4.5 miles northeast of intersection of Harrison Avenue and Interstate Highway 5 in Centralia.

DRAINAGE AREA.--33.7 sq mi.

PERIOD OF RECORD.--Sediment records: July 1968 to September 1969 (monthly).

MONTHLY SUMMARY OF WATER AND SUSPENDED-SEDIMENT DISCHARGE, JULY 1968 TO SEPTEMBER 1969
(SUMMATION OF ESTIMATED MEAN DAILY WATER DISCHARGES AND ESTIMATED DAILY SUSPENDED-SEDIMENT DISCHARGE)

MONTH	DISCHARGE (CFS-DAYS)	SUSPENDED-SEDIMENT DISCHARGE (TONS)
JULY 1968	228.3	3.2
AUGUST	546.5	12.0
SEPTEMBER	907.4	33.7
OCTOBER	2435.3	88.5
NOVEMBER	4707	160.5
DECEMBER	8288	654.5
JANUARY 1969	6937	301.5
FEBRUARY	5928	235.6
MARCH	2687	129.3
APRIL	1829	89.1
MAY	654	17.9
JUNE	761	42.9
JULY	595.9	19.5
AUGUST	193.7	8.9
SEPTEMBER	446.9	22.3

12027500 CHEHALIS RIVER NEAR GRAND MOUND, WASH.

LOCATION.--Lat 46°46'34", long 123°02'04", in NE¼NE¼ sec.22, T.15 N., R.3 W., Thurston County, temperature recorder at gaging station on left bank at downstream side of highway bridge at Meadows, 1.5 miles southwest of Grand Mound, 7.0 miles downstream from Skookumchuck River, and at mile 59.9.

DRAINAGE AREA.--895 sq mi.

PERIOD OF RECORD.--Water temperatures: March 1952 to September 1969.
Sediment records: October 1961 to September 1964 (miscellaneous).

EXTREMES.--1968-69:
Water temperatures: Minimum, 1.0°C Jan. 24 to Feb. 2.

Period of record:
Water temperatures: Maximum (1952-67), 26.5°C July 22, 23, 1959; minimum, freezing point several days during January and February 1957.

REMARKS.--Recorder stopped Oct. 1-3; range in temperature, 12.0°C to 13.0°C. Thermograph not operating properly Apr. 25 to June 18, June 25 to July 1; range in temperature not determined.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	9.0	8.0	7.0	7.0	3.0	3.0	1.0	1.0	6.0	5.0
2	--	--	8.0	8.0	7.0	7.0	4.0	3.0	2.0	1.0	6.0	6.0
3	--	--	8.0	8.0	7.0	7.0	4.0	3.0	2.0	2.0	6.0	6.0
4	13.0	13.0	8.0	8.0	7.0	6.0	5.0	4.0	2.0	2.0	6.0	6.0
5	13.0	12.0	8.0	8.0	6.0	6.0	6.0	5.0	2.0	2.0	6.0	6.0
6	12.0	12.0	8.0	8.0	6.0	6.0	6.0	6.0	2.0	2.0	6.0	6.0
7	12.0	12.0	8.0	8.0	6.0	6.0	6.0	6.0	3.0	2.0	6.0	6.0
8	12.0	12.0	8.0	8.0	6.0	6.0	6.0	5.0	3.0	3.0	6.0	6.0
9	12.0	11.0	9.0	8.0	6.0	6.0	5.0	4.0	3.0	3.0	7.0	6.0
10	11.0	11.0	9.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	7.0	6.0
11	11.0	10.0	9.0	8.0	6.0	6.0	4.0	4.0	4.0	3.0	6.0	6.0
12	10.0	9.0	9.0	9.0	6.0	6.0	4.0	4.0	4.0	4.0	6.0	6.0
13	9.0	9.0	9.0	9.0	6.0	6.0	4.0	4.0	4.0	4.0	7.0	6.0
14	9.0	9.0	9.0	8.0	6.0	6.0	4.0	3.0	4.0	4.0	7.0	7.0
15	9.0	9.0	8.0	8.0	7.0	6.0	3.0	3.0	4.0	4.0	7.0	7.0
16	9.0	9.0	8.0	8.0	7.0	6.0	3.0	3.0	5.0	4.0	8.0	7.0
17	9.0	9.0	8.0	8.0	6.0	6.0	3.0	3.0	6.0	5.0	8.0	8.0
18	9.0	9.0	8.0	8.0	6.0	6.0	3.0	3.0	5.0	5.0	8.0	8.0
19	9.0	9.0	9.0	8.0	6.0	6.0	3.0	3.0	6.0	5.0	8.0	8.0
20	9.0	9.0	9.0	9.0	6.0	5.0	3.0	3.0	6.0	5.0	8.0	8.0
21	9.0	9.0	9.0	9.0	5.0	4.0	3.0	2.0	6.0	6.0	8.0	8.0
22	9.0	9.0	9.0	9.0	4.0	4.0	2.0	2.0	6.0	6.0	9.0	8.0
23	9.0	9.0	9.0	9.0	5.0	4.0	2.0	2.0	6.0	5.0	9.0	9.0
24	9.0	9.0	9.0	8.0	6.0	5.0	2.0	1.0	5.0	5.0	9.0	8.0
25	9.0	9.0	8.0	8.0	7.0	6.0	1.0	1.0	5.0	5.0	9.0	8.0
26	9.0	8.0	8.0	8.0	7.0	7.0	1.0	1.0	5.0	5.0	9.0	9.0
27	8.0	8.0	8.0	8.0	7.0	6.0	1.0	1.0	5.0	5.0	9.0	9.0
28	8.0	8.0	8.0	8.0	6.0	5.0	1.0	1.0	5.0	5.0	9.0	9.0
29	8.0	8.0	8.0	7.0	5.0	4.0	1.0	1.0	--	--	9.0	9.0
30	9.0	8.0	7.0	7.0	4.0	3.0	1.0	1.0	--	--	9.0	9.0
31	9.0	9.0	--	--	3.0	3.0	1.0	1.0	--	--	9.0	9.0
AVG	9.7	9.5	8.4	8.1	5.9	5.5	3.1	2.9	4.0	3.7	7.5	7.2

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	9.0	--	--	--	--	--	--	22.0	20.0	19.0	18.0
2	9.0	9.0	--	--	--	--	18.0	17.0	21.0	19.0	19.0	19.0
3	9.0	8.0	--	--	--	--	18.0	17.0	21.0	19.0	19.0	18.0
4	8.0	8.0	--	--	--	--	18.0	17.0	20.0	19.0	18.0	17.0
5	9.0	8.0	--	--	--	--	18.0	17.0	19.0	19.0	17.0	17.0
6	9.0	9.0	--	--	--	--	17.0	17.0	19.0	19.0	18.0	17.0
7	9.0	9.0	--	--	--	--	17.0	17.0	19.0	18.0	18.0	17.0
8	10.0	9.0	--	--	--	--	18.0	17.0	20.0	18.0	18.0	18.0
9	10.0	10.0	--	--	--	--	18.0	18.0	21.0	19.0	19.0	18.0
10	10.0	10.0	--	--	--	--	18.0	18.0	20.0	19.0	19.0	19.0
11	10.0	9.0	--	--	--	--	18.0	18.0	19.0	19.0	19.0	19.0
12	11.0	10.0	--	--	--	--	18.0	18.0	19.0	18.0	19.0	18.0
13	11.0	11.0	--	--	--	--	18.0	18.0	20.0	18.0	18.0	18.0
14	11.0	10.0	--	--	--	--	18.0	17.0	21.0	19.0	18.0	17.0
15	11.0	10.0	--	--	--	--	18.0	18.0	21.0	19.0	17.0	16.0
16	11.0	10.0	--	--	--	--	19.0	18.0	19.0	19.0	16.0	16.0
17	11.0	11.0	--	--	--	--	19.0	18.0	19.0	18.0	16.0	16.0
18	11.0	10.0	--	--	--	--	19.0	18.0	19.0	18.0	16.0	16.0
19	10.0	10.0	--	--	23.0	23.0	20.0	19.0	18.0	18.0	16.0	16.0
20	10.0	10.0	--	--	23.0	22.0	20.0	19.0	19.0	18.0	16.0	16.0
21	10.0	10.0	--	--	22.0	21.0	21.0	19.0	19.0	18.0	16.0	16.0
22	11.0	10.0	--	--	21.0	20.0	21.0	20.0	19.0	18.0	16.0	16.0
23	11.0	10.0	--	--	20.0	19.0	22.0	21.0	19.0	18.0	16.0	16.0
24	10.0	10.0	--	--	19.0	18.0	22.0	21.0	19.0	18.0	16.0	16.0
25	--	--	--	--	--	--	22.0	21.0	19.0	18.0	16.0	16.0
26	--	--	--	--	--	--	22.0	20.0	19.0	18.0	16.0	15.0
27	--	--	--	--	--	--	22.0	21.0	19.0	19.0	16.0	15.0
28	--	--	--	--	--	--	22.0	21.0	19.0	18.0	16.0	15.0
29	--	--	--	--	--	--	22.0	20.0	19.0	18.0	16.0	16.0
30	--	--	--	--	--	--	22.0	20.0	20.0	18.0	16.0	16.0
31	--	--	--	--	--	--	22.0	20.0	20.0	19.0	--	--
AVG	10.0	9.5	--	--	--	--	19.5	18.6	19.5	18.4	17.1	16.7

12031000 CHEHALIS RIVER AT PORTER, WASH.

LOCATION.--Lat 46°56'17", long 123°18'45", on north line of NE¼ sec.28, T.17 N., R.5 W., Grays Harbor County, at gaging station at Chehalis River bridge at mouth of Porter Creek, 0.1 mile west of Porter and at mile 33.3.

DRAINAGE AREA.--1,294 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1969.
Water temperatures: July 1959 to September 1960, October 1961 to September 1969.
Sediment records: October 1961 to September 1969.

EXTREMES.--1968-89:
Water temperatures: Maximum, 27.0°C June 17; minimum, freezing point Dec. 30, several days during January.
Sediment concentrations: Maximum daily, 141 mg/l Nov. 12; minimum daily, 2 mg/l Oct. 1-10, 27, July 30-Sept. 17.
Sediment loads: Maximum daily, 4,650 tons Nov. 12; minimum daily, 1.4 tons Sept. 9-15.

Period of record:
Water temperatures: Maximum, 27.0°C June 17, 1969; minimum, freezing point Dec. 15, 17, 1967, Dec. 30, 1968, several days during January 1969.
Sediment concentrations: Maximum daily, 452 mg/l Jan. 10, 1967; minimum daily, less than 1 mg/l on many days of most years.
Sediment loads: Maximum daily, 11,300 tons Jan. 10, 1967; minimum daily, less than 0.50 ton on many days most years.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
15...	4330	14	5.0	1.7	4.1	.5	24	0	2.4	2.8	.1	1.3
NOV.												
06...	2900	16	5.6	1.9	4.5	.6	28	0	2.8	2.9	.1	1.0
DEC.												
16...	9530	15	4.7	1.6	3.9	.5	24	0	3.0	2.4	.0	1.7
JAN.												
06...	15800	13	3.4	1.2	3.3	.4	17	0	2.2	2.2	.0	1.8
FEB.												
04...	5570	16	5.2	1.8	4.5	.4	25	0	2.8	3.1	.1	1.7
MAR.												
04...	4050	15	5.1	1.8	4.3	.5	26	0	2.4	2.7	.1	1.3
APR.												
01...	4510	15	4.6	1.6	3.8	.3	24	0	2.2	2.6	.1	1.5
MAY												
05...	2130	15	5.9	2.0	4.5	.4	31	0	2.9	3.7	.1	.6
JUNE												
09...	947	17	7.1	2.3	5.1	.4	36	0	3.9	4.6	.0	.5
JULY												
07...	898	--	7.7	2.3	5.3	.7	36	0	--	--	.0	--
AUG.												
06...	372	18	8.0	2.9	7.1	.7	45	0	3.0	5.4	.1	.4
SEPT.												
02...	303	17	8.5	3.2	8.1	.9	47	0	2.8	8.9	.1	.3

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
15...	58	20	0	58	6.9	30	14	10.6	1100	--	--	--
NOV.												
06...	57	22	0	66	7.4	20	7	10.1	300	--	--	--
DEC.												
16...	56	18	0	58	7.0	20	6	10.3	1700	--	--	--
JAN.												
06...	47	14	0	44	6.9	30	7	10.8	560	--	--	--
FEB.												
04...	56	21	0	65	7.0	20	4	12.5	110	--	--	--
MAR.												
04...	51	20	0	61	7.3	5	6	11.7	50	--	--	--
APR.												
01...	56	18	0	55	7.2	5	11	10.9	520	--	--	--
MAY												
05...	51	23	0	68	7.1	10	14	10.7	40	--	--	--
JUNE												
09...	60	27	0	80	7.2	5	21	9.1	280	--	--	--
JULY												
07...	--	29	0	79	7.6	5	18	9.1	250	0	0	0
AUG.												
06...	72	32	0	97	7.2	5	20	9.4	300	--	--	--
SEPT.												
02...	75	34	0	110	7.3	5	19	9.5	210	--	--	--

12031000 CHEHALIS RIVER AT PORTER, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	9.0	6.0	0.0	1.0	6.0	9.0	10.0	16.0	17.0	19.0	21.0
2	14.0	9.0	6.0	3.0	0.0	4.0	8.0	11.0	16.0	19.0	22.0	19.0
3	12.0	9.0	7.0	5.0	3.0	4.0	6.0	10.0	23.0	18.0	21.0	17.0
4	14.0	7.0	7.0	6.0	4.0	7.0	4.0	12.0	19.0	19.0	19.0	17.0
5	12.0	9.0	6.0	4.0	4.0	7.0	10.0	10.0	21.0	18.0	18.0	15.0
6	13.0	7.0	6.0	7.0	2.0	7.0	6.0	16.0	21.0	19.0	19.0	17.0
7	12.0	9.0	6.0	6.0	3.0	6.0	11.0	16.0	19.0	18.0	17.0	18.0
8	12.0	9.0	6.0	5.0	4.0	4.0	9.0	18.0	19.0	21.0	19.0	17.0
9	9.0	10.0	7.0	4.0	3.0	6.0	9.0	16.0	20.0	18.0	18.0	18.0
10	12.0	8.0	7.0	4.0	4.0	4.0	9.0	12.0	18.0	19.0	20.0	21.0
11	10.0	10.0	7.0	3.0	5.0	5.0	9.0	12.0	17.0	19.0	18.0	17.0
12	10.0	9.0	6.0	3.0	4.0	7.0	11.0	18.0	18.0	17.0	18.0	16.0
13	10.0	5.0	6.0	3.0	4.0	6.0	11.0	14.0	21.0	18.0	18.0	17.0
14	9.0	5.0	7.0	4.0	5.0	10.0	10.0	17.0	18.0	19.0	21.0	17.0
15	10.0	7.0	7.0	3.0	5.0	7.0	11.0	16.0	24.0	18.0	17.0	14.0
16	10.0	7.0	6.0	0.0	5.0	8.0	9.0	18.0	22.0	22.0	17.0	14.0
17	9.0	8.0	6.0	0.0	4.0	6.0	10.0	15.0	27.0	22.0	17.0	16.0
18	11.0	6.0	6.0	3.0	5.0	6.0	9.0	18.0	24.0	19.0	16.0	15.0
19	9.0	10.0	4.0	3.0	4.0	8.0	11.0	15.0	22.0	23.0	18.0	14.0
20	11.0	11.0	4.0	0.0	4.0	7.0	9.0	17.0	21.0	17.0	18.0	16.0
21	9.0	10.0	3.0	0.0	4.0	9.0	10.0	18.0	21.0	22.0	17.0	15.0
22	11.0	10.0	3.0	0.0	4.0	4.0	12.0	20.0	20.0	20.0	20.0	16.0
23	11.0	10.0	6.0	0.0	6.0	4.0	12.0	18.0	16.0	24.0	20.0	15.0
24	13.0	8.0	6.0	1.0	4.0	9.0	11.0	18.0	16.0	17.0	21.0	15.0
25	12.0	9.0	5.0	3.0	5.0	9.0	11.0	17.0	20.0	22.0	16.0	14.0
26	12.0	7.0	5.0	4.0	6.0	11.0	12.0	17.0	20.0	18.0	18.0	17.0
27	10.0	9.0	4.0	4.0	6.0	6.0	12.0	16.0	18.0	21.0	16.0	11.0
28	12.0	7.0	3.0	1.0	7.0	11.0	11.0	16.0	19.0	21.0	21.0	16.0
29	11.0	7.0	3.0	0.0	--	9.0	9.0	15.0	18.0	23.0	15.0	14.0
30	11.0	6.0	0.0	2.0	--	12.0	11.0	15.0	20.0	20.0	17.0	16.0
31	9.0	--	4.0	3.0	--	9.0	--	13.0	--	21.0	21.0	--
AVG	11.0	8.2	5.3	2.7	4.1	7.0	9.7	15.2	19.8	19.6	18.4	16.1

12031000 CHEHALIS RIVER AT PORTER, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	885	2	4.8	3510	10	95	9660	22	574
2	840	2	4.5	3270	6	53	9160	19	470
3	807	2	4.4	3580	6	58	9470	62	1720
4	850	2	4.6	3590	4	39	13900	72	2580
5	860	2	4.6	3220	4	35	17600	26	1240
6	1040	2	5.6	2900	3	23	17600	25	1190
7	1070	2	5.8	2700	3	22	14900	28	1130
8	1190	2	6.4	3330	12	108	12800	25	864
9	1090	2	5.9	6060	37	605	13100	34	1200
10	1080	2	5.8	7770	46	965	13900	37	1390
11	1520	4	16	8050	54	1230	16800	42	1910
12	2100	6	34	12600	141	4650	19900	26	1400
13	3130	14	118	14700	53	2100	17800	23	1110
14	3990	28	302	12400	28	937	14300	18	695
15	4330	17	199	9300	21	527	11400	19	585
16	6070	37	606	7450	15	302	9530	17	437
17	5590	19	287	6240	14	236	8730	14	330
18	4730	11	140	5510	12	179	8270	11	246
19	4360	10	118	5150	7	97	8570	13	301
20	4440	11	132	4740	10	128	7830	10	211
21	4950	10	134	4650	9	113	6850	8	148
22	4590	8	99	5830	19	299	6090	7	115
23	4240	7	80	7810	35	738	6130	8	132
24	3670	7	69	7640	20	413	8300	25	560
25	3240	6	52	6850	12	222	11900	46	1480
26	2990	5	40	5980	9	145	11800	22	701
27	2720	2	15	5800	9	141	9620	15	390
28	2450	3	20	6180	15	250	7940	10	214
29	2260	4	24	6700	15	271	6600	6	107
30	2640	6	43	8390	34	770	5610	7	106
31	3780	11	112	--	--	--	5190	9	126
TOTAL	87502	--	2692.4	191900	--	15751	341250	--	23662

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	5960	11	177	3610	9	88	3970	4	43
2	7580	21	430	3780	10	102	3820	4	41
3	8490	20	458	4080	11	121	3860	5	52
4	9890	32	854	5570	26	391	4050	7	77
5	13000	47	1650	7310	41	809	4650	14	176
6	15800	47	2010	7540	27	550	6320	32	546
7	18200	48	2360	6480	14	245	6880	27	502
8	20500	51	2820	6810	20	368	6000	14	227
9	20400	37	2040	12400	126	4400	5280	12	171
10	17100	28	1290	16600	84	3760	4720	8	102
11	16300	24	1060	17700	69	3300	4280	7	81
12	15600	20	842	19400	75	3930	3940	8	85
13	12900	19	662	19600	49	2590	3660	7	69
14	10700	20	578	15600	30	1260	3470	5	47
15	9550	17	438	11800	22	701	3360	5	45
16	8890	13	312	9790	29	767	3420	6	55
17	8320	13	292	9370	25	632	5260	28	398
18	7520	11	223	8760	23	544	9680	116	3030
19	6650	17	305	7810	18	380	10600	58	1660
20	5870	18	285	7030	14	266	8950	36	870
21	5240	11	156	6440	15	261	7300	23	453
22	4710	10	127	5960	13	209	6370	17	292
23	4200	9	102	5580	12	181	5930	15	240
24	3810	8	82	5300	11	157	5600	16	242
25	3560	4	38	5000	7	95	5010	11	149
26	3410	8	74	4690	4	51	4570	9	111
27	3270	9	79	4390	6	71	4390	8	95
28	3090	10	83	4150	4	45	4360	8	94
29	2890	10	78	--	--	--	4090	9	99
30	2780	8	60	--	--	--	3930	9	95
31	2950	11	88	--	--	--	4070	8	88
TOTAL	279130	--	20053	242550	--	26274	161790	--	10235

12031000 CHEHALIS RIVER AT PORTER, WASS.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	4510	8	97	2690	4	29	2000	12	65
2	5020	12	163	2520	5	34	1600	10	43
3	5480	18	266	2390	3	19	1410	8	30
4	4810	13	169	2260	7	43	1250	6	20
5	4810	9	117	2130	4	23	1130	4	12
6	4720	11	140	2010	4	22	1050	4	11
7	4290	10	116	1900	3	15	1010	4	11
8	3840	6	62	1830	3	15	991	4	11
9	3480	6	56	1780	3	14	947	4	10
10	3300	5	45	1740	3	14	899	4	9.7
11	3130	5	42	1680	3	14	864	4	9.3
12	2950	10	80	1610	3	13	842	4	9.1
13	3160	9	77	1530	3	12	830	4	9.0
14	3620	9	88	1450	3	12	806	4	8.7
15	3260	10	88	1380	3	11	780	4	8.4
16	2950	9	72	1310	3	11	751	4	8.1
17	2850	6	46	1250	3	10	724	4	7.8
18	3350	4	36	1200	3	9.7	693	4	7.5
19	4800	16	207	1220	3	9.9	661	4	7.1
20	5910	21	335	1530	6	25	653	4	7.1
21	5620	19	288	1540	9	37	648	4	7.0
22	4880	8	105	1310	6	21	677	4	7.3
23	4520	8	98	1180	4	13	808	4	8.7
24	4440	9	108	1110	5	15	1130	5	15
25	4000	5	54	1080	4	12	1450	8	31
26	3570	4	39	1080	3	8.7	1390	6	23
27	3220	5	43	1200	4	13	1530	9	37
28	2970	4	32	1300	3	11	1480	6	24
29	2940	4	32	1400	5	19	1570	7	30
30	2930	4	32	2200	8	48	1540	8	33
31	--	--	--	2300	19	118	--	--	--
TOTAL	119330	--	3133	51110	--	671.3	32114	--	520.8

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	1410	7	27	369	2	2.0	315	2	1.7
2	1190	5	16	363	2	2.0	303	2	1.6
3	1050	4	11	367	2	2.0	295	2	1.6
4	990	3	8.0	364	2	2.0	291	2	1.6
5	987	3	8.0	371	2	2.0	284	2	1.5
6	962	3	7.8	372	2	2.0	285	2	1.5
7	898	3	7.3	379	2	2.0	279	2	1.5
8	838	3	6.8	377	2	2.0	272	2	1.5
9	792	3	6.4	366	2	2.0	267	2	1.4
10	750	3	6.1	361	2	1.9	264	2	1.4
11	770	3	6.2	357	2	1.9	259	2	1.4
12	756	3	6.1	349	2	1.9	255	2	1.4
13	746	3	6.0	350	2	1.9	257	2	1.4
14	698	3	5.7	344	2	1.9	255	2	1.4
15	656	3	5.3	341	2	1.8	263	2	1.4
16	621	3	5.0	335	2	1.8	273	2	1.5
17	594	3	4.8	339	2	1.8	321	2	1.7
18	568	3	4.6	342	2	1.8	428	6	6.9
19	543	3	4.4	335	2	1.8	665	6	11
20	525	3	4.3	330	2	1.8	942	5	13
21	501	3	4.1	328	2	1.8	1120	5	15
22	485	3	3.9	324	2	1.7	924	4	10
23	470	3	3.8	316	2	1.7	1080	11	32
24	455	12	15	312	2	1.7	1560	22	93
25	437	12	14	320	2	1.7	1730	14	65
26	423	12	14	319	2	1.7	1300	9	32
27	413	12	13	322	2	1.7	1040	6	17
28	402	12	13	337	2	1.8	866	6	14
29	392	5	5.3	338	2	1.8	763	5	10
30	384	2	2.1	350	2	1.9	718	4	7.8
31	375	2	2.0	331	2	1.8	--	--	--
TOTAL	21081	--	247.0	10708	--	57.6	17874	--	352.2

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 1556339
TOTAL LOAD FOR YEAR (TONS) 103649.3

12035000 SATSOP RIVER NEAR SATSOP, WASH.

LOCATION.--Lat 47°00'03", long 123°29'37", in NE¼SE¼ sec.36, T.18 N., R.7 W., Grays Harbor County, at gaging station at bridge on old U.S. Highway 410, 0.6 mile (revised) west of Satsop and 2.3 miles upstream from mouth.

DRAINAGE AREA.--299 sq mi.

PERIOD OF RECORD.--Chemical analyses (revised): July 1960 to September 1966 (miscellaneous), October 1966 to September 1969 (monthly).
Sediment records: October 1960 to September 1965 (partial records).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
15...	3120	12	4.9	1.4	3.1	.4	23	0	3.6
NOV.									
06...	1230	13	5.5	2.0	3.4	.3	28	0	3.2
DEC.									
16...	3940	13	4.4	1.3	3.1	.3	23	0	2.4
JAN.									
06...	7560	12	3.6	1.2	2.8	.3	19	0	2.4
FEB.									
04...	1860	13	4.7	1.6	3.1	.2	24	0	2.4
MAR.									
04...	2140	13	4.6	1.5	3.3	.4	24	0	2.4
APR.									
01...	4520	11	4.0	1.2	2.5	.3	20	0	2.4
MAY									
05...	1160	13	5.3	1.7	3.0	.3	28	0	2.5
JUNE									
06...	798	14	5.9	1.8	3.3	.4	31	0	3.5
JULY									
07...	459	--	6.9	2.1	3.6	.2	34	0	--
AUG.									
06...	322	15	6.6	2.3	4.0	.5	35	0	3.4
SEPT.									
02...	277	16	6.8	2.3	4.1	.5	35	0	3.4

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
15...	1.4	.0	.7	--	40	18	0	52	7.0
NOV.									
06...	1.3	.1	.5	--	43	22	0	58	7.2
DEC.									
16...	1.3	.1	.8	--	37	17	0	48	7.2
JAN.									
06...	1.2	.0	1.1	--	39	14	0	42	7.0
FEB.									
04...	1.3	.0	.9	10	36	18	0	52	7.1
MAR.									
04...	1.5	.1	.6	--	38	18	0	51	7.1
APR.									
01...	1.4	.1	1.6	--	42	15	0	42	7.0
MAY									
05...	1.8	.0	.2	--	43	20	0	56	7.3
JUNE									
06...	1.8	.0	.0	--	48	22	0	61	7.4
JULY									
07...	--	.0	--	--	--	26	0	66	7.3
AUG.									
06...	1.9	.1	.3	--	56	26	0	71	7.3
SEPT.									
02...	1.8	.1	.3	--	52	27	0	72	7.2

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
15...	5	11	10.8	230	--	--	--
NOV.							
06...	5	8	11.1	84	--	--	--
DEC.							
16...	5	6	11.0	90	--	--	--
JAN.							
06...	10	6	11.6	390	--	--	--
FEB.							
04...	5	5	12.7	0	0	0	0
MAR.							
04...	5	6	12.5	43	--	--	--
APR.							
01...	7	10	11.7	370	--	--	--
MAY							
05...	0	14	11.4	20	--	--	--
JUNE							
06...	5	18	11.1	4	--	--	--
JULY							
07...	5	15	10.5	290	0	0	0
AUG.							
06...	0	17	10.4	95	--	--	--
SEPT.							
02...	0	16	10.1	350	--	--	--

12036800 WYNOOCHEE RIVER NEAR MONTESANO, WASH.

LOCATION.--Lat 47°04'45", long 123°41'55", in NE¼NE¼ sec.5, T.18 N., R.8 W., Grays Harbor County, at bridge on county road, 8.5 miles northwest of Montesano, 9 miles northeast of Aberdeen, and at mile 13.7.

DRAINAGE AREA.--133 sq mi.

PERIOD OF RECORD.--Chemical analyses (revised): July 1959 to September 1966 (miscellaneous), October 1966 to September 1969 (monthly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)
OCT.												
15...	15	6.2	1.4	2.3	.2	26	0	2.2	1.4	.0	.4	42
NOV.												
06...	9.4	7.0	1.8	2.4	.2	30	0	3.2	1.4	.1	.4	40
DEC.												
16...	8.5	5.3	1.3	2.2	.2	24	0	2.2	1.3	.0	.5	38
JAN.												
06...	8.7	2.9	.9	2.7	.4	13	0	2.0	1.8	.0	1.3	30
FEB.												
04...	10	5.2	1.4	2.6	.1	24	0	1.4	2.0	.0	.8	38
MAR.												
04...	9.7	4.4	1.2	2.8	.4	20	0	2.2	1.5	.0	.5	33
APR.												
01...	7.2	4.9	1.1	1.4	.2	21	0	2.2	1.1	.1	.4	31
MAY												
05...	8.9	6.4	1.4	2.5	.2	29	0	1.8	1.3	.0	.4	41
JUNE												
06...	7.4	6.8	1.3	2.0	.2	30	0	2.8	.4	.0	.1	36
JULY												
07...	--	8.3	1.7	2.5	.2	33	0	--	--	.0	--	--
AUG.												
06...	11	7.6	1.9	2.9	.3	36	0	3.0	.0	.1	.2	49
SEPT.												
02...	11	7.6	1.9	3.3	.4	35	0	3.0	2.3	.1	.2	45

DATE	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.											
15...	22	0	52	7.1	5	12	10.9	380	--	--	--
NOV.											
06...	25	1	59	7.2	0	8	11.0	40	--	--	--
DEC.											
16...	19	0	47	7.1	10	6	11.1	400	--	--	--
JAN.											
06...	11	0	36	7.0	10	6	10.8	480	--	--	--
FEB.											
04...	19	0	52	7.2	5	5	12.6	220	--	--	--
MAR.											
04...	16	0	47	7.1	5	7	12.1	110	--	--	--
APR.											
01...	17	0	42	7.1	5	8	11.7	430	--	--	--
MAY											
05...	22	0	55	7.1	5	16	10.8	0	--	--	--
JUNE											
06...	23	0	55	7.8	0	14	10.4	28	--	--	--
JULY											
07...	28	1	64	7.4	5	15	9.6	210	0	0	0
AUG.											
06...	27	0	68	7.4	0	18	10.2	210	--	--	--
SEPT.											
02...	27	0	69	7.3	5	17	10.1	380	--	--	--

12038100 WISHKAH RIVER NEAR WISHKAH, WASH.

LOCATION.--Lat 47°04'21", long 123°46'00", in NE¼SW¼ sec.2, T.18 N., R.9 W., Grays Harbor County, at Wishkah Road bridge, 500 ft upstream from East Fork, 2.3 miles downstream from Hamilton Canyon, 3.2 miles south of Wishkah, and at mile 12.3.

DRAINAGE AREA.--59.9 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1962 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
15...	12	4.3	1.6	3.5	.3	21	0	2.6	2.8	.0	.8	--
NOV.												
06...	13	4.8	1.9	3.5	.3	28	0	1.8	2.1	.1	.6	--
DEC.												
16...	12	3.7	1.5	3.1	.2	20	0	1.8	2.5	.0	.7	--
JAN.												
06...	11	3.0	1.2	2.8	.2	16	0	1.4	2.0	.0	.9	--
FEB.												
04...	11	3.8	1.6	3.1	.1	21	0	1.0	2.1	.1	.9	20
MAR.												
04...	12	4.0	1.6	3.1	.3	21	0	1.6	2.1	.1	.6	--
APR.												
01...	11	3.8	1.5	2.6	.3	21	0	2.2	2.3	.1	.6	--
MAY												
05...	13	4.8	2.0	3.6	.3	28	0	.8	2.8	.0	.5	--
JUNE												
09...	15	5.7	2.3	3.9	.3	31	0	3.3	3.3	.0	.0	--
JULY												
07...	--	7.3	2.8	4.3	.4	37	0	--	--	.0	--	--
AUG.												
06...	16	7.2	3.0	4.9	.5	42	0	2.4	4.0	.0	.2	--
SEPT.												
02...	18	7.5	3.2	4.9	.5	43	0	3.0	4.4	.1	.3	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
15...	40	17	0	52	6.9	5	11	10.7	480	--	--	--
NOV.												
06...	43	20	0	58	7.4	5	7	10.7	78	--	--	--
DEC.												
16...	41	15	0	46	7.0	5	6	11.1	350	--	--	--
JAN.												
06...	35	13	0	39	7.0	10	6	11.4	340	--	--	--
FEB.												
04...	43	16	0	49	7.1	5	4	12.6	40	0	0	0
MAR.												
04...	34	17	0	49	7.4	5	6	12.4	40	--	--	--
APR.												
01...	40	16	0	47	7.1	5	8	11.4	650	--	--	--
MAY												
05...	54	20	0	58	6.9	5	11	10.8	110	--	--	--
JUNE												
09...	44	24	0	67	7.5	5	16	8.5	90	--	--	--
JULY												
07...	--	30	0	75	7.1	5	15	8.7	500	0	0	0
AUG.												
06...	58	31	0	84	7.3	5	17	8.8	260	--	--	--
SEPT.												
02...	54	32	0	87	7.5	5	16	7.9	390	--	--	--

12039300 NORTH FORK QUINAULT RIVER NEAR AMANDA PARK, WASH.
(Hydrologic bench-mark station)

LOCATION (revised).--Lat 47°35'46", long 123°37'23", in SW¼ sec.6, T.24 N., R.7 W., Jefferson County, Olympic National Park, at gaging station on right bank, 15.5 miles northeast of Amanda Park and at mile 5.2.

DRAINAGE AREA.--74.1 sq mi.

PERIOD OF RECORD.--Chemical analyses (revised): October 1965 to September 1968 (miscellaneous), October 1968 to September 1969 (monthly).
Water temperatures: March 1965 to September 1969.
Sediment records: April 1965 to September 1969 (partial-records).

EXTREMES.--1968-69:
Water temperatures: Maximum, 12.0°C July 23, 24, 27, Aug. 13-15, Sept. 1, 8-11; minimum, 2.0°C several days during December to February.

Period of record:
Water temperatures: Maximum, 14.0°C Aug. 7, 16-18, 1965; minimum, 1.0°C Jan. 31, 1968.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
22...	1010	4.0	11	.5	1.3	.0	30	0	8.2
FEB.									
19...	360	4.9	14	.7	1.5	.1	36	0	10
APR.									
10...	574	4.6	13	.7	1.3	.1	35	0	8.6
JUNE									
10...	2380	3.1	7.4	.4	1.0	.1	20	0	6.2
JULY									
23...	616	3.5	11	.5	1.1	.1	28	0	8.8
SEPT.									
09...	188	4.5	15	.7	1.6	.1	39	0	13

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	PHOS-PHATE (PO4) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)
OCT.									
22...	.3	.1	.1	.11	--	44	30	5	66
FEB.									
19...	.7	.0	.0	.09	10	51	38	9	85
APR.									
10...	.8	.1	.0	.09	--	62	36	7	79
JUNE									
10...	.6	.1	.0	.05	--	33	20	4	47
JULY									
23...	.2	.0	.0	.01	--	35	30	7	64
SEPT.									
09...	.3	.0	.0	.00	--	54	41	9	92

DATE	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.									
22...	7.6	5	6	11.8	.4	6	--	--	--
FEB.									
19...	7.5	0	3	13.0	--	5	0	0	0
APR.									
10...	7.4	0	4	13.0	.8	5	--	--	--
JUNE									
10...	7.3	0	6	12.2	.9	10	--	--	--
JULY									
23...	7.2	0	10	11.2	.8	9	0	0	0
SEPT.									
09...	7.4	0	11	10.9	.7	2	--	--	--

12039300 NORTH FORK QUINAULT RIVER NEAR AMANDA PARK, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	9.0	6.0	5.0	3.0	3.0	3.0	2.0	2.0	2.0	3.0	3.0
2	9.0	8.0	6.0	6.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	3.0
3	8.0	8.0	6.0	5.0	3.0	3.0	3.0	3.0	2.0	2.0	4.0	3.0
4	8.0	8.0	6.0	4.0	4.0	3.0	3.0	3.0	2.0	2.0	4.0	3.0
5	8.0	7.0	6.0	5.0	4.0	4.0	4.0	3.0	3.0	2.0	3.0	3.0
6	7.0	7.0	6.0	5.0	4.0	4.0	4.0	4.0	3.0	2.0	3.0	3.0
7	7.0	7.0	6.0	5.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
8	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	--	--	3.0	3.0
9	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	--	--	4.0	3.0
10	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	--	--	3.0	3.0
11	7.0	7.0	6.0	5.0	4.0	4.0	3.0	3.0	--	--	3.0	3.0
12	7.0	6.0	5.0	5.0	4.0	4.0	3.0	3.0	--	--	3.0	3.0
13	6.0	6.0	5.0	4.0	4.0	4.0	3.0	3.0	--	--	4.0	3.0
14	6.0	6.0	4.0	4.0	4.0	4.0	3.0	2.0	--	--	3.0	3.0
15	6.0	6.0	4.0	4.0	4.0	4.0	3.0	2.0	--	--	3.0	3.0
16	6.0	6.0	4.0	4.0	4.0	4.0	3.0	2.0	--	--	3.0	3.0
17	6.0	6.0	4.0	4.0	4.0	4.0	2.0	2.0	--	--	3.0	2.0
18	6.0	6.0	4.0	4.0	4.0	4.0	2.0	2.0	--	--	3.0	3.0
19	6.0	6.0	5.0	4.0	4.0	4.0	2.0	2.0	3.0	3.0	4.0	3.0
20	6.0	6.0	5.0	5.0	4.0	3.0	2.0	2.0	3.0	3.0	4.0	3.0
21	6.0	6.0	5.0	5.0	4.0	3.0	2.0	2.0	3.0	3.0	4.0	3.0
22	6.0	6.0	5.0	4.0	4.0	3.0	2.0	2.0	3.0	3.0	4.0	3.0
23	6.0	6.0	4.0	4.0	3.0	3.0	2.0	2.0	3.0	3.0	4.0	3.0
24	7.0	6.0	4.0	4.0	4.0	3.0	2.0	2.0	3.0	3.0	4.0	3.0
25	7.0	7.0	4.0	4.0	4.0	4.0	2.0	2.0	3.0	3.0	4.0	3.0
26	7.0	6.0	4.0	4.0	4.0	4.0	2.0	2.0	3.0	3.0	4.0	3.0
27	6.0	6.0	4.0	4.0	4.0	3.0	2.0	2.0	3.0	3.0	4.0	3.0
28	7.0	6.0	4.0	4.0	3.0	3.0	2.0	2.0	3.0	3.0	4.0	3.0
29	7.0	7.0	4.0	4.0	3.0	2.0	2.0	2.0	--	--	4.0	3.0
30	7.0	6.0	4.0	3.0	2.0	2.0	2.0	2.0	--	--	4.0	3.0
31	6.0	6.0	--	--	2.0	2.0	2.0	2.0	--	--	3.0	3.0
AVG	6.8	6.5	4.9	4.5	3.6	3.4	2.6	2.4	--	--	3.5	2.9

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.0	3.0	4.0	4.0	7.0	5.0	9.0	8.0	11.0	11.0	12.0	10.0
2	3.0	3.0	5.0	4.0	7.0	6.0	8.0	7.0	11.0	10.0	11.0	11.0
3	3.0	3.0	6.0	4.0	7.0	6.0	7.0	7.0	11.0	9.0	11.0	10.0
4	3.0	3.0	6.0	4.0	7.0	6.0	8.0	7.0	11.0	10.0	10.0	10.0
5	4.0	3.0	6.0	4.0	6.0	6.0	8.0	7.0	10.0	9.0	10.0	9.0
6	4.0	3.0	6.0	4.0	6.0	6.0	9.0	7.0	9.0	9.0	11.0	9.0
7	4.0	3.0	6.0	4.0	7.0	6.0	9.0	8.0	9.0	9.0	11.0	9.0
8	4.0	3.0	6.0	4.0	8.0	6.0	9.0	7.0	11.0	9.0	12.0	11.0
9	4.0	4.0	6.0	4.0	8.0	6.0	10.0	8.0	11.0	10.0	12.0	11.0
10	4.0	4.0	6.0	4.0	7.0	6.0	9.0	8.0	11.0	11.0	12.0	11.0
11	5.0	4.0	6.0	4.0	8.0	6.0	8.0	7.0	11.0	11.0	12.0	11.0
12	4.0	4.0	6.0	4.0	8.0	6.0	8.0	7.0	11.0	10.0	11.0	11.0
13	4.0	4.0	6.0	4.0	8.0	6.0	8.0	7.0	12.0	10.0	11.0	10.0
14	4.0	4.0	6.0	4.0	8.0	6.0	8.0	7.0	12.0	11.0	11.0	9.0
15	5.0	4.0	6.0	4.0	8.0	6.0	8.0	7.0	12.0	11.0	10.0	9.0
16	4.0	4.0	6.0	4.0	9.0	7.0	9.0	8.0	11.0	10.0	10.0	10.0
17	4.0	4.0	6.0	4.0	9.0	7.0	9.0	8.0	11.0	10.0	10.0	9.0
18	4.0	4.0	5.0	4.0	9.0	7.0	10.0	8.0	11.0	11.0	10.0	10.0
19	4.0	3.0	6.0	4.0	9.0	7.0	10.0	8.0	11.0	11.0	10.0	9.0
20	4.0	4.0	6.0	4.0	8.0	7.0	10.0	9.0	11.0	10.0	9.0	9.0
21	4.0	4.0	6.0	4.0	8.0	7.0	10.0	8.0	11.0	10.0	9.0	9.0
22	5.0	4.0	6.0	4.0	8.0	7.0	11.0	9.0	11.0	10.0	10.0	9.0
23	4.0	4.0	6.0	4.0	8.0	7.0	12.0	9.0	11.0	10.0	10.0	9.0
24	4.0	4.0	5.0	5.0	7.0	7.0	12.0	11.0	11.0	11.0	9.0	9.0
25	4.0	4.0	6.0	4.0	7.0	7.0	11.0	9.0	11.0	10.0	9.0	9.0
26	5.0	4.0	5.0	5.0	8.0	7.0	11.0	9.0	11.0	9.0	9.0	8.0
27	5.0	4.0	5.0	4.0	8.0	7.0	12.0	10.0	10.0	9.0	9.0	8.0
28	4.0	4.0	5.0	4.0	7.0	7.0	11.0	11.0	10.0	9.0	9.0	9.0
29	4.0	4.0	5.0	4.0	8.0	7.0	11.0	9.0	10.0	9.0	9.0	9.0
30	4.0	4.0	6.0	4.0	9.0	7.0	11.0	10.0	11.0	9.0	9.0	9.0
31	--	--	6.0	5.0	--	--	11.0	11.0	11.0	9.0	--	--
AVG	4.0	3.7	5.7	4.0	7.7	6.4	9.5	8.2	10.8	9.9	10.2	9.5

12039300 NORTH FORK QUINAULT RIVER NEAR AMANDA PARK, WASH.--Continued

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEARS OCTOBER 1965 TO SEPTEMBER 1969

DATE	TIME	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	DATE	TIME	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)
APR 8, 1965	1425	278	1	0.75	FEB 8, 1967	1240	783	2	4.2
MAY 11.....	1055	875	4	.94	MAR 15.....	1155	324	1	.87
JUN 20.....	1635	757	1	2.0	JUN 2.....	1210	1690	6	27
AUG 3.....	1215	270	1	.73	SEP 13.....	1215	191	2	1.0
SEP 14.....	1020	252	2	1.4	OCT 22, 1968	1230	911	3	7.4
OCT 26.....	0920	303	1	.82	FEB 19, 1969	1355	364	1	.98
DEC 14.....	1150	608	2	3.3	APR 10.....	1225	577	3	4.7
MAR 4, 1966	1130	278	1	.75	JUN 10.....	1130	2100	9	51
APR 15.....	1100	815	2	4.4	JUL 23.....	1140	539	3	4.4
MAY 26.....	1040	1320	3	1.1	SEP 9.....	1100	187	2	1.0
JUL 8.....	1435	1050	2	5.7	SEP 17.....	1210	1370	61	226
SEP 30.....	1110	170	1	.46	SEP 22.....	1130	318	2	1.7
DEC 22.....	1325	1420	5	19					

DUNGENESS RIVER BASIN

12048000 DUNGENESS RIVER NEAR SEQUIM, WASH.

LOCATION (revised).--Lat 48°00'52", long 123°07'53", in NW¼NE¼ sec.13, T.29 N., R.4 W., Clallam County, temperature recorder at gaging station on right bank, 1.0 mile upstream from Canyon Creek, 4.8 miles southwest of Sequim, 5.4 miles upstream from bridge on U.S. Righway 101, and at mile 11.8.

DRAINAGE AREA.--156 sq mi.

PERIOD OF RECORD.--Chemical analyses (revised): July 1959 to June 1960, July 1960 to September 1969 (partial-records).
Water temperatures: July 1968 to December 1969 (discontinued).

EXTREMES.--October 1988 to December 1989:
Water temperatures: Maximum, 14.0°C Aug. 22; minimum, freezing point on many days December 1968 to February 1969.

Period of record:
Water temperatures: Maximum, 14.0°C Aug. 3, 1968, Aug. 22, 1969; minimum, freezing point on many days December 1968 to February 1969.

REMARKS.--Chemical sampling site 5.4 miles downstream. For chemical analyses, see "Analyses of samples collected at water-quality partial-record stations in Pacific slope basins in Washington and upper Columbia River basin."

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	7.0	4.0	3.0	3.0	3.0	2.0	0.0	0.0	0.0	3.0	2.0
2	8.0	6.0	6.0	4.0	4.0	3.0	3.0	2.0	1.0	0.0	4.0	2.0
3	8.0	6.0	6.0	3.0	5.0	3.0	3.0	3.0	2.0	1.0	4.0	3.0
4	8.0	7.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0	2.0	3.0	2.0
5	8.0	7.0	4.0	3.0	3.0	3.0	4.0	3.0	2.0	1.0	4.0	3.0
6	8.0	7.0	4.0	3.0	3.0	2.0	4.0	3.0	1.0	1.0	3.0	2.0
7	7.0	6.0	5.0	3.0	4.0	3.0	4.0	2.0	1.0	0.0	3.0	2.0
8	7.0	6.0	6.0	5.0	4.0	3.0	3.0	2.0	1.0	1.0	3.0	2.0
9	7.0	6.0	6.0	4.0	4.0	4.0	3.0	2.0	2.0	1.0	3.0	2.0
10	7.0	6.0	4.0	4.0	4.0	4.0	2.0	1.0	2.0	1.0	3.0	1.0
11	7.0	6.0	6.0	4.0	4.0	3.0	2.0	1.0	2.0	0.0	3.0	1.0
12	6.0	5.0	6.0	4.0	3.0	2.0	1.0	0.0	2.0	1.0	3.0	1.0
13	6.0	4.0	4.0	3.0	3.0	2.0	2.0	1.0	2.0	1.0	3.0	1.0
14	7.0	5.0	3.0	3.0	4.0	3.0	2.0	1.0	2.0	1.0	4.0	2.0
15	6.0	5.0	4.0	3.0	5.0	4.0	2.0	1.0	3.0	2.0	4.0	3.0
16	6.0	4.0	3.0	2.0	4.0	3.0	2.0	1.0	3.0	2.0	4.0	3.0
17	7.0	5.0	4.0	3.0	4.0	3.0	2.0	1.0	3.0	2.0	4.0	3.0
18	6.0	4.0	6.0	4.0	3.0	2.0	1.0	1.0	3.0	2.0	4.0	3.0
19	6.0	5.0	6.0	5.0	2.0	2.0	1.0	0.0	3.0	2.0	4.0	3.0
20	6.0	5.0	6.0	4.0	2.0	1.0	1.0	0.0	3.0	2.0	5.0	3.0
21	6.0	4.0	6.0	4.0	2.0	1.0	1.0	0.0	2.0	1.0	5.0	3.0
22	7.0	6.0	6.0	4.0	2.0	2.0	0.0	0.0	2.0	1.0	6.0	3.0
23	7.0	6.0	5.0	4.0	3.0	2.0	1.0	0.0	3.0	2.0	5.0	3.0
24	7.0	7.0	4.0	4.0	4.0	3.0	0.0	0.0	2.0	1.0	4.0	2.0
25	7.0	6.0	4.0	4.0	4.0	3.0	0.0	0.0	2.0	1.0	5.0	2.0
26	6.0	4.0	4.0	3.0	3.0	2.0	0.0	0.0	2.0	1.0	6.0	3.0
27	7.0	5.0	4.0	3.0	2.0	0.0	0.0	0.0	2.0	1.0	6.0	3.0
28	8.0	6.0	4.0	3.0	0.0	0.0	0.0	0.0	3.0	1.0	6.0	3.0
29	8.0	6.0	5.0	3.0	0.0	0.0	1.0	0.0	--	--	6.0	3.0
30	7.0	5.0	4.0	3.0	0.0	0.0	0.0	0.0	--	--	7.0	4.0
31	5.0	4.0	--	--	0.0	0.0	0.0	0.0	--	--	6.0	4.0
VG	6.9	5.5	4.7	3.5	2.9	2.2	1.6	0.9	2.1	1.1	4.3	2.4

12048000 DUNGENESS RIVER NEAR SEQUIM, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	4.0	5.0	4.0	9.0	6.0	11.0	8.0	12.0	9.0	12.0	11.0
2	5.0	4.0	5.0	4.0	9.0	6.0	11.0	9.0	11.0	10.0	12.0	10.0
3	4.0	3.0	6.0	4.0	10.0	6.0	9.0	8.0	12.0	9.0	11.0	9.0
4	7.0	4.0	7.0	4.0	10.0	7.0	10.0	8.0	11.0	10.0	10.0	9.0
5	6.0	5.0	8.0	5.0	9.0	7.0	11.0	8.0	10.0	9.0	10.0	9.0
6	6.0	5.0	8.0	5.0	9.0	7.0	11.0	9.0	10.0	9.0	11.0	9.0
7	7.0	4.0	8.0	5.0	9.0	7.0	11.0	9.0	11.0	9.0	12.0	9.0
8	7.0	4.0	8.0	5.0	10.0	7.0	12.0	9.0	12.0	9.0	12.0	9.0
9	6.0	5.0	8.0	5.0	10.0	7.0	12.0	9.0	12.0	9.0	12.0	11.0
10	7.0	4.0	8.0	4.0	10.0	7.0	12.0	9.0	11.0	10.0	12.0	11.0
11	8.0	5.0	8.0	5.0	10.0	7.0	10.0	9.0	11.0	10.0	12.0	11.0
12	7.0	6.0	8.0	5.0	10.0	7.0	9.0	9.0	11.0	9.0	12.0	11.0
13	6.0	6.0	8.0	5.0	9.0	7.0	9.0	8.0	12.0	10.0	11.0	9.0
14	6.0	4.0	7.0	6.0	10.0	7.0	9.0	8.0	13.0	10.0	9.0	8.0
15	6.0	3.0	7.0	4.0	11.0	7.0	11.0	8.0	11.0	10.0	9.0	8.0
16	6.0	4.0	8.0	6.0	11.0	7.0	11.0	8.0	11.0	9.0	9.0	9.0
17	6.0	4.0	8.0	5.0	11.0	7.0	10.0	8.0	12.0	9.0	11.0	9.0
18	5.0	4.0	8.0	6.0	11.0	8.0	11.0	8.0	12.0	10.0	11.0	10.0
19	6.0	4.0	8.0	6.0	11.0	8.0	11.0	9.0	13.0	10.0	10.0	9.0
20	6.0	4.0	8.0	6.0	9.0	8.0	10.0	9.0	12.0	11.0	10.0	9.0
21	7.0	5.0	9.0	6.0	9.0	7.0	10.0	8.0	13.0	10.0	9.0	8.0
22	6.0	6.0	9.0	6.0	8.0	8.0	11.0	8.0	14.0	11.0	11.0	9.0
23	6.0	4.0	9.0	6.0	8.0	8.0	11.0	8.0	13.0	11.0	10.0	9.0
24	4.0	3.0	7.0	6.0	9.0	7.0	11.0	9.0	13.0	11.0	9.0	8.0
25	4.0	3.0	7.0	5.0	8.0	7.0	10.0	9.0	12.0	11.0	9.0	9.0
26	6.0	3.0	7.0	6.0	8.0	7.0	11.0	9.0	13.0	9.0	9.0	8.0
27	7.0	5.0	7.0	5.0	8.0	7.0	10.0	9.0	13.0	10.0	9.0	8.0
28	6.0	4.0	7.0	6.0	9.0	8.0	10.0	9.0	12.0	11.0	9.0	8.0
29	5.0	3.0	7.0	6.0	9.0	8.0	11.0	8.0	13.0	9.0	9.0	8.0
30	4.0	4.0	7.0	6.0	11.0	8.0	11.0	8.0	13.0	10.0	10.0	9.0
31	--	--	8.0	5.0	--	--	11.0	9.0	13.0	11.0	--	--
AVG	5.9	4.2	7.5	5.2	9.5	7.1	10.5	8.5	12.0	9.8	10.4	9.1

TEMPERATURE (°C) OF WATER, OCTOBER TO DECEMBER 1969

DAY	OCT		NOV		DEC	
	MAX	MIN	MAX	MIN	MAX	MIN
1	10.0	9.0	7.0	6.5	3.5	3.0
2	9.0	7.0	8.0	6.0	4.5	3.0
3	8.0	6.5	8.0	7.0	--	4.0
4	7.0	5.5	7.0	5.5	--	--
5	7.0	5.5	6.0	5.0	--	--
6	8.5	6.0	6.0	5.5	--	--
7	9.0	7.0	6.5	5.5	--	--
8	8.5	7.0	6.0	5.0	--	--
9	7.0	6.0	5.0	4.5	--	--
10	6.5	5.5	5.5	5.0	--	--
11	6.0	5.0	6.0	5.5	--	--
12	6.0	5.0	6.5	5.5	--	--
13	6.0	4.5	5.5	5.0	--	--
14	5.5	5.0	5.0	4.0	--	--
15	6.0	5.5	6.0	4.0	--	--
16	6.5	5.5	5.0	3.5	--	--
17	6.0	5.0	4.0	3.0	--	--
18	5.5	4.5	5.0	4.0	--	--
19	6.0	4.5	5.5	4.5	--	--
20	7.0	5.5	5.5	4.5	--	--
21	7.0	6.0	5.5	4.5	--	--
22	7.0	6.5	5.0	4.0	--	--
23	7.0	6.0	5.0	4.5	--	--
24	6.0	5.5	4.5	3.5	--	--
25	5.5	4.5	4.0	3.0	--	--
26	7.0	5.5	4.0	3.0	--	--
27	7.0	6.5	3.5	3.0	--	--
28	6.5	5.5	4.0	3.0	--	--
29	6.5	5.5	4.0	3.5	--	--
30	8.0	6.0	3.5	3.0	--	--
31	8.0	7.0	--	--	--	--
AVG	7.0	5.8	5.4	4.5	--	--

12056500 NORTH FORK SKOKOMISH RIVER BELOW STAIRCASE RAPIDS, NEAR HOODSPORT, WASH.

LOCATION (revised).--Lat 47°30'52", long 123°19'43", in NW¼ sec.4, T.23 N., R.5 W., Mason County, Olympic National Park, temperature recorder at gaging station on left bank, 1.2 miles upstream from Lake Cushman, 2.8 miles upstream from Dry Creek, 11.3 miles northwest of Hoodsport, and at mile 29.2.

DRAINAGE AREA.--57.2 sq mi.

PERIOD OF RECORD.--Water temperatures: April 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum recorded, 11.0°C July 22 to Aug. 5; minimum, 1.0°C Dec. 31, Feb. 7-12.

Period of record:
Water temperatures: Maximum, 14.0°C Aug. 17, 18, 1965; minimum (1965-67, 1968-69), 1.0°C Dec. 27, 1965, Dec. 31, 1968, Feb. 7-12, 1969.

REMARKS.--Thermograph not operating properly Aug. 8 to Sept. 16; temperature range not determined.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	8.0	7.0	6.0	4.0	4.0	2.0	2.0	2.0	2.0	3.0	3.0
2	8.0	8.0	6.0	6.0	4.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
3	8.0	7.0	6.0	6.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
4	8.0	7.0	6.0	6.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
5	8.0	8.0	6.0	6.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
6	8.0	8.0	6.0	6.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
7	8.0	7.0	7.0	6.0	3.0	3.0	2.0	2.0	2.0	1.0	3.0	3.0
8	8.0	7.0	7.0	7.0	3.0	3.0	2.0	2.0	1.0	1.0	3.0	3.0
9	8.0	7.0	7.0	7.0	3.0	3.0	2.0	2.0	1.0	1.0	3.0	3.0
10	8.0	7.0	7.0	7.0	3.0	3.0	2.0	2.0	1.0	1.0	3.0	3.0
11	7.0	7.0	7.0	7.0	4.0	3.0	2.0	2.0	1.0	1.0	3.0	3.0
12	7.0	7.0	7.0	7.0	4.0	3.0	2.0	2.0	2.0	1.0	3.0	3.0
13	7.0	7.0	7.0	6.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
14	7.0	7.0	6.0	6.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
15	7.0	6.0	6.0	6.0	4.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
16	6.0	6.0	6.0	6.0	4.0	4.0	2.0	2.0	2.0	2.0	3.0	3.0
17	6.0	6.0	6.0	6.0	4.0	4.0	2.0	2.0	2.0	2.0	3.0	3.0
18	6.0	6.0	6.0	6.0	4.0	4.0	2.0	2.0	2.0	2.0	3.0	3.0
19	6.0	6.0	6.0	6.0	4.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
20	6.0	6.0	6.0	6.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
21	6.0	6.0	6.0	6.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
22	6.0	6.0	6.0	6.0	3.0	2.0	2.0	2.0	3.0	2.0	3.0	3.0
23	7.0	6.0	6.0	6.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
24	7.0	7.0	6.0	6.0	3.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0
25	7.0	7.0	6.0	5.0	3.0	3.0	2.0	2.0	3.0	3.0	3.0	3.0
26	7.0	7.0	5.0	5.0	3.0	3.0	2.0	2.0	3.0	3.0	4.0	3.0
27	7.0	7.0	5.0	5.0	3.0	3.0	2.0	2.0	3.0	3.0	4.0	4.0
28	7.0	7.0	5.0	5.0	3.0	2.0	2.0	2.0	3.0	3.0	4.0	4.0
29	7.0	7.0	5.0	5.0	2.0	2.0	2.0	2.0	--	--	4.0	4.0
30	7.0	7.0	5.0	3.0	2.0	2.0	2.0	2.0	--	--	4.0	4.0
31	7.0	7.0	--	--	2.0	1.0	2.0	2.0	--	--	4.0	4.0
AVG	7.0	6.8	6.1	5.9	3.1	2.8	2.0	2.0	2.1	2.0	3.1	3.1

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.0	4.0	4.0	4.0	6.0	5.0	9.0	8.0	11.0	10.0	--	--
2	4.0	4.0	4.0	4.0	6.0	5.0	9.0	8.0	11.0	10.0	--	--
3	4.0	4.0	5.0	4.0	6.0	6.0	8.0	8.0	11.0	10.0	--	--
4	4.0	4.0	6.0	4.0	7.0	6.0	8.0	8.0	11.0	10.0	--	--
5	4.0	4.0	6.0	5.0	6.0	6.0	8.0	8.0	11.0	9.0	--	--
6	4.0	4.0	6.0	5.0	6.0	6.0	8.0	8.0	10.0	9.0	--	--
7	4.0	4.0	6.0	5.0	7.0	6.0	8.0	8.0	9.0	9.0	--	--
8	4.0	4.0	6.0	5.0	7.0	6.0	9.0	8.0	--	--	--	--
9	4.0	4.0	6.0	5.0	7.0	6.0	10.0	9.0	--	--	--	--
10	4.0	4.0	6.0	5.0	7.0	7.0	10.0	9.0	--	--	--	--
11	4.0	4.0	6.0	5.0	7.0	7.0	9.0	9.0	--	--	--	--
12	4.0	4.0	5.0	4.0	8.0	7.0	9.0	8.0	--	--	--	--
13	4.0	4.0	5.0	4.0	7.0	7.0	8.0	8.0	--	--	--	--
14	4.0	4.0	5.0	4.0	8.0	7.0	8.0	8.0	--	--	--	--
15	4.0	4.0	5.0	4.0	8.0	7.0	8.0	8.0	--	--	--	--
16	4.0	4.0	5.0	4.0	8.0	7.0	9.0	8.0	--	--	--	--
17	4.0	4.0	5.0	4.0	9.0	8.0	10.0	8.0	--	--	9.0	9.0
18	4.0	4.0	5.0	4.0	9.0	8.0	10.0	9.0	--	--	9.0	9.0
19	4.0	4.0	5.0	4.0	9.0	8.0	10.0	9.0	--	--	9.0	9.0
20	4.0	4.0	5.0	4.0	9.0	8.0	10.0	9.0	--	--	9.0	9.0
21	4.0	4.0	5.0	4.0	8.0	7.0	10.0	9.0	--	--	9.0	9.0
22	4.0	4.0	5.0	4.0	8.0	7.0	11.0	9.0	--	--	9.0	9.0
23	4.0	4.0	5.0	4.0	8.0	7.0	11.0	10.0	--	--	9.0	9.0
24	4.0	4.0	5.0	4.0	7.0	7.0	11.0	11.0	--	--	9.0	8.0
25	4.0	4.0	5.0	4.0	7.0	7.0	11.0	10.0	--	--	8.0	8.0
26	4.0	4.0	5.0	5.0	8.0	7.0	11.0	9.0	--	--	8.0	8.0
27	4.0	4.0	5.0	4.0	7.0	7.0	11.0	10.0	--	--	8.0	8.0
28	4.0	4.0	4.0	4.0	7.0	7.0	11.0	10.0	--	--	8.0	8.0
29	4.0	4.0	4.0	4.0	8.0	7.0	11.0	10.0	--	--	8.0	8.0
30	4.0	4.0	5.0	4.0	8.0	7.0	11.0	10.0	--	--	9.0	8.0
31	--	--	6.0	5.0	--	--	11.0	10.0	--	--	--	--
AVG	4.0	4.0	5.1	4.2	7.4	6.7	9.6	8.8	--	--	--	--

12059500 NORTH FORK SKOKOMISH RIVER NEAR POTLATCH, WASH.

LOCATION (revised).--Lat 47°19'42", long 123°14'33", in NE¼NW¼ sec.7, T.21 N., R.4 W., Mason County, temperature recorder at gaging station on left bank, 1.0 mile upstream from mouth, 5.4 miles southwest of Potlatch, and 7.2 miles downstream from city of Tacoma's Cushman Dam No. 2.

DRAINAGE AREA.--117 sq mi, including 99 sq mi upstream from Cushman Dam No. 2, which is normally noncontributing.

PERIOD OF RECORD.--Water temperatures: March 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C on several days during June to August; minimum, 1.0°C Dec. 31, Jan. 23, 31, Feb. 7.

Period of record:
Water temperatures: Maximum, 19.0°C July 8, 1968; minimum, 1.0°C Dec. 27, 1965, Dec. 31, 1968, Jan. 23, 31, Feb. 7, 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.0	9.0	8.0	7.0	7.0	4.0	4.0	4.0	3.0	6.0	5.0
2	12.0	10.0	9.0	8.0	7.0	7.0	5.0	4.0	4.0	3.0	6.0	6.0
3	11.0	9.0	9.0	8.0	8.0	7.0	5.0	5.0	4.0	4.0	7.0	6.0
4	12.0	11.0	8.0	8.0	8.0	8.0	5.0	5.0	4.0	4.0	6.0	6.0
5	11.0	10.0	9.0	8.0	8.0	7.0	6.0	5.0	4.0	4.0	6.0	6.0
6	11.0	10.0	8.0	8.0	7.0	7.0	6.0	6.0	4.0	3.0	7.0	6.0
7	11.0	8.0	9.0	8.0	7.0	7.0	6.0	6.0	3.0	1.0	7.0	4.0
8	11.0	9.0	9.0	9.0	7.0	7.0	6.0	4.0	3.0	2.0	7.0	6.0
9	10.0	9.0	9.0	9.0	7.0	7.0	4.0	4.0	4.0	3.0	7.0	5.0
10	11.0	9.0	9.0	8.0	7.0	7.0	4.0	4.0	4.0	3.0	7.0	4.0
11	10.0	10.0	9.0	9.0	7.0	7.0	4.0	3.0	4.0	3.0	7.0	4.0
12	10.0	9.0	9.0	8.0	7.0	7.0	4.0	4.0	4.0	3.0	7.0	4.0
13	10.0	9.0	8.0	8.0	7.0	7.0	4.0	4.0	4.0	3.0	7.0	4.0
14	10.0	9.0	8.0	8.0	7.0	7.0	4.0	3.0	4.0	4.0	7.0	5.0
15	10.0	9.0	8.0	8.0	7.0	7.0	4.0	3.0	4.0	4.0	7.0	6.0
16	9.0	9.0	8.0	8.0	7.0	7.0	4.0	3.0	6.0	4.0	6.0	6.0
17	9.0	9.0	8.0	8.0	7.0	7.0	4.0	3.0	5.0	4.0	6.0	6.0
18	9.0	8.0	9.0	8.0	7.0	7.0	4.0	4.0	6.0	4.0	7.0	6.0
19	9.0	9.0	9.0	9.0	7.0	6.0	4.0	4.0	6.0	4.0	7.0	6.0
20	10.0	9.0	9.0	9.0	6.0	6.0	4.0	3.0	6.0	4.0	7.0	6.0
21	9.0	9.0	9.0	9.0	6.0	5.0	4.0	3.0	6.0	4.0	8.0	6.0
22	10.0	9.0	9.0	9.0	6.0	4.0	3.0	2.0	6.0	5.0	7.0	6.0
23	10.0	10.0	9.0	9.0	5.0	4.0	3.0	1.0	5.0	5.0	8.0	6.0
24	11.0	10.0	9.0	8.0	6.0	5.0	3.0	2.0	6.0	4.0	8.0	5.0
25	11.0	10.0	8.0	8.0	6.0	6.0	3.0	2.0	6.0	5.0	8.0	6.0
26	10.0	9.0	8.0	8.0	6.0	6.0	3.0	2.0	6.0	5.0	9.0	6.0
27	11.0	9.0	8.0	8.0	6.0	6.0	3.0	2.0	6.0	4.0	9.0	7.0
28	10.0	9.0	8.0	8.0	6.0	4.0	3.0	2.0	6.0	4.0	9.0	7.0
29	11.0	10.0	8.0	8.0	4.0	4.0	2.0	2.0	--	--	9.0	7.0
30	11.0	9.0	8.0	7.0	4.0	3.0	3.0	2.0	--	--	10.0	8.0
31	9.0	8.0	--	--	4.0	1.0	3.0	1.0	--	--	9.0	8.0
AVG	10.3	9.2	8.5	8.2	6.4	6.0	4.0	3.2	4.7	3.6	7.3	5.7

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	7.0	10.0	8.0	16.0	10.0	16.0	11.0	16.0	13.0	16.0	12.0
2	8.0	7.0	12.0	8.0	17.0	11.0	15.0	12.0	16.0	13.0	16.0	12.0
3	7.0	6.0	11.0	8.0	18.0	11.0	14.0	12.0	16.0	12.0	13.0	11.0
4	7.0	7.0	12.0	8.0	17.0	8.0	13.0	12.0	16.0	13.0	13.0	11.0
5	8.0	7.0	13.0	8.0	9.0	8.0	14.0	12.0	16.0	12.0	13.0	10.0
6	9.0	7.0	14.0	8.0	8.0	8.0	14.0	11.0	15.0	13.0	14.0	10.0
7	9.0	7.0	15.0	8.0	9.0	8.0	16.0	11.0	14.0	12.0	14.0	11.0
8	9.0	7.0	16.0	9.0	12.0	8.0	15.0	12.0	17.0	12.0	14.0	11.0
9	8.0	7.0	15.0	9.0	14.0	11.0	18.0	12.0	17.0	12.0	15.0	12.0
10	9.0	7.0	12.0	9.0	15.0	8.0	15.0	12.0	15.0	13.0	15.0	12.0
11	12.0	7.0	15.0	9.0	12.0	8.0	15.0	12.0	17.0	13.0	14.0	12.0
12	8.0	8.0	15.0	9.0	12.0	8.0	14.0	11.0	15.0	13.0	14.0	12.0
13	9.0	8.0	15.0	9.0	11.0	8.0	14.0	11.0	18.0	13.0	13.0	11.0
14	10.0	7.0	15.0	10.0	9.0	8.0	13.0	11.0	17.0	12.0	12.0	9.0
15	11.0	7.0	15.0	9.0	11.0	8.0	16.0	11.0	16.0	13.0	12.0	9.0
16	9.0	7.0	14.0	9.0	13.0	9.0	17.0	11.0	16.0	12.0	12.0	11.0
17	9.0	8.0	16.0	9.0	16.0	11.0	17.0	11.0	14.0	11.0	12.0	11.0
18	8.0	8.0	13.0	9.0	16.0	11.0	18.0	12.0	15.0	12.0	12.0	11.0
19	9.0	8.0	12.0	11.0	16.0	12.0	18.0	12.0	14.0	12.0	12.0	11.0
20	8.0	7.0	13.0	10.0	16.0	12.0	16.0	13.0	14.0	12.0	12.0	11.0
21	11.0	8.0	16.0	9.0	15.0	12.0	18.0	13.0	16.0	12.0	12.0	11.0
22	11.0	8.0	17.0	10.0	13.0	12.0	18.0	13.0	16.0	11.0	12.0	12.0
23	10.0	8.0	17.0	11.0	13.0	12.0	18.0	13.0	16.0	11.0	12.0	12.0
24	10.0	7.0	15.0	11.0	13.0	10.0	18.0	13.0	14.0	12.0	12.0	11.0
25	9.0	7.0	13.0	9.0	13.0	11.0	17.0	12.0	15.0	12.0	13.0	11.0
26	12.0	7.0	12.0	10.0	13.0	10.0	17.0	12.0	13.0	11.0	12.0	11.0
27	12.0	9.0	12.0	10.0	12.0	11.0	17.0	12.0	13.0	12.0	11.0	11.0
28	11.0	9.0	11.0	9.0	14.0	11.0	17.0	13.0	14.0	11.0	12.0	11.0
29	11.0	8.0	11.0	10.0	14.0	11.0	18.0	13.0	14.0	11.0	13.0	11.0
30	9.0	8.0	12.0	10.0	17.0	11.0	18.0	12.0	15.0	11.0	13.0	12.0
31	--	--	15.0	9.0	--	--	17.0	12.0	15.0	11.0	--	--
AVG	9.3	7.4	13.6	9.1	13.4	9.9	16.1	11.9	15.3	12.0	13.0	11.1

12059800 SOUTH FORK SKOKOMISH RIVER NEAR HOODSPORT, WASH.

LOCATION.--Lat 47°28'45", long 123°24'54", in NW¼ sec.35, T.23 N., R.6 W., Mason County, Olympic National Forest, temperature recorder at gaging station on left bank, 100 ft downstream from Pine Creek and 13.1 miles west of Hoodsport.

DRAINAGE AREA.--26.0 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1964 to September 1969 (discontinued).

EXTREMES.--1968-69:
Water temperatures: Maximum, 13.0°C on several days during July and August; minimum, 2.0°C on several days during December to March.

Period of record:
Water temperatures: Maximum, 14.0°C on several days during July 1965; minimum, 1.0°C Jan. 1, 2, 1965.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	9.0	7.0	7.0	5.0	4.0	3.0	3.0	4.0	3.0	4.0	4.0
2	9.0	8.0	7.0	7.0	5.0	5.0	4.0	3.0	4.0	4.0	4.0	4.0
3	9.0	8.0	7.0	7.0	5.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
4	9.0	9.0	7.0	6.0	5.0	5.0	4.0	3.0	4.0	4.0	5.0	4.0
5	9.0	9.0	7.0	6.0	5.0	5.0	4.0	3.0	4.0	4.0	4.0	4.0
6	9.0	9.0	7.0	6.0	5.0	5.0	4.0	4.0	4.0	3.0	4.0	4.0
7	9.0	8.0	7.0	7.0	5.0	5.0	4.0	4.0	3.0	2.0	5.0	4.0
8	8.0	8.0	7.0	7.0	5.0	5.0	4.0	4.0	2.0	2.0	5.0	4.0
9	8.0	8.0	7.0	7.0	5.0	5.0	4.0	4.0	3.0	2.0	5.0	4.0
10	8.0	8.0	7.0	7.0	6.0	5.0	4.0	3.0	3.0	3.0	5.0	4.0
11	8.0	8.0	7.0	7.0	6.0	6.0	4.0	4.0	3.0	2.0	5.0	4.0
12	8.0	8.0	7.0	6.0	6.0	6.0	4.0	4.0	3.0	2.0	4.0	3.0
13	8.0	8.0	6.0	6.0	6.0	5.0	4.0	4.0	4.0	3.0	5.0	3.0
14	8.0	8.0	6.0	6.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
15	8.0	8.0	6.0	6.0	5.0	5.0	4.0	3.0	4.0	4.0	4.0	4.0
16	8.0	8.0	6.0	6.0	5.0	5.0	4.0	3.0	4.0	4.0	4.0	3.0
17	8.0	7.0	6.0	6.0	5.0	5.0	4.0	3.0	4.0	4.0	3.0	2.0
18	7.0	7.0	6.0	6.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	3.0
19	7.0	7.0	7.0	6.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
20	7.0	7.0	7.0	6.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
21	7.0	7.0	7.0	7.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
22	7.0	7.0	7.0	7.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
23	7.0	7.0	7.0	6.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0
24	7.0	7.0	6.0	6.0	4.0	3.0	4.0	3.0	4.0	4.0	4.0	4.0
25	7.0	7.0	6.0	6.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
26	7.0	7.0	6.0	6.0	4.0	4.0	4.0	3.0	4.0	4.0	5.0	4.0
27	7.0	7.0	6.0	6.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
28	7.0	7.0	6.0	6.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
29	7.0	7.0	6.0	6.0	4.0	3.0	3.0	3.0	--	--	4.0	4.0
30	7.0	7.0	6.0	4.0	3.0	2.0	4.0	3.0	--	--	4.0	4.0
31	7.0	7.0	--	--	3.0	2.0	3.0	2.0	--	--	4.0	3.0
AVG	7.7	7.6	6.5	6.2	4.7	4.3	3.9	3.4	3.7	3.5	4.2	3.7

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.0	3.0	6.0	4.0	8.0	6.0	11.0	8.0	13.0	10.0	12.0	9.0
2	4.0	3.0	6.0	5.0	8.0	6.0	10.0	8.0	13.0	11.0	11.0	10.0
3	4.0	3.0	6.0	5.0	8.0	6.0	8.0	8.0	13.0	10.0	11.0	9.0
4	3.0	3.0	7.0	5.0	8.0	7.0	8.0	8.0	11.0	10.0	10.0	9.0
5	4.0	3.0	7.0	5.0	7.0	7.0	8.0	7.0	11.0	9.0	11.0	9.0
6	4.0	4.0	7.0	5.0	7.0	7.0	8.0	7.0	10.0	9.0	11.0	9.0
7	4.0	4.0	6.0	4.0	8.0	7.0	9.0	8.0	9.0	9.0	12.0	9.0
8	4.0	4.0	6.0	4.0	8.0	7.0	9.0	8.0	13.0	9.0	11.0	9.0
9	4.0	4.0	6.0	4.0	8.0	6.0	12.0	8.0	13.0	9.0	11.0	10.0
10	4.0	4.0	6.0	4.0	8.0	6.0	9.0	9.0	13.0	10.0	12.0	9.0
11	5.0	4.0	6.0	4.0	8.0	6.0	10.0	9.0	12.0	10.0	11.0	10.0
12	4.0	4.0	6.0	4.0	6.0	6.0	10.0	9.0	12.0	10.0	12.0	9.0
13	4.0	4.0	7.0	5.0	7.0	6.0	9.0	9.0	13.0	10.0	11.0	10.0
14	4.0	4.0	7.0	5.0	8.0	6.0	9.0	9.0	13.0	10.0	11.0	9.0
15	4.0	4.0	7.0	5.0	8.0	6.0	11.0	8.0	12.0	11.0	11.0	9.0
16	4.0	4.0	7.0	5.0	8.0	6.0	12.0	9.0	13.0	10.0	11.0	11.0
17	4.0	4.0	7.0	5.0	9.0	7.0	12.0	9.0	12.0	9.0	11.0	11.0
18	4.0	4.0	6.0	6.0	9.0	7.0	12.0	9.0	12.0	10.0	11.0	11.0
19	5.0	4.0	6.0	6.0	9.0	7.0	13.0	9.0	11.0	10.0	11.0	11.0
20	4.0	4.0	7.0	6.0	9.0	7.0	13.0	10.0	11.0	10.0	11.0	10.0
21	6.0	4.0	7.0	6.0	8.0	7.0	13.0	10.0	12.0	10.0	10.0	9.0
22	6.0	5.0	7.0	6.0	8.0	7.0	13.0	10.0	12.0	9.0	10.0	9.0
23	5.0	4.0	7.0	6.0	8.0	7.0	13.0	10.0	12.0	9.0	10.0	9.0
24	5.0	4.0	7.0	6.0	7.0	7.0	13.0	10.0	10.0	9.0	9.0	9.0
25	5.0	4.0	6.0	6.0	8.0	7.0	13.0	9.0	11.0	10.0	9.0	9.0
26	6.0	4.0	6.0	6.0	8.0	7.0	13.0	9.0	10.0	9.0	9.0	9.0
27	5.0	5.0	6.0	6.0	8.0	8.0	13.0	9.0	10.0	9.0	9.0	9.0
28	5.0	4.0	6.0	6.0	8.0	8.0	13.0	10.0	11.0	9.0	9.0	9.0
29	6.0	4.0	6.0	6.0	8.0	7.0	13.0	10.0	11.0	9.0	9.0	9.0
30	4.0	4.0	7.0	6.0	11.0	7.0	13.0	9.0	12.0	9.0	10.0	9.0
31	--	--	7.0	6.0	--	--	13.0	9.0	12.0	9.0	--	--
AVG	4.4	3.9	6.4	5.2	8.0	6.7	11.1	8.8	11.7	9.5	10.5	9.4

12061500 SKOKOMISH RIVER NEAR POTLATCH, WASH.

LOCATION (revised).--Lat 47°18'36", long 123°10'33", in SE¼NW¼ sec.15, T.21 N., R.4 W., Mason County, at gaging station at bridge on U.S. Highway 101, 3.7 miles downstream from confluence of North and South Forks, 4.7 miles southwest of Potlatch, and 5.3 miles upstream from mouth.

DRAINAGE AREA.--227 sq mi.

PERIOD OF RECORD.--Chemical analyses (revised): August 1960 to September 1961 (monthly), October 1961 to September 1969 (partial-records).
Water temperatures: May 1955 to September 1962, October 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 13.0°C on several days during June to July; minimum, 2.0°C Dec. 31.

Period of record:
Water temperatures: Maximum, 20.5°C July 13, 1961; minimum (1955-62, 1964-69), 1.0°C Mar. 7, 1956.

REMARKS.--For chemical analyses, see "Analyses of samples collected at water-quality partial-record stations in Pacific slope basins in Washington and upper Columbia River basin."

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	11.0	9.0	8.0	7.0	7.0	4.0	3.0	4.0	4.0	6.0	6.0
2	11.0	11.0	9.0	9.0	7.0	7.0	4.0	4.0	4.0	4.0	6.0	6.0
3	11.0	11.0	9.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	6.0	6.0
4	11.0	11.0	9.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	6.0	6.0
5	11.0	11.0	9.0	8.0	7.0	7.0	5.0	4.0	4.0	4.0	6.0	6.0
6	11.0	11.0	9.0	8.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	6.0
7	11.0	10.0	9.0	9.0	7.0	7.0	5.0	5.0	4.0	3.0	6.0	6.0
8	11.0	10.0	9.0	9.0	7.0	7.0	5.0	4.0	4.0	3.0	6.0	6.0
9	10.0	10.0	9.0	9.0	7.0	7.0	4.0	4.0	4.0	4.0	6.0	6.0
10	11.0	10.0	9.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	6.0	6.0
11	10.0	9.0	9.0	9.0	7.0	7.0	4.0	4.0	4.0	3.0	6.0	6.0
12	9.0	9.0	9.0	8.0	7.0	7.0	5.0	4.0	4.0	3.0	7.0	6.0
13	9.0	9.0	8.0	8.0	7.0	7.0	5.0	5.0	4.0	4.0	7.0	7.0
14	9.0	9.0	8.0	8.0	7.0	7.0	5.0	4.0	4.0	4.0	7.0	7.0
15	9.0	9.0	8.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	7.0	7.0
16	9.0	9.0	8.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	7.0	6.0
17	9.0	9.0	8.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	6.0	6.0
18	9.0	8.0	9.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	7.0	6.0
19	9.0	8.0	9.0	9.0	7.0	7.0	4.0	4.0	4.0	4.0	7.0	6.0
20	9.0	8.0	9.0	9.0	7.0	7.0	4.0	4.0	4.0	4.0	7.0	6.0
21	9.0	8.0	9.0	9.0	7.0	7.0	4.0	4.0	4.0	4.0	7.0	6.0
22	9.0	9.0	9.0	8.0	7.0	6.0	4.0	4.0	4.0	4.0	7.0	7.0
23	9.0	9.0	9.0	8.0	6.0	6.0	4.0	4.0	4.0	4.0	7.0	6.0
24	9.0	9.0	8.0	8.0	6.0	6.0	4.0	4.0	4.0	4.0	7.0	6.0
25	9.0	9.0	8.0	8.0	6.0	6.0	4.0	4.0	6.0	4.0	8.0	7.0
26	9.0	9.0	8.0	8.0	6.0	6.0	4.0	4.0	6.0	6.0	8.0	7.0
27	9.0	9.0	8.0	8.0	6.0	6.0	4.0	4.0	6.0	5.0	8.0	7.0
28	9.0	9.0	8.0	8.0	6.0	5.0	4.0	4.0	6.0	6.0	8.0	7.0
29	9.0	9.0	8.0	8.0	5.0	4.0	4.0	4.0	--	--	7.0	7.0
30	9.0	9.0	8.0	7.0	4.0	4.0	4.0	4.0	--	--	8.0	7.0
31	9.0	8.0	--	--	4.0	2.0	4.0	3.0	--	--	7.0	7.0
AVG	9.6	9.3	8.6	8.2	6.5	6.3	4.2	4.0	4.2	4.0	6.7	6.3

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	7.0	8.0	7.0	11.0	8.0	12.0	11.0	12.0	12.0	12.0	11.0
2	7.0	7.0	9.0	7.0	11.0	9.0	12.0	11.0	12.0	11.0	12.0	11.0
3	7.0	7.0	8.0	7.0	11.0	9.0	11.0	11.0	12.0	11.0	11.0	11.0
4	7.0	7.0	9.0	7.0	12.0	9.0	11.0	11.0	12.0	11.0	11.0	11.0
5	7.0	7.0	10.0	8.0	11.0	8.0	11.0	11.0	12.0	11.0	11.0	11.0
6	8.0	7.0	11.0	9.0	10.0	9.0	11.0	10.0	12.0	11.0	12.0	11.0
7	8.0	7.0	11.0	9.0	10.0	9.0	11.0	11.0	12.0	11.0	12.0	11.0
8	8.0	7.0	11.0	8.0	12.0	9.0	11.0	11.0	12.0	11.0	12.0	11.0
9	7.0	7.0	10.0	8.0	12.0	11.0	12.0	11.0	12.0	11.0	12.0	11.0
10	8.0	7.0	10.0	8.0	12.0	10.0	12.0	11.0	12.0	11.0	12.0	11.0
11	9.0	7.0	10.0	8.0	12.0	9.0	11.0	11.0	12.0	11.0	12.0	11.0
12	8.0	8.0	11.0	8.0	11.0	9.0	11.0	11.0	12.0	11.0	12.0	11.0
13	8.0	7.0	11.0	8.0	11.0	9.0	11.0	10.0	12.0	11.0	12.0	11.0
14	8.0	7.0	11.0	8.0	11.0	9.0	11.0	9.0	12.0	11.0	11.0	10.0
15	8.0	7.0	10.0	8.0	12.0	9.0	12.0	10.0	12.0	11.0	11.0	10.0
16	8.0	7.0	10.0	8.0	12.0	10.0	12.0	11.0	12.0	11.0	11.0	10.0
17	8.0	7.0	11.0	8.0	13.0	11.0	12.0	11.0	12.0	11.0	11.0	11.0
18	7.0	7.0	10.0	8.0	13.0	12.0	12.0	11.0	12.0	11.0	11.0	11.0
19	7.0	7.0	9.0	8.0	13.0	11.0	13.0	11.0	11.0	11.0	11.0	11.0
20	7.0	7.0	9.0	8.0	13.0	12.0	12.0	11.0	11.0	11.0	11.0	11.0
21	9.0	7.0	11.0	8.0	12.0	12.0	12.0	11.0	12.0	11.0	11.0	11.0
22	8.0	8.0	11.0	8.0	12.0	12.0	12.0	11.0	12.0	11.0	11.0	11.0
23	8.0	8.0	11.0	8.0	12.0	12.0	13.0	11.0	12.0	11.0	11.0	10.0
24	8.0	7.0	11.0	9.0	12.0	10.0	13.0	12.0	12.0	11.0	10.0	10.0
25	8.0	7.0	9.0	8.0	11.0	10.0	12.0	12.0	12.0	11.0	10.0	10.0
26	9.0	7.0	8.0	8.0	11.0	10.0	13.0	12.0	11.0	11.0	10.0	9.0
27	9.0	8.0	8.0	8.0	11.0	10.0	13.0	12.0	11.0	11.0	10.0	9.0
28	9.0	8.0	8.0	7.0	11.0	10.0	13.0	12.0	12.0	11.0	10.0	10.0
29	9.0	7.0	7.0	7.0	11.0	10.0	13.0	12.0	12.0	11.0	10.0	10.0
30	8.0	7.0	8.0	7.0	12.0	10.0	13.0	12.0	12.0	11.0	11.0	10.0
31	--	--	10.0	7.0	--	--	13.0	12.0	12.0	11.0	--	--
AVG	7.9	7.1	9.7	7.8	11.6	9.9	11.9	11.0	11.8	11.0	11.1	10.5

12068500 DEWATTO RIVER NEAR DEWATTO, WASH.

LOCATION (revised).--Lat 47°28'10", long 123°01'33", in NE¼SW¼ sec.23, T.23 N., R.3 W., Mason County, temperature recorder at gaging station on right bank, 400 ft downstream from highway bridge, 2.0 miles upstream from mouth, and 2.2 miles northeast of Dewatto.

DRAINAGE AREA.--18.4 sq mi.

PERIOD OF RECORD.--Water temperatures: April 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 16.0°C July 23, 24, Aug. 13, 14; minimum, freezing point Dec. 31.

Period of record:
Water temperatures: Maximum, 16.0°C on several days during July and August 1968, July 23, 24, Aug. 13, 14 1969; minimum, freezing point Dec. 31, 1968.

REMARKS.--Recorder stopped Dec. 3-11; range in temperature 6.0°C to 8.0°C. Thermograph not operating properly Dec. 29-30; temperature range not determined. Recorder stopped Mar. 29 to April 4; range in temperature 6.0°C to 9.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	11.0	8.0	7.0	7.0	6.0	3.0	2.0	3.0	2.0	5.0	4.0
2	11.0	9.0	8.0	8.0	7.0	6.0	3.0	3.0	3.0	3.0	5.0	4.0
3	10.0	9.0	8.0	7.0	--	--	4.0	3.0	4.0	3.0	6.0	5.0
4	11.0	9.0	7.0	7.0	--	--	4.0	4.0	4.0	3.0	6.0	5.0
5	11.0	9.0	8.0	7.0	--	--	4.0	3.0	3.0	3.0	6.0	5.0
6	11.0	9.0	7.0	6.0	--	--	4.0	4.0	3.0	2.0	6.0	4.0
7	10.0	9.0	8.0	7.0	--	--	4.0	3.0	3.0	2.0	5.0	3.0
8	10.0	9.0	8.0	8.0	--	--	3.0	3.0	2.0	1.0	6.0	4.0
9	9.0	8.0	9.0	8.0	--	--	3.0	2.0	2.0	1.0	6.0	4.0
10	9.0	9.0	8.0	8.0	--	--	3.0	2.0	2.0	2.0	5.0	3.0
11	9.0	8.0	9.0	8.0	7.0	--	3.0	2.0	2.0	1.0	5.0	3.0
12	9.0	8.0	8.0	8.0	6.0	5.0	3.0	2.0	3.0	1.0	5.0	3.0
13	9.0	9.0	8.0	7.0	6.0	5.0	3.0	3.0	3.0	2.0	5.0	4.0
14	9.0	9.0	7.0	7.0	6.0	6.0	3.0	3.0	3.0	3.0	6.0	4.0
15	9.0	8.0	7.0	6.0	7.0	6.0	3.0	2.0	4.0	3.0	7.0	6.0
16	8.0	8.0	7.0	6.0	7.0	6.0	3.0	2.0	4.0	3.0	7.0	6.0
17	8.0	8.0	8.0	7.0	6.0	5.0	3.0	3.0	3.0	3.0	6.0	6.0
18	8.0	8.0	8.0	8.0	6.0	5.0	3.0	3.0	4.0	3.0	7.0	5.0
19	8.0	8.0	9.0	8.0	5.0	4.0	3.0	3.0	4.0	3.0	7.0	6.0
20	9.0	8.0	9.0	8.0	4.0	4.0	3.0	2.0	4.0	3.0	7.0	6.0
21	8.0	8.0	8.0	8.0	4.0	4.0	3.0	2.0	4.0	3.0	7.0	6.0
22	9.0	8.0	8.0	8.0	4.0	3.0	2.0	1.0	4.0	3.0	7.0	6.0
23	9.0	9.0	8.0	8.0	3.0	3.0	2.0	1.0	4.0	3.0	7.0	6.0
24	10.0	9.0	8.0	7.0	4.0	3.0	2.0	1.0	4.0	3.0	7.0	5.0
25	9.0	9.0	8.0	7.0	4.0	4.0	2.0	2.0	4.0	3.0	7.0	5.0
26	9.0	8.0	7.0	7.0	4.0	4.0	2.0	2.0	4.0	4.0	8.0	6.0
27	8.0	7.0	7.0	7.0	4.0	3.0	2.0	2.0	4.0	3.0	8.0	7.0
28	9.0	8.0	7.0	6.0	3.0	2.0	2.0	1.0	4.0	3.0	8.0	7.0
29	9.0	8.0	7.0	7.0	--	--	2.0	1.0	--	--	--	--
30	9.0	9.0	7.0	6.0	--	--	2.0	2.0	--	--	--	--
31	9.0	8.0	--	--	2.0	0.0	2.0	1.0	--	--	--	--
AVG	9.2	8.4	7.8	7.2	--	--	2.8	2.2	3.3	2.5	6.3	4.9

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	9.0	8.0	13.0	10.0	14.0	12.0	14.0	13.0	13.0	11.0
2	--	--	9.0	8.0	13.0	11.0	14.0	13.0	14.0	13.0	14.0	12.0
3	--	--	9.0	8.0	14.0	12.0	13.0	12.0	14.0	12.0	13.0	12.0
4	--	--	10.0	8.0	14.0	12.0	13.0	12.0	14.0	12.0	13.0	12.0
5	8.0	7.0	11.0	8.0	14.0	12.0	13.0	12.0	14.0	12.0	12.0	11.0
6	8.0	7.0	12.0	8.0	13.0	12.0	13.0	12.0	13.0	12.0	12.0	10.0
7	8.0	7.0	12.0	9.0	13.0	12.0	13.0	12.0	13.0	12.0	13.0	10.0
8	8.0	6.0	13.0	9.0	14.0	11.0	13.0	12.0	14.0	12.0	13.0	11.0
9	8.0	7.0	13.0	11.0	14.0	12.0	14.0	13.0	14.0	12.0	13.0	12.0
10	9.0	7.0	12.0	10.0	14.0	11.0	15.0	13.0	14.0	13.0	13.0	12.0
11	9.0	7.0	12.0	9.0	14.0	12.0	14.0	12.0	14.0	13.0	13.0	12.0
12	9.0	8.0	12.0	10.0	13.0	12.0	14.0	12.0	14.0	13.0	13.0	12.0
13	9.0	8.0	12.0	10.0	13.0	12.0	13.0	12.0	16.0	13.0	13.0	12.0
14	8.0	7.0	12.0	10.0	14.0	12.0	13.0	12.0	16.0	14.0	12.0	11.0
15	9.0	7.0	12.0	9.0	14.0	12.0	13.0	11.0	15.0	14.0	12.0	10.0
16	8.0	7.0	11.0	9.0	15.0	12.0	14.0	12.0	15.0	13.0	11.0	11.0
17	9.0	8.0	12.0	9.0	15.0	13.0	14.0	12.0	14.0	12.0	12.0	11.0
18	9.0	8.0	11.0	9.0	15.0	13.0	15.0	12.0	15.0	13.0	12.0	12.0
19	9.0	7.0	11.0	11.0	14.0	13.0	15.0	12.0	14.0	13.0	12.0	12.0
20	9.0	8.0	11.0	10.0	13.0	12.0	14.0	13.0	14.0	13.0	12.0	12.0
21	10.0	8.0	13.0	10.0	13.0	12.0	14.0	13.0	15.0	13.0	12.0	12.0
22	11.0	9.0	13.0	11.0	13.0	12.0	15.0	12.0	14.0	12.0	12.0	12.0
23	9.0	8.0	13.0	11.0	13.0	12.0	16.0	13.0	14.0	12.0	12.0	12.0
24	9.0	7.0	13.0	12.0	13.0	12.0	16.0	13.0	14.0	12.0	12.0	12.0
25	9.0	8.0	12.0	10.0	12.0	12.0	14.0	13.0	14.0	13.0	12.0	11.0
26	9.0	7.0	11.0	10.0	13.0	11.0	15.0	12.0	13.0	12.0	12.0	11.0
27	11.0	9.0	11.0	10.0	12.0	11.0	15.0	12.0	13.0	12.0	11.0	10.0
28	10.0	9.0	11.0	9.0	13.0	11.0	14.0	13.0	13.0	12.0	11.0	11.0
29	9.0	8.0	11.0	10.0	13.0	12.0	15.0	12.0	13.0	11.0	11.0	11.0
30	9.0	8.0	11.0	10.0	14.0	12.0	15.0	12.0	13.0	11.0	12.0	11.0
31	--	--	12.0	9.0	--	--	14.0	13.0	13.0	11.0	--	--
AVG	8.9	7.5	11.5	9.5	13.5	11.8	14.0	12.2	14.0	12.4	12.2	11.3

12072000 CHICO CREEK NEAR BREMERTON, WASH.

LOCATION.--Lat 47°35'28", long 122°42'29", in NE¼NW¼ sec.8, T.24 N., R.1 E., Kitsap County, at gaging station at bridge on State Highway 3, 0.5 mile downstream from Dickerson Creek and 3.7 miles northwest of Olympic College in Bremerton.

DRAINAGE AREA.--15.3 sq mi.

PERIOD OF RECORD.--Chemical analyses: November 1964 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
OCT.										
29...	11	13	8.6	2.9	3.0	.4	42	0	2.8	1.4
JAN.										
08...	87	11	6.0	2.0	2.3	.1	28	0	3.0	1.0
APR.										
17...	33	12	6.3	2.2	2.5	.6	33	0	2.7	1.5
MAY										
28...	9.0	14	7.9	2.6	2.8	.2	38	0	3.7	1.7
JULY										
10...	4.6	15	8.0	3.1	3.4	.4	42	0	4.2	1.6
AUG.										
27...	1.6	15	8.9	3.1	3.5	.4	45	0	2.8	2.4

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
OCT.									
29...	.1	1.2	59	34	0	81	7.3	5	12
JAN.									
08...	.1	1.2	33	23	0	58	7.3	5	4
APR.									
17...	.2	.6	49	24	0	65	7.4	5	10
MAY									
28...	.0	.5	53	30	0	74	7.4	5	13
JULY									
10...	.0	.3	60	33	0	79	7.4	0	15
AUG.									
27...	.0	.6	62	35	0	85	7.3	10	14

12079000 DESCHUTES RIVER NEAR RAINIER, WASH.

LOCATION.--Lat 46°51'08", long 122°40'03", in SE¼SW¼ sec.22, T.16 N., R.1 E., Thurston County, temperature recorder at gaging station on right bank, 75 ft upstream from county road crossing, 0.4 mile downstream from outlet of Reichel Lake, 2.7 miles southeast of Rainier, and at mile 25.9.

DRAINAGE AREA.--89.8 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1968 to September 1969.

EXTREMES.--August 1968 to September 1969:
Water temperatures: Maximum, 19.0°C June 16-18, July 23, 1969; minimum, 1.0°C Dec. 29-31, 1969.

REMARKS.--Thermograph not operating properly Feb. 8, 9, 11, 12, range in stage not determined. Recorder stopped July 25-30; range in temperature 14.0°C to 18.0°C.

TEMPERATURE (°C) OF WATER, AUGUST TO SEPTEMBER 1968

	AUG		SEP			AUG		SEP			AUG		SEP	
DAY	MAX	MIN	MAX	MIN	DAY	MAX	MIN	MAX	MIN	DAY	MAX	MIN	MAX	MIN
1	--	--	17.0	15.0	12	17.0	14.0	15.0	13.0	23	14.0	14.0	13.0	12.0
2	--	--	15.0	14.0	13	16.0	14.0	14.0	14.0	24	14.0	13.0	14.0	13.0
3	--	--	15.0	14.0	14	15.0	14.0	14.0	14.0	25	13.0	13.0	14.0	13.0
4	--	--	16.0	14.0	15	14.0	13.0	14.0	14.0	26	14.0	12.0	14.0	13.0
5	--	--	16.0	14.0	16	15.0	14.0	14.0	13.0	27	14.0	13.0	13.0	13.0
6	--	--	17.0	15.0	17	16.0	14.0	14.0	13.0	28	15.0	13.0	13.0	11.0
7	17.0	14.0	17.0	16.0	18	16.0	14.0	13.0	13.0	29	16.0	13.0	13.0	12.0
8	17.0	14.0	16.0	15.0	19	14.0	14.0	13.0	11.0	30	16.0	13.0	13.0	12.0
9	17.0	14.0	16.0	15.0	20	14.0	13.0	12.0	11.0	31	17.0	14.0	--	--
10	18.0	15.0	16.0	15.0	21	14.0	13.0	12.0	11.0					
11	18.0	15.0	16.0	15.0	22	14.0	14.0	12.0	11.0	AVG	15.0	14.0	14.0	13.0

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	8.0	7.0	6.0	6.0	5.0	2.0	4.0	3.0	7.0	6.0
2	--	--	9.0	7.0	7.0	6.0	6.0	4.0	5.0	4.0	7.0	6.0
3	11.0	9.0	9.0	8.0	7.0	7.0	7.0	5.0	4.0	4.0	6.0	6.0
4	12.0	11.0	8.0	6.0	7.0	6.0	8.0	7.0	4.0	3.0	6.0	6.0
5	12.0	11.0	7.0	7.0	6.0	6.0	8.0	7.0	3.0	2.0	7.0	6.0
6	11.0	11.0	7.0	7.0	6.0	5.0	8.0	8.0	3.0	2.0	6.0	5.0
7	11.0	10.0	8.0	7.0	6.0	5.0	8.0	6.0	4.0	3.0	6.0	4.0
8	10.0	9.0	9.0	8.0	7.0	6.0	7.0	5.0	--	4.0	6.0	4.0
9	9.0	8.0	9.0	8.0	7.0	6.0	6.0	5.0	--	3.0	6.0	4.0
10	10.0	9.0	8.0	7.0	7.0	7.0	6.0	5.0	6.0	4.0	6.0	4.0
11	10.0	9.0	9.0	8.0	7.0	7.0	5.0	4.0	--	6.0	6.0	4.0
12	9.0	8.0	9.0	8.0	7.0	6.0	5.0	4.0	--	5.0	7.0	4.0
13	9.0	8.0	8.0	7.0	7.0	6.0	5.0	4.0	6.0	4.0	7.0	4.0
14	9.0	8.0	7.0	6.0	7.0	7.0	5.0	4.0	6.0	4.0	7.0	5.0
15	9.0	8.0	7.0	6.0	7.0	7.0	5.0	5.0	6.0	5.0	9.0	7.0
16	9.0	7.0	7.0	6.0	7.0	6.0	5.0	4.0	6.0	5.0	8.0	7.0
17	9.0	8.0	7.0	6.0	6.0	6.0	5.0	4.0	6.0	4.0	8.0	6.0
18	9.0	8.0	9.0	7.0	6.0	5.0	5.0	4.0	6.0	4.0	7.0	5.0
19	9.0	8.0	9.0	8.0	5.0	4.0	5.0	4.0	6.0	4.0	7.0	6.0
20	9.0	9.0	9.0	8.0	4.0	3.0	4.0	4.0	6.0	4.0	7.0	5.0
21	9.0	8.0	8.0	8.0	4.0	4.0	4.0	4.0	6.0	4.0	8.0	5.0
22	10.0	8.0	8.0	8.0	4.0	4.0	4.0	3.0	6.0	5.0	8.0	6.0
23	11.0	9.0	8.0	7.0	7.0	4.0	4.0	3.0	6.0	5.0	8.0	5.0
24	11.0	9.0	8.0	7.0	7.0	6.0	3.0	2.0	5.0	4.0	8.0	4.0
25	10.0	9.0	8.0	7.0	6.0	5.0	3.0	3.0	6.0	4.0	8.0	5.0
26	9.0	8.0	8.0	7.0	6.0	5.0	3.0	2.0	6.0	4.0	9.0	6.0
27	9.0	8.0	8.0	7.0	6.0	4.0	4.0	3.0	6.0	4.0	9.0	6.0
28	10.0	9.0	8.0	7.0	4.0	2.0	3.0	3.0	6.0	5.0	9.0	6.0
29	11.0	10.0	7.0	7.0	2.0	1.0	3.0	3.0	--	--	8.0	6.0
30	11.0	9.0	7.0	6.0	1.0	1.0	4.0	2.0	--	--	9.0	7.0
31	9.0	8.0	--	--	2.0	1.0	4.0	3.0	--	--	8.0	7.0
AVG	9.8	8.7	8.0	7.1	5.7	4.9	5.0	4.0	5.3	4.0	7.3	5.3

12079000 DESCHUTES RIVER NEAR RAINIER, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	6.0	9.0	7.0	16.0	12.0	18.0	15.0	16.0	14.0	16.0	13.0
2	7.0	6.0	9.0	7.0	17.0	14.0	18.0	15.0	17.0	14.0	16.0	14.0
3	7.0	4.0	9.0	8.0	18.0	14.0	15.0	14.0	16.0	14.0	16.0	13.0
4	7.0	6.0	12.0	7.0	18.0	16.0	15.0	14.0	16.0	14.0	13.0	12.0
5	8.0	7.0	13.0	9.0	18.0	16.0	16.0	14.0	16.0	14.0	13.0	12.0
6	9.0	7.0	14.0	10.0	16.0	14.0	16.0	14.0	16.0	14.0	13.0	11.0
7	8.0	6.0	14.0	11.0	14.0	13.0	16.0	14.0	15.0	13.0	14.0	12.0
8	9.0	6.0	15.0	12.0	16.0	14.0	17.0	15.0	16.0	13.0	14.0	13.0
9	9.0	8.0	15.0	11.0	18.0	16.0	18.0	16.0	17.0	14.0	16.0	14.0
10	9.0	7.0	13.0	11.0	18.0	16.0	17.0	16.0	17.0	15.0	16.0	14.0
11	11.0	7.0	14.0	11.0	16.0	15.0	16.0	14.0	16.0	15.0	15.0	13.0
12	11.0	8.0	14.0	12.0	15.0	14.0	15.0	14.0	16.0	14.0	15.0	14.0
13	9.0	7.0	14.0	12.0	16.0	14.0	15.0	13.0	15.0	14.0	17.0	14.0
14	9.0	7.0	14.0	12.0	17.0	16.0	14.0	13.0	14.0	12.0	18.0	15.0
15	9.0	8.0	13.0	11.0	18.0	16.0	16.0	13.0	13.0	11.0	18.0	16.0
16	9.0	8.0	13.0	11.0	19.0	17.0	17.0	14.0	12.0	12.0	17.0	14.0
17	9.0	8.0	14.0	11.0	19.0	17.0	17.0	14.0	13.0	12.0	16.0	13.0
18	9.0	7.0	14.0	12.0	19.0	17.0	17.0	14.0	14.0	13.0	15.0	14.0
19	8.0	7.0	12.0	11.0	18.0	17.0	18.0	15.0	16.0	14.0	16.0	14.0
20	9.0	7.0	13.0	11.0	17.0	14.0	17.0	16.0	16.0	14.0	14.0	12.0
21	12.0	8.0	15.0	11.0	14.0	14.0	18.0	16.0	16.0	14.0	13.0	12.0
22	12.0	9.0	16.0	13.0	14.0	14.0	18.0	16.0	16.0	13.0	13.0	13.0
23	10.0	8.0	17.0	14.0	14.0	14.0	19.0	16.0	16.0	13.0	14.0	13.0
24	10.0	8.0	16.0	14.0	14.0	13.0	18.0	17.0	16.0	14.0	14.0	12.0
25	9.0	7.0	14.0	12.0	14.0	13.0	--	16.0	16.0	14.0	13.0	12.0
26	11.0	7.0	14.0	12.0	14.0	12.0	--	--	16.0	13.0	13.0	12.0
27	12.0	9.0	14.0	13.0	14.0	13.0	--	--	14.0	13.0	13.0	12.0
28	11.0	9.0	13.0	12.0	14.0	13.0	--	--	14.0	13.0	13.0	12.0
29	9.0	8.0	12.0	12.0	14.0	13.0	--	--	14.0	12.0	13.0	12.0
30	9.0	8.0	13.0	11.0	16.0	14.0	17.0	--	14.0	12.0	13.0	12.0
31	--	--	15.0	11.0	--	--	17.0	16.0	14.0	12.0	--	--
AVG	9.3	7.2	13.4	11.0	16.1	14.5	16.7	14.7	15.2	13.3	14.6	12.9

12080000 DESCHUTES RIVER NEAR OLYMPIA, WASH.

LOCATION.--Lat 47°00'55", long 122°54'05", in SW¼SW¼ sec.26, T.18 N., R.2 W., Thurston County, at bridge on old U.S. Highway 99, 0.3 mile upstream from mouth and 2.5 miles south of Olympia.

DRAINAGE AREA.--161 sq mi.

PERIOD OF RECORD.--Chemical analyses (revised): October 1962 to September 1966 (miscellaneous), October 1966 to September 1969 (monthly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available. Prior to October 1966, station published as "at Tumwater."

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
07...	23	10	3.3	6.8	1.0	49	0	3.4	7.2	.1	.7	--
NOV.												
18...	20	8.5	2.7	5.3	.7	38	0	3.0	5.0	.1	1.1	--
DEC.												
02...	19	7.7	2.2	4.8	.6	37	0	2.8	4.0	.1	.1	0
JAN.												
13...	20	7.1	2.1	4.6	.6	34	0	2.8	3.9	.0	1.2	--
FEB.												
10...	16	5.6	1.7	3.7	.7	24	0	1.6	3.2	.1	.9	--
MAR.												
17...	19	7.8	2.3	5.0	.7	37	0	2.6	5.5	.1	1.0	--
APR.												
08...	19	7.9	2.2	4.8	.6	38	0	2.2	46	.2	.8	--
MAY												
12...	19	8.0	2.4	4.8	.6	38	0	2.5	5.7	.0	.5	--
JUNE												
23...	21	10	3.3	6.6	1.1	47	0	4.6	7.4	.1	.6	--
JULY												
14...	23	10	3.4	6.9	1.0	49	0	4.7	7.0	.0	.8	--
AUG.												
11...	25	11	3.5	7.3	1.1	50	0	3.6	8.2	.1	1.0	--
SEPT.												
15...	26	11	3.6	7.3	1.2	51	0	3.6	8.8	.1	.1	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
07...	84	39	0	114	7.2	10	10	10.9	1300	--	--	--
NOV.												
18...	72	32	1	91	7.1	10	8	10.6	2800	--	--	--
DEC.												
02...	75	28	0	80	7.1	20	6	10.9	670	0	0	0
JAN.												
13...	66	26	0	77	7.4	20	4	11.2	2900	--	--	--
FEB.												
10...	67	21	2	56	7.4	10	4	12.4	1460	--	--	--
MAR.												
17...	82	29	0	85	7.0	5	9	11.7	2200	--	--	--
APR.												
08...	61	29	0	80	7.5	0	9	11.5	440	--	--	--
MAY												
12...	54	30	0	84	7.2	0	14	10.7	40	--	--	--
JUNE												
23...	87	39	0	111	7.0	5	17	9.4	530	0	0	0
JULY												
14...	84	39	0	113	7.2	0	13	9.8	690	--	--	--
AUG.												
11...	94	42	1	120	7.3	0	15	9.9	1300	--	--	--
SEPT.												
15...	94	43	1	122	7.3	0	11	10.1	1200	--	--	--

12082500 NISQUALLY RIVER NEAR NATIONAL, WASH.

LOCATION (revised).--Lat 46°45'10", long 122°04'57", in SW¼SW¼ sec.29, T.15 N., R.6 E., Pierce County, temperature recorder at gaging station on right bank, 100 ft downstream from railroad bridge, 1.2 miles west of National, 3.3 miles upstream from Mineral Creek, and at mile 57.8.

DRAINAGE AREA.--133 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1951 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 17.0°C on several days during July and August; minimum, 1.0°C sometime during the period Dec. 29 to Feb. 13.

Period of record:
Water temperatures: Maximum, 18.5°C July 13, 1961; minimum (1951-63, 1965-68), freezing point on many days during winter periods.

REMARKS.--Recorder stopped Dec. 29 to Feb. 13; range in temperature 1.0°C to 4.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	7.0	6.0	4.0	5.0	4.0	--	--	--	--	4.0	4.0
2	9.0	5.0	6.0	6.0	5.0	5.0	--	--	--	--	4.0	4.0
3	10.0	6.0	6.0	5.0	5.0	4.0	--	--	--	--	4.0	4.0
4	9.0	7.0	5.0	4.0	4.0	4.0	--	--	--	--	5.0	4.0
5	8.0	5.0	6.0	4.0	4.0	4.0	--	--	--	--	5.0	4.0
6	8.0	7.0	6.0	4.0	4.0	4.0	--	--	--	--	4.0	4.0
7	8.0	7.0	6.0	5.0	4.0	4.0	--	--	--	--	4.0	3.0
8	8.0	6.0	6.0	6.0	5.0	4.0	--	--	--	--	5.0	3.0
9	7.0	6.0	6.0	6.0	5.0	5.0	--	--	--	--	5.0	3.0
10	7.0	6.0	6.0	6.0	5.0	5.0	--	--	--	--	5.0	2.0
11	7.0	6.0	6.0	6.0	5.0	4.0	--	--	--	--	5.0	2.0
12	6.0	6.0	6.0	6.0	4.0	4.0	--	--	--	--	6.0	2.0
13	7.0	6.0	6.0	5.0	4.0	4.0	--	--	4.0	--	6.0	2.0
14	7.0	6.0	5.0	4.0	4.0	4.0	--	--	4.0	3.0	6.0	3.0
15	6.0	6.0	4.0	4.0	5.0	4.0	--	--	4.0	3.0	7.0	4.0
16	7.0	6.0	4.0	4.0	4.0	4.0	--	--	4.0	4.0	7.0	4.0
17	8.0	6.0	5.0	4.0	4.0	4.0	--	--	4.0	3.0	6.0	5.0
18	8.0	7.0	6.0	5.0	4.0	3.0	--	--	4.0	3.0	6.0	4.0
19	7.0	7.0	6.0	6.0	3.0	3.0	--	--	4.0	3.0	7.0	5.0
20	7.0	7.0	6.0	6.0	3.0	2.0	--	--	4.0	3.0	8.0	4.0
21	7.0	6.0	6.0	6.0	3.0	2.0	--	--	4.0	3.0	8.0	4.0
22	8.0	6.0	6.0	6.0	3.0	2.0	--	--	4.0	4.0	6.0	4.0
23	9.0	7.0	6.0	6.0	3.0	2.0	--	--	4.0	3.0	7.0	4.0
24	8.0	7.0	6.0	6.0	4.0	3.0	--	--	3.0	2.0	8.0	3.0
25	8.0	7.0	6.0	5.0	4.0	3.0	--	--	4.0	3.0	8.0	4.0
26	7.0	5.0	6.0	5.0	4.0	3.0	--	--	4.0	3.0	9.0	4.0
27	8.0	6.0	6.0	6.0	3.0	2.0	--	--	4.0	2.0	9.0	4.0
28	8.0	7.0	6.0	5.0	2.0	2.0	--	--	4.0	3.0	8.0	4.0
29	8.0	8.0	6.0	4.0	--	--	--	--	--	--	8.0	5.0
30	8.0	6.0	4.0	4.0	--	--	--	--	--	--	7.0	6.0
31	6.0	5.0	--	--	--	--	--	--	--	--	6.0	6.0
AVG	7.6	6.2	5.7	5.1	4.0	3.5	--	--	--	--	6.2	3.8

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	6.0	6.0	5.0	13.0	7.0	16.0	9.0	17.0	8.0	16.0	8.0
2	6.0	5.0	6.0	5.0	13.0	8.0	14.0	11.0	15.0	9.0	13.0	8.0
3	7.0	4.0	7.0	5.0	14.0	8.0	11.0	9.0	16.0	8.0	10.0	8.0
4	6.0	6.0	11.0	4.0	15.0	8.0	14.0	9.0	12.0	9.0	9.0	8.0
5	7.0	6.0	11.0	6.0	12.0	9.0	13.0	11.0	13.0	9.0	13.0	8.0
6	7.0	6.0	12.0	6.0	11.0	9.0	12.0	9.0	17.0	9.0	14.0	7.0
7	8.0	5.0	12.0	6.0	9.0	8.0	13.0	10.0	13.0	10.0	16.0	8.0
8	9.0	4.0	11.0	6.0	14.0	8.0	16.0	11.0	17.0	9.0	14.0	8.0
9	8.0	6.0	11.0	6.0	15.0	8.0	17.0	11.0	17.0	8.0	12.0	9.0
10	9.0	6.0	10.0	6.0	14.0	9.0	14.0	11.0	16.0	9.0	15.0	8.0
11	10.0	5.0	11.0	5.0	14.0	9.0	12.0	10.0	13.0	9.0	14.0	8.0
12	8.0	6.0	11.0	6.0	11.0	9.0	12.0	9.0	13.0	8.0	14.0	8.0
13	7.0	6.0	9.0	6.0	13.0	8.0	14.0	9.0	16.0	8.0	12.0	9.0
14	6.0	5.0	10.0	6.0	14.0	9.0	13.0	9.0	16.0	8.0	12.0	7.0
15	7.0	6.0	10.0	5.0	16.0	8.0	15.0	8.0	13.0	8.0	12.0	6.0
16	7.0	5.0	8.0	6.0	16.0	8.0	16.0	8.0	13.0	7.0	10.0	8.0
17	7.0	6.0	12.0	6.0	16.0	8.0	16.0	9.0	15.0	7.0	11.0	9.0
18	7.0	6.0	9.0	7.0	16.0	9.0	17.0	8.0	13.0	8.0	11.0	9.0
19	6.0	6.0	7.0	7.0	15.0	9.0	17.0	9.0	11.0	9.0	9.0	9.0
20	8.0	5.0	9.0	7.0	12.0	9.0	16.0	9.0	14.0	8.0	11.0	9.0
21	10.0	6.0	12.0	7.0	11.0	9.0	16.0	9.0	14.0	9.0	12.0	9.0
22	10.0	6.0	12.0	7.0	10.0	9.0	17.0	9.0	16.0	7.0	11.0	10.0
23	8.0	6.0	12.0	7.0	9.0	9.0	17.0	8.0	16.0	7.0	10.0	9.0
24	6.0	5.0	9.0	8.0	9.0	8.0	17.0	8.0	13.0	8.0	10.0	9.0
25	7.0	5.0	9.0	6.0	11.0	8.0	14.0	7.0	14.0	8.0	11.0	9.0
26	9.0	4.0	11.0	7.0	11.0	8.0	16.0	7.0	12.0	7.0	12.0	7.0
27	9.0	6.0	8.0	7.0	11.0	8.0	16.0	8.0	10.0	8.0	11.0	8.0
28	8.0	6.0	8.0	7.0	9.0	8.0	16.0	8.0	13.0	8.0	11.0	9.0
29	6.0	5.0	8.0	7.0	13.0	9.0	16.0	8.0	14.0	6.0	10.0	9.0
30	7.0	5.0	8.0	7.0	16.0	9.0	17.0	8.0	14.0	7.0	9.0	9.0
31	--	--	12.0	7.0	--	--	17.0	8.0	16.0	7.0	--	--
AVG	7.5	5.4	9.7	6.2	12.7	8.4	15.0	8.9	14.2	8.0	11.8	8.3

12086500 NISQUALLY RIVER AT LA GRANDE, WASH.

LOCATION.--Lat 46°50'25", long 122°19'38", in NW¼SE¼ sec.29, T.16 N., R.4 E., Pierce County, temperature recorder at gaging station on right bank, 0.4 mile downstream from city of Tacoma powerplant, 0.6 mile (revised) northwest of La Grande, 0.8 mile upstream from Mashel River, and at mile 40.4.

DRAINAGE AREA.--292 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 13.0°C on many days during October and September; minimum, 3.0°C on many days during February and March.

Period of record:
Water temperatures: Maximum, 14.0°C Oct. 11-15, 1966; minimum, 3.0°C Feb. 15, 18, 21, 1966, on many days during February and March 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	13.0	10.0	10.0	8.0	8.0	5.0	4.0	4.0	4.0	3.0	3.0
2	13.0	13.0	10.0	9.0	8.0	7.0	5.0	4.0	4.0	4.0	3.0	3.0
3	13.0	13.0	10.0	9.0	8.0	7.0	5.0	4.0	4.0	3.0	3.0	3.0
4	13.0	13.0	10.0	9.0	8.0	8.0	4.0	4.0	4.0	4.0	3.0	3.0
5	13.0	13.0	9.0	9.0	8.0	8.0	6.0	4.0	4.0	4.0	3.0	3.0
6	13.0	13.0	10.0	9.0	8.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0
7	13.0	13.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0
8	13.0	12.0	9.0	9.0	7.0	7.0	6.0	5.0	4.0	3.0	3.0	3.0
9	12.0	12.0	9.0	9.0	7.0	7.0	5.0	5.0	4.0	3.0	3.0	3.0
10	12.0	12.0	9.0	9.0	7.0	7.0	5.0	5.0	4.0	3.0	3.0	3.0
11	12.0	12.0	9.0	9.0	7.0	7.0	5.0	5.0	3.0	3.0	3.0	3.0
12	12.0	12.0	9.0	9.0	7.0	7.0	5.0	5.0	3.0	3.0	3.0	3.0
13	12.0	12.0	9.0	9.0	7.0	6.0	5.0	4.0	3.0	3.0	3.0	3.0
14	12.0	12.0	9.0	9.0	6.0	6.0	5.0	4.0	3.0	3.0	3.0	3.0
15	12.0	12.0	9.0	9.0	6.0	6.0	5.0	4.0	3.0	3.0	3.0	3.0
16	12.0	11.0	9.0	9.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0
17	11.0	11.0	9.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0
18	11.0	11.0	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	3.0
19	11.0	11.0	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
20	11.0	11.0	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
21	11.0	10.0	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
22	10.0	10.0	8.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
23	10.0	10.0	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	5.0	4.0
24	10.0	10.0	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	5.0	4.0
25	10.0	10.0	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	5.0	4.0
26	10.0	10.0	8.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	5.0	4.0
27	10.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	5.0	5.0
28	10.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	5.0	4.0
29	9.0	9.0	8.0	7.0	6.0	6.0	4.0	4.0	--	--	5.0	4.0
30	10.0	9.0	8.0	8.0	6.0	6.0	4.0	4.0	--	--	5.0	4.0
31	10.0	10.0	--	--	6.0	4.0	4.0	4.0	--	--	5.0	5.0
AVG	11.4	11.2	8.6	8.4	6.6	6.4	4.5	4.2	3.3	3.2	3.7	3.4

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.0	5.0	7.0	7.0	9.0	8.0	11.0	10.0	11.0	11.0	12.0	12.0
2	5.0	5.0	7.0	7.0	9.0	8.0	11.0	10.0	11.0	11.0	12.0	12.0
3	5.0	5.0	7.0	7.0	9.0	8.0	11.0	11.0	11.0	11.0	12.0	12.0
4	5.0	5.0	7.0	7.0	9.0	8.0	11.0	10.0	11.0	11.0	13.0	12.0
5	5.0	5.0	7.0	7.0	9.0	8.0	11.0	10.0	11.0	11.0	13.0	12.0
6	5.0	5.0	7.0	7.0	9.0	8.0	11.0	10.0	11.0	11.0	13.0	12.0
7	5.0	5.0	8.0	7.0	9.0	8.0	11.0	10.0	11.0	11.0	13.0	12.0
8	6.0	4.0	8.0	7.0	9.0	8.0	11.0	10.0	11.0	11.0	13.0	12.0
9	5.0	4.0	8.0	7.0	9.0	8.0	11.0	10.0	12.0	11.0	13.0	12.0
10	5.0	4.0	8.0	7.0	9.0	8.0	11.0	11.0	12.0	11.0	13.0	12.0
11	5.0	4.0	8.0	7.0	9.0	9.0	11.0	11.0	12.0	11.0	13.0	12.0
12	5.0	5.0	8.0	7.0	10.0	9.0	11.0	11.0	12.0	11.0	13.0	13.0
13	5.0	5.0	8.0	7.0	9.0	9.0	11.0	11.0	12.0	11.0	13.0	13.0
14	6.0	5.0	8.0	8.0	9.0	9.0	11.0	10.0	12.0	11.0	13.0	13.0
15	5.0	5.0	8.0	8.0	10.0	9.0	11.0	10.0	12.0	11.0	13.0	12.0
16	6.0	5.0	8.0	8.0	10.0	9.0	11.0	10.0	12.0	11.0	13.0	12.0
17	5.0	5.0	8.0	8.0	10.0	9.0	11.0	10.0	12.0	11.0	13.0	12.0
18	5.0	5.0	8.0	8.0	10.0	9.0	11.0	10.0	12.0	11.0	13.0	13.0
19	6.0	5.0	8.0	8.0	10.0	9.0	11.0	11.0	12.0	12.0	13.0	13.0
20	6.0	6.0	8.0	8.0	10.0	10.0	11.0	11.0	12.0	12.0	13.0	13.0
21	6.0	6.0	9.0	8.0	10.0	10.0	11.0	11.0	12.0	12.0	13.0	13.0
22	6.0	6.0	9.0	8.0	10.0	10.0	11.0	11.0	12.0	12.0	13.0	13.0
23	6.0	6.0	9.0	8.0	10.0	10.0	11.0	10.0	12.0	12.0	13.0	13.0
24	7.0	6.0	9.0	9.0	10.0	10.0	11.0	11.0	12.0	12.0	13.0	13.0
25	7.0	6.0	9.0	8.0	10.0	10.0	11.0	11.0	12.0	12.0	13.0	13.0
26	7.0	6.0	9.0	9.0	10.0	10.0	11.0	11.0	12.0	12.0	13.0	13.0
27	7.0	6.0	9.0	8.0	10.0	10.0	11.0	11.0	12.0	12.0	13.0	13.0
28	7.0	6.0	9.0	8.0	10.0	10.0	11.0	11.0	12.0	12.0	13.0	13.0
29	7.0	7.0	8.0	8.0	10.0	9.0	11.0	11.0	12.0	12.0	13.0	13.0
30	7.0	7.0	8.0	8.0	10.0	9.0	11.0	11.0	12.0	12.0	13.0	13.0
31	--	--	8.0	8.0	--	--	11.0	11.0	12.0	12.0	--	--
AVG	5.7	5.3	8.0	7.6	9.5	8.9	11.0	10.5	11.7	11.4	12.9	12.5

12089500 NISQUALLY RIVER AT MCKENNA, WASH.

LOCATION.--Lat 46°56'00", long 122°33'35", in SE¼NW¼ sec.28, T.17 N., R.2 E., Pierce County, at bridge on State Highway 507 at McKenna, 100 ft upstream from discontinued gaging station, 9.0 miles downstream from Tanwax Creek, and at mile 21.8.

DRAINAGE AREA.--517 sq mi.

PERIOD OF RECORD.--Chemical analyses (revised): July 1959 to June 1960 (monthly), October 1960 to September 1966 (miscellaneous), October 1968 to September 1969 (monthly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
07...	13	5.9	1.7	3.6	.6	30	0	3.4	1.1	.1	.1	--
NOV.												
18...	13	5.1	1.5	3.3	.7	25	0	2.2	1.2	.1	.4	--
DEC.												
02...	14	5.4	1.5	3.3	.6	27	0	2.8	1.3	.1	.6	10
JAN.												
13...	15	5.5	1.6	3.6	.7	27	0	3.0	1.7	.1	1.0	--
FEB.												
10...	15	5.7	1.4	3.0	.7	25	0	2.0	1.4	.1	1.3	--
MAR.												
17...	14	4.9	1.5	2.9	.6	25	0	1.6	1.7	.1	.1	--
APR.												
08...	14	5.1	1.6	3.3	.6	29	0	1.4	1.8	.2	.4	--
MAY												
12...	11	5.2	1.5	3.2	.5	27	0	2.5	1.7	.1	.2	--
JUNE												
16...	13	5.5	1.4	3.1	.5	28	0	2.2	.9	.1	.1	--
JULY												
14...	12	5.2	1.4	2.6	.5	26	0	2.2	1.0	.0	.1	--
AUG.												
11...	14	5.4	1.6	3.3	.6	28	0	2.2	1.8	.1	.5	--
SEPT.												
15...	13	5.3	1.5	3.8	.6	27	0	2.8	.9	.1	.2	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
07...	54	22	0	58	7.4	5	12	10.4	380	--	--	--
NOV.												
18...	49	19	0	52	7.1	20	8	11.2	550	--	--	--
DEC.												
02...	52	20	0	55	7.1	10	6	11.2	290	0	0	0
JAN.												
13...	55	20	0	54	7.3	20	3	10.3	450	--	--	--
FEB.												
10...	58	20	0	52	7.1	20	3	13.0	570	--	--	--
MAR.												
17...	--	18	0	51	7.3	30	8	11.9	1000	--	--	--
APR.												
08...	50	19	0	56	7.0	5	8	12.1	210	--	--	--
MAY												
12...	42	19	0	54	7.4	10	12	11.4	110	--	--	--
JUNE												
16...	40	20	0	54	7.6	0	13	11.0	170	0	0	10
JULY												
14...	38	19	0	50	7.1	0	11	10.4	660	--	--	--
AUG.												
11...	43	20	0	56	7.4	5	25	10.3	410	--	--	--
SEPT.												
15...	48	19	0	53	7.2	0	11	10.6	340	--	--	--

12091500 CHAMBERS CREEK BELOW LEACH CREEK, NEAR STEILACOOM, WASH.

LOCATION.--Lat 47°11'35", long 122°34'25", in SE¼NE¼ sec.29, T.20 N., R.2 E., Pierce County, at bridge on Chambers Creek Road, 0.9 mile upstream from mouth and 1.5 miles northeast of Steilacoom.

DRAINAGE AREA.--104 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1962 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
07...	21	13	5.3	6.3	1.4	58	0	11	4.7	.1	4.1	--
NOV.												
18...	18	12	5.2	6.0	1.4	52	0	11	4.1	.1	4.3	--
DEC.												
02...	--	--	--	--	--	--	--	--	--	--	--	30
JAN.												
13...	16	11	4.0	6.2	1.4	44	0	9.0	5.6	.1	5.[illegible]	--
FEB.												
10...	16	10	4.3	6.4	1.4	42	0	9.2	6.2	.1	5.5	--
MAR.												
17...	15	11	4.5	5.7	1.1	46	0	9.4	5.6	.1	5.0	--
APR.												
08...	16	12	4.9	6.0	1.2	53	0	9.3	5.5	.2	4.8	--
MAY												
12...	12	12	5.0	5.9	1.2	54	0	9.1	4.5	.0	4.4	--
JUNE												
16...	23	12	5.6	6.5	1.2	56	0	10	5.7	.1	5.2	--
JULY												
14...	20	12	5.7	6.5	1.4	58	0	11	4.8	.1	4.5	--
AUG.												
11...	21	13	5.9	7.1	1.5	58	0	11	5.7	.1	4.1	--
SEPT.												
15...	23	13	6.3	7.4	1.6	61	0	12	5.0	.1	4.4	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
07...	98	55	7	141	7.2	0	12	9.6	1500	--	--	--
NOV.												
18...	92	51	9	133	7.2	10	9	10.2	1500	--	--	--
DEC.												
02...	--	--	--	--	--	--	8	11.0	1300	0	0	0
JAN.												
13...	86	44	8	122	7.3	10	4	10.3	1300	--	--	--
FEB.												
10...	91	43	8	131	7.2	10	5	12.2	900	--	--	--
MAR.												
17...	98	46	9	123	7.5	10	10	10.9	1500	--	--	--
APR.												
08...	88	50	7	127	7.7	0	12	10.4	460	--	--	--
MAY												
12...	88	51	6	131	7.0	5	17	9.2	160	--	--	--
JUNE												
16...	102	53	7	143	7.3	0	18	8.8	260	0	0	0
JULY												
14...	97	54	6	143	7.3	0	15	8.2	1300	--	--	--
AUG.												
11...	104	57	10	148	7.2	0	26	9.2	1400	--	--	--
SEPT.												
15...	105	59	9	155	7.8	0	13	8.7	8000	--	--	--

12093500 PUYALLUP RIVER NEAR ORTING, WASH.

LOCATION.--Lat 47°02'20", long 122°12'15", in SW¼SW¼ sec.17, T.18 N., R.5 E., Pierce County, at bridge on State Highway 162, 600 ft upstream from gaging station, 4.0 miles south of Orting, and at mile 26.5.

DRAINAGE AREA.--172 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
DEC.									
02...	740	16	5.3	1.4	3.1	.6	24	0	4.8
MAR.									
17...	644	14	5.6	1.5	2.9	.6	23	0	4.8
JUNE									
16...	803	9.2	4.0	1.4	1.9	.5	17	0	5.6
SEPT.									
15...	204	14	5.8	2.0	2.8	.8	21	0	10

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
DEC.									
02...	1.6	.1	.6	30	49	19	0	54	7.3
MAR.									
17...	1.7	.1	.4	--	48	20	1	55	7.1
JUNE									
16...	.5	.1	.1	--	44	16	2	40	7.5
SEPT.									
15...	.7	.1	.2	--	51	23	6	62	7.1

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
DEC.							
02...	20	5	12.5	90	0	0	0
MAR.							
17...	10	8	11.8	100	--	--	--
JUNE							
16...	5	15	10.3	280	0	0	0
SEPT.							
15...	0	10	11.1	240	--	--	--

12100500 WHITE RIVER NEAR SUMNER, WASH.

LOCATION.--Lat 47°15'55", long 122°13'40", in SE¼NE¼ sec.36, T.21 N., R.4 E., Pierce County, at bridge on State Highway 167, 1.5 miles upstream from gaging station, 2.8 miles upstream from White River Powerplant outlet canal, 4 miles north of Sumner, and at mile 6.4.

DRAINAGE AREA.--470 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: October 1961 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
DEC.									
02...	199	15	5.4	1.9	3.4	.7	31	0	5.6
MAR.									
17...	163	16	7.5	1.7	4.1	.8	29	0	8.8
JUNE									
16...	972	7.9	4.5	.9	2.7	1.0	20	0	6.4
SEPT.									
15...	64	14	6.4	1.3	4.8	1.0	26	0	8.0

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
DEC.									
02...	1.2	.1	.8	40	54	24	0	64	7.1
MAR.									
17...	2.3	.1	.5	--	69	26	2	76	7.2
JUNE									
16...	.7	.1	.2	--	45	15	0	44	7.0
SEPT.									
15...	1.3	.1	.2	--	58	22	0	67	7.2

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
DEC.							
02...	20	5	11.8	1000	0	0	0
MAR.							
17...	5	8	11.6	6500	--	--	--
JUNE							
16...	5	17	9.4	840	0	0	0
SEPT.							
15...	0	16	9.0	880	--	--	--

12101475 PUYALLUP RIVER AT MERIDIAN STREET BRIDGE, AT PUYALLUP, WASH.
(Formerly published as 12101500 Puyallup River at Puyallup)

LOCATION.--Lat 47°12'10", long 122°17'33", on east line of sec.22, T.20 N., R.4 E., Pierce County, at Meridian Street bridge in Puyallup, 1.7 miles upstream from gaging station and at mile 8.3.

DRAINAGE AREA.--948 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1961, October 1965 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, MARCH 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
MAR.									
18, 1968	2960	14	6.7	1.8	3.4	.8	28	0	7.6
APR.									
22...	2490	13	6.8	1.6	3.4	.6	30	0	6.6
MAY									
06...	3230	13	6.3	1.5	3.4	.6	28	0	4.4
JUNE									
03...	15400	12	4.3	1.1	2.9	.9	19	0	7.0
JULY									
15...	2380	12	5.8	1.4	3.4	.7	27	0	6.4
AUG.									
05...	2290	12	6.0	1.4	3.4	.8	25	0	8.6
SEPT.									
09...	1570	13	6.5	2.0	3.7	.9	29	0	8.2
OCT.									
07...	2310	14	6.8	1.6	3.8	.6	28	0	8.2
NOV.									
18...	3940	14	6.1	1.6	3.5	.8	28	0	5.6
DEC.									
02...	3880	--	--	--	--	--	--	--	--
JAN.									
13, 1969	4380	16	6.5	1.7	3.3	.8	29	0	5.8
FEB.									
10...	2530	16	7.6	2.2	4.2	1.1	33	0	7.6
MAR.									
17...	2660	15	7.1	2.0	3.9	.8	30	0	6.8
APR.									
08...	3000	15	6.4	1.6	3.4	.7	28	0	5.5
MAY									
12...	7210	12	4.9	1.1	2.6	.5	22	0	4.3
JUNE									
23...	4380	12	4.9	1.3	2.8	.7	23	0	5.4
JULY									
14...	2090	13	6.1	1.6	3.4	.8	27	0	5.6
AUG.									
11...	1970	13	6.1	1.5	3.7	.9	25	0	6.4
SEPT.									
15...	1580	16	9.3	2.5	5.3	1.3	39	0	9.2

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
MAR.									
18, 1968	1.5	.0	.5	--	52	24	1	63	7.1
APR.									
22...	1.5	.1	.2	--	52	24	0	66	7.3
MAY									
06...	.6	.1	.1	--	52	22	0	61	7.3
JUNE									
03...	.9	.1	.5	--	41	15	0	45	6.8
JULY									
15...	1.0	.1	.0	--	46	21	0	59	7.5
AUG.									
05...	.7	.1	.2	--	43	21	1	60	7.0
SEPT.									
09...	1.2	.1	.3	--	53	24	0	67	7.0
OCT.									
07...	1.0	.1	.1	--	58	24	1	66	7.1
NOV.									
18...	1.2	.2	.7	--	52	22	0	62	7.1
DEC.									
02...	--	--	--	40	--	--	--	--	--
JAN.									
13, 1969	1.6	.1	.8	--	57	23	0	66	7.6
FEB.									
10...	1.8	.1	1.5	--	71	28	1	80	7.1
MAR.									
17...	1.9	.1	1.2	--	--	26	1	74	7.0
APR.									
08...	1.4	.0	2.0	--	56	22	0	64	7.2
MAY									
12...	1.0	.0	.2	--	44	17	0	47	7.3
JUNE									
23...	.7	.1	.4	--	43	18	0	50	7.1
JULY									
14...	.5	.1	.2	--	54	22	0	60	7.4
AUG.									
11...	1.3	.1	.3	--	55	21	1	61	7.1
SEPT.									
15...	2.1	.1	.6	--	74	34	2	96	6.8

12101475 PUYALLUP RIVER AT MERIDIAN STREET BRIDGE, AT PUYALLUP, WASH.--Continued

CHEMICAL ANALYSES, MARCH 1968 TO SEPTEMBER 1969

DATE	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
MAR.							
18, 1968	5	8	11.9	--	--	--	--
APR.							
22...	5	9	13.8	1350	--	--	--
MAY							
06...	10	9	11.4	710	--	--	--
JUNE							
03...	10	11	10.6	1600	.00	.00	.00
JULY							
15...	5	15	9.6	12000	--	--	--
AUG.							
05...	5	16	8.7	8100	--	--	--
SEPT.							
09...	0	12	10.4	7200	--	--	--
OCT.							
07...	10	12	9.8	1500	--	--	--
NOV.							
18...	10	8	11.6	3300	--	--	--
DEC.							
02...	--	5	11.3	1500	0	0	0
JAN.							
13, 1969	10	3	10.6	4400	--	--	--
FEB.							
10...	20	3	12.7	4200	--	--	--
MAR.							
17...	10	8	11.4	10000	--	--	--
APR.							
08...	5	10	11.3	1200	--	--	--
MAY							
12...	5	13	10.7	2700	--	--	--
JUNE							
23...	5	16	9.6	3200	0	0	0
JULY							
14...	0	15	9.7	16000	--	--	--
AUG.							
11...	5	16	9.3	--	--	--	--
SEPT.							
15...	5	12	9.7	86000	--	--	--

12112600 BIG SOOS CREEK ABOVE HATCHERY, NEAR AUBURN, WASH.

LOCATION.--Lat 47°18'35", long 122°10'05", in SE¼NE¼ sec.16, T.21 N., R.5 E., King County, at State Fish Hatchery diversion dam, 1.0 mile upstream from gaging station, 1.9 miles upstream from mouth, and 3.0 miles east of Auburn.

DRAINAGE AREA.--66.7 sq mi, excluding 3.67 sq mi in vicinity of Youngs Lake (at gaging station).

PERIOD OF RECORD.--Chemical analyses: October 1962 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. Minor inflow between sampling point and gaging station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
07...	44	18	11	4.0	5.8	.9	56	0	7.8
NOV.									
18...	145	14	9.6	3.8	6.5	1.1	48	0	10
DEC.									
02...	189	13	9.1	3.4	6.0	1.2	42	0	10
JAN.									
13...	392	13	7.7	3.0	5.0	.9	36	0	9.6
FEB.									
10...	388	11	6.9	2.6	4.3	1.0	28	0	8.6
MAR.									
17...	162	13	8.5	3.3	4.9	1.0	40	0	8.4
APR.									
08...	138	13	8.9	3.4	5.1	1.0	42	0	8.7
MAY									
12...	95	13	9.4	3.6	5.6	.8	48	0	8.7
JUNE									
16...	60	15	9.7	3.5	5.6	.6	48	0	8.0
JULY									
14...	52	--	11	3.9	5.5	.9	51	0	--
AUG.									
11...	40	17	11	3.8	5.7	1.0	53	0	6.8
SEPT.									
15...	35	19	10	4.0	5.5	1.0	54	0	6.4

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
07...	2.0	.1	1.2	--	85	44	0	114	7.4
NOV.									
18...	2.1	.2	1.6	--	80	40	0	111	7.7
DEC.									
02...	2.3	.1	3.0	40	78	37	2	102	7.2
JAN.									
13...	2.2	.0	3.2	--	66	32	2	91	7.5
FEB.									
10...	2.0	.1	3.7	--	64	28	5	81	7.2
MAR.									
17...	2.7	.2	2.2	--	--	35	2	96	7.5
APR.									
08...	2.2	.0	2.2	--	69	36	2	98	7.6
MAY									
12...	2.0	.1	1.4	--	81	39	0	107	7.4
JUNE									
16...	2.6	.1	1.4	--	75	39	0	104	7.7
JULY									
14...	--	.0	--	--	--	44	2	109	7.5
AUG.									
11...	2.5	.0	1.4	--	67	43	0	110	7.4
SEPT.									
15...	1.9	.1	1.0	--	78	42	0	111	7.4

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
07...	10	11	10.2	1500	--	--	--
NOV.							
18...	20	10	10.1	1000	--	--	--
DEC.							
02...	30	7	11.3	920	0	0	0
JAN.							
13...	20	4	10.6	640	--	--	--
FEB.							
10...	20	4	12.8	1600	--	--	--
MAR.							
17...	20	10	11.9	3200	--	--	--
APR.							
08...	15	13	11.3	600	--	--	--
MAY							
12...	5	15	10.3	120	--	--	--
JUNE							
16...	0	18	10.0	1200	0	0	0
JULY							
14...	5	14	9.9	360	--	--	--
AUG.							
11...	0	14	10.1	860	--	--	--
SEPT.							
15...	0	11	11.0	480	--	--	--

12113000 GREEN RIVER NEAR AUBURN, WASH.

LOCATION.--Lat 47°18'05", long 122°10'23", in SW¼SE¼ sec.16, T.21 N., R.5 E., King County, at bridge on State Highway 18, 0.1 mile upstream from Big Soos Creek, 1.8 miles east of Auburn, 2.1 miles upstream from gaging station, and at mile 33.9.

DRAINAGE AREA.--399 sq mi, excluding 3.67 sq mi in the vicinity of Youngs Lake (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1969.
Water temperatures: March 1952 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 20.0°C July 23, 24; minimum, 3.0°C Dec. 28 to Jan. 6.

Period of record:
Water temperatures: Maximum (1952-56, 1957-69), 24.0°C July 28, 1958; minimum (1952-56, 1957-62, 1963-65, 1968-69), 0.5°C Feb. 16, 17, 1956, Dec. 18-21, 1964.

REMARKS.--Coliform, dissolved oxygen data furnished by Washington State Water Pollution Control Commission. Temperature recorder at gaging station 2.1 miles downstream from sampling site. Minor inflow between sampling point and gaging station except during periods of heavy local runoff.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
07...	655	13	7.7	1.9	4.0	.4	36	0	3.8
NOV.									
18...	1590	14	6.8	1.7	3.6	.5	33	0	3.6
DEC.									
02...	1670	14	6.8	1.7	3.7	.5	31	0	4.4
JAN.									
13...	2270	14	6.8	1.9	3.7	.6	31	0	5.2
FEB.									
10...	1260	13	7.7	2.3	4.1	.8	34	0	6.4
MAR.									
18...	2000	13	5.8	1.5	3.1	.5	27	0	4.0
APR.									
08...	2020	14	5.6	1.4	3.2	.3	27	0	3.2
MAY									
12...	3570	12	4.2	.9	2.4	.3	20	0	2.5
JUNE									
16...	868	13	6.9	1.6	4.0	.2	33	0	3.2
JULY									
14...	622	12	8.0	2.0	4.0	.4	38	0	4.0
AUG.									
11...	273	15	10	2.6	5.0	.7	48	0	4.6
SEPT.									
15...	161	16	11	3.4	5.9	.8	54	0	5.4

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
07...	1.3	.0	.5	--	58	27	0	71	7.1
NOV.									
18...	1.0	.1	.9	--	44	24	0	67	7.6
DEC.									
02...	1.4	.1	1.2	30	60	24	0	66	7.1
JAN.									
13...	1.6	.0	1.6	--	54	25	0	71	7.3
FEB.									
10...	2.0	.1	2.9	--	71	29	1	82	7.1
MAR.									
18...	1.2	.0	1.1	--	44	21	0	59	7.1
APR.									
08...	1.5	.1	1.5	--	50	20	0	56	7.1
MAY									
12...	1.1	.0	.3	--	41	14	0	41	7.0
JUNE									
16...	1.7	.1	.6	--	53	24	0	65	7.3
JULY									
14...	1.4	.1	.5	--	47	28	0	74	7.1
AUG.									
11...	2.4	.0	1.0	--	66	36	0	97	7.3
SEPT.									
15...	2.4	.1	1.0	--	74	42	0	113	7.1

12113000 GREEN RIVER NEAR AUBURN, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
07...	5	11	10.6	1400	--	--	--
NOV.							
18...	5	8	11.6	700	--	--	--
DEC.							
02...	10	6	12.0	670	0	0	0
JAN.							
13...	10	4	11.0	280	--	--	--
FEB.							
10...	10	4	12.8	1560	--	--	--
MAR.							
18...	5	6	11.6	640	--	--	--
APR.							
08...	0	10	11.8	420	--	--	--
MAY							
12...	5	13	11.2	680	--	--	--
JUNE							
16...	0	20	10.2	270	--	--	--
JULY							
14...	0	15	10.3	1400	0	0	0
AUG.							
11...	0	16	9.4	960	--	--	--
SEPT.							
15...	0	13	10.0	340	--	--	--

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	12.0	9.0	8.0	6.0	6.0	3.0	3.0	5.0	4.0	6.0	5.0
2	13.0	11.0	8.0	8.0	6.0	6.0	3.0	3.0	5.0	5.0	6.0	5.0
3	12.0	11.0	8.0	8.0	6.0	6.0	3.0	3.0	5.0	4.0	6.0	6.0
4	12.0	11.0	8.0	7.0	6.0	5.0	3.0	3.0	5.0	5.0	6.0	6.0
5	12.0	11.0	7.0	7.0	5.0	5.0	3.0	3.0	5.0	4.0	6.0	6.0
6	11.0	11.0	7.0	7.0	6.0	5.0	4.0	3.0	4.0	4.0	6.0	6.0
7	11.0	11.0	7.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0	6.0	4.0
8	11.0	10.0	7.0	7.0	6.0	6.0	4.0	4.0	5.0	4.0	5.0	4.0
9	10.0	10.0	7.0	7.0	6.0	6.0	4.0	4.0	5.0	5.0	5.0	4.0
10	10.0	10.0	7.0	7.0	6.0	6.0	4.0	4.0	5.0	5.0	6.0	4.0
11	10.0	10.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	5.0	6.0	4.0
12	10.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	6.0	6.0	4.0
13	9.0	9.0	7.0	6.0	6.0	6.0	4.0	4.0	6.0	6.0	6.0	4.0
14	9.0	9.0	6.0	6.0	6.0	6.0	4.0	4.0	6.0	6.0	6.0	5.0
15	9.0	9.0	6.0	6.0	6.0	6.0	4.0	4.0	6.0	6.0	6.0	6.0
16	9.0	9.0	6.0	5.0	6.0	6.0	4.0	4.0	7.0	6.0	7.0	6.0
17	9.0	9.0	5.0	5.0	6.0	6.0	4.0	4.0	7.0	6.0	7.0	7.0
18	9.0	9.0	5.0	5.0	6.0	5.0	4.0	4.0	7.0	6.0	7.0	7.0
19	9.0	9.0	6.0	5.0	6.0	5.0	4.0	4.0	7.0	6.0	7.0	7.0
20	9.0	9.0	6.0	6.0	5.0	4.0	4.0	4.0	6.0	6.0	7.0	7.0
21	9.0	9.0	6.0	5.0	4.0	4.0	4.0	4.0	6.0	5.0	7.0	7.0
22	9.0	9.0	5.0	5.0	4.0	4.0	4.0	4.0	6.0	6.0	7.0	6.0
23	10.0	9.0	6.0	5.0	4.0	4.0	4.0	4.0	6.0	5.0	7.0	6.0
24	10.0	9.0	6.0	6.0	5.0	4.0	4.0	4.0	5.0	4.0	7.0	6.0
25	10.0	9.0	6.0	6.0	5.0	5.0	4.0	4.0	6.0	4.0	7.0	6.0
26	9.0	9.0	6.0	6.0	5.0	5.0	4.0	4.0	6.0	5.0	7.0	7.0
27	9.0	9.0	6.0	6.0	5.0	4.0	4.0	4.0	6.0	5.0	7.0	7.0
28	9.0	9.0	6.0	6.0	4.0	3.0	4.0	4.0	6.0	5.0	7.0	7.0
29	10.0	9.0	6.0	6.0	3.0	3.0	4.0	4.0	--	--	7.0	7.0
30	10.0	9.0	6.0	6.0	3.0	3.0	4.0	4.0	--	--	7.0	7.0
31	9.0	9.0	--	--	3.0	3.0	4.0	4.0	--	--	7.0	7.0
AVG	10.0	9.6	6.5	6.2	5.2	5.0	3.8	3.8	5.6	5.0	6.4	5.8

12113000 GREEN RIVER NEAR AUBURN, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969--Continued

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	7.0	8.0	7.0	12.0	11.0	16.0	14.0	17.0	15.0	18.0	15.0
2	7.0	7.0	8.0	8.0	13.0	12.0	16.0	14.0	16.0	14.0	18.0	16.0
3	7.0	7.0	8.0	8.0	14.0	13.0	14.0	13.0	17.0	14.0	17.0	14.0
4	7.0	7.0	10.0	8.0	15.0	13.0	14.0	13.0	17.0	15.0	15.0	14.0
5	8.0	7.0	11.0	9.0	15.0	14.0	15.0	13.0	16.0	14.0	15.0	13.0
6	8.0	8.0	12.0	10.0	15.0	12.0	14.0	13.0	17.0	14.0	16.0	13.0
7	8.0	8.0	12.0	11.0	13.0	12.0	14.0	13.0	17.0	14.0	16.0	13.0
8	8.0	7.0	11.0	11.0	15.0	13.0	16.0	13.0	17.0	14.0	16.0	14.0
9	8.0	8.0	11.0	9.0	17.0	13.0	17.0	14.0	18.0	14.0	17.0	15.0
10	8.0	8.0	9.0	8.0	17.0	14.0	17.0	15.0	18.0	16.0	17.0	15.0
11	9.0	8.0	9.0	9.0	16.0	14.0	16.0	14.0	17.0	15.0	17.0	15.0
12	9.0	8.0	9.0	9.0	15.0	14.0	16.0	14.0	16.0	14.0	17.0	15.0
13	8.0	8.0	9.0	9.0	16.0	14.0	16.0	13.0	18.0	14.0	15.0	14.0
14	8.0	8.0	9.0	9.0	17.0	14.0	16.0	13.0	19.0	16.0	15.0	13.0
15	8.0	8.0	10.0	9.0	17.0	15.0	17.0	13.0	19.0	17.0	14.0	13.0
16	8.0	8.0	10.0	9.0	18.0	16.0	17.0	13.0	17.0	14.0	14.0	13.0
17	8.0	8.0	11.0	10.0	18.0	16.0	18.0	13.0	17.0	14.0	14.0	13.0
18	8.0	7.0	11.0	11.0	19.0	16.0	18.0	13.0	16.0	15.0	14.0	14.0
19	7.0	7.0	11.0	9.0	19.0	16.0	19.0	14.0	16.0	14.0	14.0	14.0
20	7.0	7.0	9.0	9.0	16.0	15.0	19.0	15.0	16.0	15.0	14.0	13.0
21	9.0	7.0	11.0	9.0	15.0	14.0	17.0	14.0	16.0	15.0	14.0	13.0
22	9.0	9.0	12.0	11.0	14.0	14.0	19.0	14.0	18.0	14.0	14.0	14.0
23	9.0	8.0	12.0	12.0	14.0	14.0	20.0	16.0	18.0	15.0	14.0	14.0
24	8.0	8.0	12.0	11.0	14.0	13.0	20.0	16.0	18.0	16.0	14.0	13.0
25	8.0	7.0	11.0	10.0	13.0	12.0	19.0	16.0	18.0	16.0	14.0	13.0
26	8.0	8.0	12.0	10.0	12.0	12.0	18.0	14.0	17.0	15.0	14.0	13.0
27	9.0	8.0	11.0	11.0	12.0	12.0	19.0	15.0	16.0	14.0	14.0	13.0
28	9.0	8.0	11.0	9.0	13.0	12.0	19.0	16.0	16.0	14.0	13.0	13.0
29	8.0	7.0	10.0	9.0	13.0	12.0	18.0	15.0	16.0	14.0	13.0	13.0
30	7.0	7.0	10.0	9.0	16.0	12.0	19.0	15.0	17.0	14.0	13.0	13.0
31	--	--	11.0	9.0	--	--	19.0	16.0	17.0	14.0	--	--
AVG	8.0	7.6	10.3	9.4	15.1	13.4	17.1	14.0	17.0	14.6	15.0	13.7

12113350 GREEN RIVER AT TUKWILA, WASH.

LOCATION.--Lat 47°27'55", long 122°14'50", in NW¼SW¼ sec.24, T.23 N., R.4 E., King County, at gaging station at highway bridge, 0.6 mile southeast of Tukwila, 1.4 miles upstream from Black River, and at mile 12.4.

DRAINAGE AREA.--440 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
07...	633	15	9.0	2.6	7.0	.7	44	0	4.4
NOV.									
18...	1750	14	7.2	2.0	4.5	.7	34	0	3.8
DEC.									
02...	1900	14	7.5	2.0	4.9	.8	34	0	5.0
JAN.									
13...	2910	14	7.4	2.3	4.6	.9	34	0	5.2
FEB.									
10...	1720	13	8.7	2.9	6.0	1.6	38	0	8.6
MAR.									
18...	1800	13	6.7	2.1	4.6	.8	32	0	5.0
APR.									
08...	2080	14	6.1	1.7	4.2	.6	30	0	3.5
MAY									
12...	3850	11	4.2	1.0	2.7	.4	20	0	2.3
JUNE									
16...	1030	15	8.4	2.5	8.4	.6	41	0	4.0
JULY									
14...	717	12	9.7	3.0	9.1	1.0	48	0	4.6
AUG.									
11...	358	18	13	4.2	14	1.3	61	0	5.6
SEPT.									
15...	231	18	14	5.3	17	1.7	72	0	6.8

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONDU-CTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
07...	4.4	.1	.8	--	73	33	0	97	7.1
NOV.									
18...	1.8	.1	1.3	--	57	26	0	75	7.0
DEC.									
02...	2.3	.1	1.9	10	67	27	0	78	7.0
JAN.									
13...	2.1	.1	2.5	--	54	28	0	79	7.0
FEB.									
10...	4.0	.1	3.7	--	74	34	3	103	7.0
MAR.									
18...	2.3	.1	2.0	--	57	25	0	75	7.3
APR.									
08...	2.4	.1	1.4	--	56	22	0	66	6.8
MAY									
12...	1.3	.0	.5	--	35	15	0	43	7.2
JUNE									
16...	8.4	.1	.9	--	72	37	3	104	7.1
JULY									
14...	8.2	.1	1.0	--	72	37	0	116	7.1
AUG.									
11...	15	.1	2.2	--	104	50	0	166	7.0
SEPT.									
15...	16	.1	2.3	--	122	57	0	196	7.1

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
07...	5	13	9.4	600	--	--	--
NOV.							
18...	5	7	10.6	15000	--	--	--
DEC.							
02...	10	5	11.5	10000	0	0	0
JAN.							
13...	5	3	10.2	5300	--	--	--
FEB.							
10...	20	4	11.6	12000	--	--	--
MAR.							
18...	5	8	10.6	3200	--	--	--
APR.							
08...	5	10	11.1	3900	--	--	--
MAY							
12...	10	14	10.6	1110	--	--	--
JUNE							
16...	0	21	8.2	340	0	0	0
JULY							
14...	0	18	7.7	5300	--	--	--
AUG.							
11...	5	18	8.5	3500	--	--	--
SEPT.							
15...	0	16	8.4	2100	--	--	--

12117500 CEDAR RIVER NEAR LANDSBURG, WASH.

LOCATION (revised).--Lat 47°23'38", long 121°57'12", on west line NW¼SW¼ sec.17, T.22 N., R.7 E., King County, temperature recorder at gaging station on left bank, 1.8 miles upstream from intake of Seattle water-supply system near Landsburg, 4.0 miles east of Maple Valley, 5.9 miles downstream from Taylor Creek, and at mile 23.4.

DRAINAGE AREA.--122 sq mi, includes Rock Creek drainage upstream from Walsh Lake diversion.

PERIOD OF RECORD.--Chemical analyses: July 1959 to July 1961.
Water temperatures: August 1953 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 16.0°C on several days during July to August; minimum, 3.0°C on many days during December to February.

Period of record:
Water temperatures: Maximum, 19.5°C July 27, 28, 1960, July 13, 1961; minimum, 2.5°C on several days during January and February in 1956, 1957, and 1960.

REMARKS.--Recorder stopped Nov. 28 to Dec. 3; range in temperature, 5.0°C to 7.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	11.0	8.0	8.0	--	--	6.0	3.0	6.0	5.0	6.0	5.0
2	11.0	9.0	8.0	8.0	--	--	6.0	4.0	6.0	6.0	7.0	6.0
3	11.0	10.0	8.0	8.0	--	--	6.0	4.0	6.0	4.0	7.0	6.0
4	11.0	10.0	8.0	8.0	7.0	6.0	5.0	4.0	6.0	4.0	7.0	6.0
5	11.0	10.0	8.0	8.0	7.0	6.0	5.0	4.0	6.0	4.0	7.0	6.0
6	11.0	10.0	8.0	8.0	7.0	6.0	6.0	4.0	6.0	4.0	7.0	5.0
7	11.0	10.0	8.0	8.0	7.0	6.0	5.0	4.0	6.0	4.0	7.0	5.0
8	10.0	9.0	8.0	8.0	6.0	6.0	4.0	4.0	5.0	4.0	7.0	6.0
9	9.0	9.0	8.0	7.0	6.0	6.0	4.0	4.0	6.0	5.0	7.0	6.0
10	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	5.0	5.0	7.0	5.0
11	9.0	9.0	7.0	7.0	6.0	6.0	4.0	3.0	5.0	5.0	7.0	6.0
12	9.0	9.0	7.0	7.0	6.0	6.0	3.0	3.0	5.0	5.0	7.0	6.0
13	9.0	9.0	7.0	7.0	6.0	6.0	3.0	3.0	5.0	5.0	7.0	6.0
14	9.0	9.0	7.0	6.0	6.0	6.0	3.0	3.0	5.0	3.0	7.0	6.0
15	9.0	9.0	6.0	6.0	6.0	6.0	3.0	3.0	6.0	3.0	7.0	7.0
16	9.0	9.0	6.0	6.0	6.0	6.0	3.0	3.0	6.0	6.0	7.0	6.0
17	9.0	9.0	6.0	6.0	6.0	6.0	3.0	3.0	6.0	5.0	7.0	6.0
18	9.0	9.0	6.0	6.0	6.0	6.0	3.0	3.0	6.0	5.0	6.0	6.0
19	9.0	9.0	7.0	6.0	6.0	6.0	3.0	3.0	5.0	5.0	7.0	6.0
20	9.0	9.0	7.0	7.0	6.0	5.0	3.0	3.0	5.0	5.0	7.0	6.0
21	9.0	9.0	7.0	7.0	7.0	5.0	3.0	3.0	5.0	5.0	7.0	6.0
22	9.0	9.0	7.0	7.0	7.0	5.0	5.0	3.0	5.0	5.0	7.0	6.0
23	9.0	9.0	7.0	7.0	6.0	5.0	5.0	3.0	5.0	5.0	7.0	6.0
24	9.0	9.0	7.0	7.0	6.0	5.0	4.0	3.0	6.0	5.0	7.0	6.0
25	9.0	9.0	7.0	7.0	6.0	5.0	5.0	3.0	6.0	4.0	7.0	6.0
26	9.0	9.0	7.0	6.0	6.0	5.0	5.0	3.0	6.0	6.0	7.0	6.0
27	9.0	9.0	7.0	6.0	6.0	4.0	5.0	3.0	6.0	6.0	7.0	6.0
28	9.0	8.0	--	--	4.0	4.0	5.0	3.0	7.0	6.0	8.0	7.0
29	8.0	8.0	--	--	4.0	4.0	4.0	3.0	--	--	8.0	7.0
30	8.0	8.0	--	--	4.0	3.0	5.0	3.0	--	--	8.0	8.0
31	8.0	8.0	--	--	4.0	3.0	5.0	5.0	--	--	8.0	7.0
AVG	9.3	9.0	7.1	7.0	5.9	5.3	4.2	3.3	5.6	4.7	7.0	6.0

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	7.0	8.0	8.0	12.0	11.0	14.0	11.0	16.0	12.0	13.0	11.0
2	7.0	7.0	8.0	8.0	12.0	11.0	12.0	11.0	16.0	13.0	13.0	12.0
3	7.0	6.0	8.0	8.0	12.0	11.0	11.0	11.0	14.0	12.0	12.0	12.0
4	7.0	6.0	9.0	7.0	13.0	12.0	12.0	11.0	16.0	13.0	12.0	11.0
5	7.0	6.0	9.0	8.0	13.0	12.0	11.0	11.0	16.0	13.0	11.0	11.0
6	7.0	6.0	10.0	8.0	12.0	12.0	12.0	11.0	16.0	12.0	12.0	11.0
7	7.0	6.0	11.0	9.0	12.0	12.0	12.0	11.0	14.0	12.0	12.0	11.0
8	7.0	6.0	11.0	9.0	13.0	12.0	12.0	11.0	16.0	12.0	12.0	11.0
9	7.0	6.0	11.0	9.0	13.0	12.0	13.0	11.0	14.0	12.0	12.0	11.0
10	7.0	7.0	11.0	9.0	13.0	12.0	12.0	11.0	13.0	12.0	12.0	11.0
11	8.0	7.0	11.0	9.0	12.0	12.0	12.0	11.0	14.0	12.0	12.0	11.0
12	8.0	7.0	11.0	9.0	12.0	12.0	11.0	11.0	14.0	12.0	12.0	11.0
13	7.0	7.0	11.0	9.0	13.0	12.0	12.0	11.0	15.0	12.0	12.0	11.0
14	7.0	7.0	11.0	10.0	14.0	12.0	12.0	11.0	16.0	12.0	11.0	11.0
15	8.0	7.0	11.0	9.0	14.0	11.0	14.0	10.0	14.0	12.0	11.0	10.0
16	7.0	7.0	11.0	10.0	14.0	12.0	14.0	11.0	13.0	11.0	11.0	11.0
17	7.0	7.0	11.0	10.0	14.0	11.0	13.0	11.0	13.0	11.0	11.0	11.0
18	7.0	7.0	11.0	10.0	14.0	11.0	13.0	11.0	12.0	12.0	11.0	11.0
19	7.0	7.0	10.0	10.0	13.0	12.0	13.0	11.0	12.0	12.0	11.0	11.0
20	7.0	7.0	11.0	10.0	12.0	11.0	12.0	11.0	12.0	12.0	11.0	11.0
21	9.0	7.0	12.0	10.0	11.0	11.0	13.0	11.0	13.0	12.0	11.0	11.0
22	8.0	7.0	12.0	11.0	12.0	11.0	13.0	11.0	13.0	12.0	11.0	11.0
23	8.0	7.0	12.0	11.0	13.0	11.0	16.0	12.0	13.0	12.0	11.0	11.0
24	8.0	7.0	12.0	10.0	13.0	11.0	14.0	13.0	13.0	12.0	11.0	11.0
25	8.0	7.0	11.0	10.0	12.0	11.0	14.0	12.0	13.0	12.0	11.0	11.0
26	8.0	7.0	12.0	11.0	13.0	12.0	14.0	11.0	12.0	11.0	11.0	11.0
27	9.0	8.0	11.0	11.0	13.0	11.0	14.0	11.0	12.0	12.0	11.0	11.0
28	8.0	8.0	11.0	11.0	13.0	11.0	14.0	12.0	12.0	12.0	11.0	11.0
29	8.0	8.0	11.0	11.0	12.0	11.0	16.0	12.0	13.0	11.0	11.0	11.0
30	8.0	8.0	11.0	11.0	13.0	11.0	16.0	12.0	13.0	11.0	11.0	11.0
31	--	--	11.0	10.0	--	--	16.0	12.0	13.0	11.0	--	--
AVG	7.5	6.9	10.6	9.5	12.7	11.4	13.1	11.2	13.7	11.9	11.4	11.0

12119000 CEDAR RIVER AT RENTON, WASH.

LOCATION.--Lat 47°28'58", long 122°12'08", in SW¼NW¼ sec.17, T.23 N., R.5 E., King County, at gaging station 125 ft downstream from bridge on Mill Avenue at Renton and at mile 1.6.

DRAINAGE AREA.--186 sq mi (includes 3.67 sq mi in vicinity of Youngs Lake in Big Soos Creek basin).

PERIOD OF RECORD.--Chemical analyses (revised): July 1959 to September 1961, November 1966 to September 1967, October 1968 to September 1969 (monthly), November 1963 to September 1966 (miscellaneous). Water temperatures: August 1965 to February 1967.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
07...	440	11	7.8	1.6	2.7	.3	34	0	2.8
NOV.									
18...	1090	9.9	5.9	1.2	2.1	.3	26	0	2.6
DEC.									
02...	1150	9.6	6.0	1.2	2.3	.3	26	0	2.8
JAN.									
13...	1620	11	5.9	1.3	2.2	.4	26	0	2.8
FEB.									
10...	708	11	7.1	1.8	2.8	.5	30	0	4.6
MAR.									
18...	687	11	6.9	1.6	2.4	.4	30	0	3.0
APR.									
08...	1170	11	5.6	1.2	2.2	.3	25	0	2.2
MAY									
12...	631	12	7.8	1.7	2.8	.4	34	0	3.3
JUNE									
23...	390	12	8.7	2.0	3.0	.9	40	0	5.4
JULY									
14...	276	9.7	8.7	1.9	2.8	.4	38	0	3.4
AUG.									
11...	225	14	9.3	2.2	3.6	.5	43	0	3.8
SEPT.									
15...	125	14	9.8	2.5	3.6	.7	46	0	4.0

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
07...	.9	.1	.5	--	45	26	0	64	7.4
NOV.									
18...	.8	.1	.9	--	39	20	0	52	7.5
DEC.									
02...	1.0	.1	1.0	30	40	20	0	51	7.2
JAN.									
13...	1.1	.0	1.0	--	34	20	0	52	7.3
FEB.									
10...	1.0	.1	2.2	--	57	25	1	67	7.3
MAR.									
18...	1.1	.0	1.2	--	43	24	0	61	7.6
APR.									
08...	.8	.1	1.4	--	42	19	0	49	7.1
MAY									
12...	1.3	.0	.6	--	46	27	0	67	7.2
JUNE									
23...	1.1	.0	.4	--	50	30	0	75	7.6
JULY									
14...	.7	.1	.1	--	44	30	0	73	7.6
AUG.									
11...	1.7	.1	.5	--	53	32	0	82	7.4
SEPT.									
15...	1.2	.1	.3	--	54	35	0	88	7.5

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
07...	5	13	10.7	130	--	--	--
NOV.							
18...	5	8	10.9	480	--	--	--
DEC.							
02...	5	6	11.8	670	0	0	0
JAN.							
13...	10	4	10.6	1200	--	--	--
FEB.							
10...	10	5	12.4	2000	--	--	--
MAR.							
18...	5	7	11.8	1000	--	--	--
APR.							
08...	5	10	11.4	80	--	--	--
MAY							
12...	0	16	10.2	40	--	--	--
JUNE							
23...	0	14	11.7	--	0	0	0
JULY							
14...	0	16	10.9	360	--	--	--
AUG.							
11...	0	16	9.8	660	--	--	--
SEPT.							
15...	0	15	10.5	350	--	--	--

12121600 ISSAQUAH CREEK NEAR MOUTH, NEAR ISSAQUAH, WASH.

LOCATION (revised).--Lat 47°33'09", long 122°02'48", in SE¼NW¼ sec.21, T.24 N., R.6 E., King County, at gaging station at bridge on SE 56th Street, 0.7 mile downstream from North Fork, 1.2 mile upstream from mouth, and 1.6 miles northwest of Issaquah.

DRAINAGE AREA.--54.7 sq mi.

PERIOD OF RECORD.--Chemical analyses: November 1964 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
01...	50	19	11	4.2	7.1	1.0	59	0	7.0
DEC.									
03...	732	11	5.5	1.8	3.7	.9	20	0	6.2
04...	1090	12	5.4	1.7	3.4	.7	19	0	6.2
JAN.									
09...	665	13	6.0	2.0	3.6	.6	23	0	6.4
FEB.									
19...	268	14	7.3	2.5	4.1	.5	30	0	6.4
MAR.									
18...	272	13	6.2	2.1	3.5	.5	27	0	4.8
APR.									
14...	118	15	8.2	3.3	4.6	.6	41	0	5.7
MAY									
22...	61	16	11	4.0	5.6	.9	53	0	8.2
JUNE									
23...	133	16	9.1	3.5	5.2	.8	46	0	6.9
JULY									
15...	49	16	11	40	5.6	.8	56	0	7.0
AUG.									
14...	33	19	13	4.5	6.0	1.0	63	0	7.4
SEPT.									
15...	29	20	12	4.7	6.2	1.0	64	0	7.0

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
01...	2.4	.1	2.3	--	88	45	0	121	7.7
DEC.									
03...	1.7	.1	3.8	--	50	21	5	61	6.5
04...	2.0	.1	5.5	10	49	21	5	61	6.7
JAN.									
09...	2.3	.0	4.1	--	58	23	4	69	7.3
FEB.									
19...	2.2	.1	3.9	--	63	29	4	80	7.2
MAR.									
18...	2.3	.1	2.3	--	56	24	2	67	7.0
APR.									
14...	2.4	.0	2.5	--	63	34	0	90	7.7
MAY									
22...	3.0	.1	2.6	--	80	44	1	114	7.6
JUNE									
23...	2.1	.1	2.6	--	73	37	0	103	7.0
JULY									
15...	2.1	.1	1.4	--	79	44	0	113	7.5
AUG.									
14...	2.8	.0	2.1	--	87	51	0	130	7.3
SEPT.									
15...	2.3	.1	1.6	--	83	50	0	130	7.4

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
01...	10	13	--	--	--	--	--
DEC.							
03...	30	--	--	--	--	--	--
04...	20	6	10.8	390	0	0	0
JAN.							
09...	20	4	--	--	--	--	--
FEB.							
19...	5	6	--	--	--	--	--
MAR.							
18...	10	7	11.8	720	--	--	--
APR.							
14...	10	--	--	--	--	--	--
MAY							
22...	5	--	--	--	--	--	--
JUNE							
23...	5	14	10.2	5800	0	0	0
JULY							
15...	5	--	--	0	--	--	--
AUG.							
14...	5	18	--	--	--	--	--
SEPT.							
15...	0	14	10.7	840	--	--	--

12126500 SAMMAMISH RIVER AT BOTHELL, WASH.

LOCATION.--Lat 47°45'32", long 122°12'02", in NW¼NW¼ sec.8, T.26 N., R.5 E., King County, at 102nd Street bridge at Bothell, 1.0 mile downstream from North Creek and at mile 3.5.

DRAINAGE AREA.--212 sq mi.

PERIOD OF RECORD.--Chemical analyses (revised): July 1959 to September 1962, October 1967 to September 1969 (monthly), October 1961 to September 1967 (miscellaneous).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)
OCT.									
07...	14	11	5.3	6.2	1.4	54	0	14	3.0
NOV.									
18...	12	9.6	4.6	5.2	1.2	43	0	13	2.5
DEC.									
03...	--	--	--	--	--	--	--	--	--
JAN.									
13...	11	8.4	3.4	4.6	1.2	36	0	10	3.0
FEB.									
11...	13	6.8	3.0	4.1	1.4	27	0	11	2.9
MAR.									
18...	9.6	8.8	3.9	5.0	1.1	42	0	10	2.5
APR.									
08...	9.9	9.4	4.3	5.3	5.3	46	0	10	2.5
MAY									
12...	9.1	10	4.7	5.6	1.2	50	0	12	3.0
JUNE									
17...	5.7	11	5.4	6.7	1.7	56	0	15	3.7
JULY									
14...	11	11	5.5	6.5	1.4	56	0	14	3.3
AUG.									
11...	16	12	6.3	7.3	1.5	63	0	17	3.4
SEPT.									
15...	16	11	6.0	7.0	1.5	60	0	13	3.1

DATE	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	PHOSPHATE (PO4) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
OCT.									
07...	.1	1.2	.26	--	90	50	5	128	7.0
NOV.									
18...	.1	2.1	.10	--	82	43	8	114	6.9
DEC.									
03...	--	--	--	40	--	--	--	--	--
JAN.									
13...	.0	2.6	.18	--	67	35	6	97	7.2
FEB.									
11...	.1	4.4	.14	--	66	30	8	84	6.9
MAR.									
18...	.2	2.7	.13	--	65	38	4	102	7.1
APR.									
08...	.0	2.1	--	--	70	41	4	111	7.0
MAY									
12...	.1	1.7	.00	--	87	45	4	120	6.8
JUNE									
17...	.0	.8	--	--	85	50	4	134	7.1
JULY									
14...	.1	1.1	--	--	80	50	4	131	7.1
AUG.									
11...	.0	1.3	.18	--	100	56	5	151	7.3
SEPT.									
15...	.1	1.1	.25	--	97	52	3	140	7.0

DATE	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
07...	30	13	8.4	3900	--	--	--
NOV.							
18...	20	10	9.5	1000	--	--	--
DEC.							
03...	--	8	9.7	5000	0	0	0
JAN.							
13...	20	4	10.2	2900	--	--	--
FEB.							
11...	30	4	12.1	--	--	--	--
MAR.							
18...	20	8	11.5	700	--	--	--
APR.							
08...	10	12	11.5	600	--	--	--
MAY							
12...	5	18	10.8	1300	--	--	--
JUNE							
17...	5	24	9.2	4000	--	--	--
JULY							
14...	5	18	9.1	2200	0	0	0
AUG.							
11...	10	20	--	--	--	--	--
SEPT.							
15...	5	15	9.6	540	--	--	--

12134500 SKYKOMISH RIVER NEAR GOLD BAR, WASH.

LOCATION.--Lat 47°50'15", long 121°39'25", in SW¼SE¼ sec.9, T.27 N., R.9 E., Snohomish County, at bridge on U.S. Highway 2, 0.7 mile upstream from gaging station, 1.8 miles southeast of Gold Bar, and at mile 43.7.

DRAINAGE AREA.--535 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1968 (miscellaneous), October 1968 to September 1969 (monthly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
08...	2990	5.1	3.8	.7	1.5	.3	16	0	2.2
JAN.									
20...	1750	6.8	4.2	.8	1.9	.5	18	0	2.8
APR.									
09...	3360	6.0	4.0	.7	1.6	.4	16	0	2.0
JULY									
15...	2060	4.7	3.4	.6	1.2	.4	15	0	2.0

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
08...	.8	.0	.3	--	28	13	0	32	7.0
JAN.									
20...	.8	.0	.3	20	27	14	0	37	7.0
APR.									
09...	.9	.1	1.2	--	27	13	0	33	7.1
JULY									
15...	.4	.1	.0	--	18	11	0	30	7.2

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
08...	5	10	11.2	36	--	--	--
JAN.							
20...	5	1	10.5	46	0	0	0
APR.							
09...	5	9	12.2	52	--	--	--
JULY							
15...	0	14	10.5	19	0	0	0

12135000 WALLACE RIVER AT GOLD BAR, WASH.

LOCATION (revised).--Lat 47°51'50", long 121°41'47", in NW¼NE¼ sec.6, T.27 N., R.9 E., Snohomish County, temperature recorder at gaging station on right bank, 30 ft downstream from highway bridge, 0.5 mile north of Gold Bar, 1.3 miles upstream from Olney Creek, and at mile 5.8.

DRAINAGE AREA.--19.0 sq mi.

PERIOD OF RECORD.--Water temperatures: July 1955 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 16.0°C on several days during June to August.

Period of record:
Water temperatures: Maximum (1958-69), 21.0°C July 29, Aug. 8, 9, 1960, July 13, 1961, Aug. 16, 1967; minimum (1955-57, 1958-68), freezing point on several days during February 1956, January 1957, and Dec. 16-18, 1964.

REMARKS.--Thermograph not operating properly Oct. 1 to Feb. 17; temperature range not determined.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	--	--	--	--	--	--	6.0	6.0
2	--	--	--	--	--	--	--	--	--	--	7.0	6.0
3	--	--	--	--	--	--	--	--	--	--	6.0	6.0
4	--	--	--	--	--	--	--	--	--	--	6.0	6.0
5	--	--	--	--	--	--	--	--	--	--	6.0	6.0
6	--	--	--	--	--	--	--	--	--	--	6.0	6.0
7	--	--	--	--	--	--	--	--	--	--	6.0	5.0
8	--	--	--	--	--	--	--	--	--	--	6.0	5.0
9	--	--	--	--	--	--	--	--	--	--	6.0	5.0
10	--	--	--	--	--	--	--	--	--	--	6.0	4.0
11	--	--	--	--	--	--	--	--	--	--	6.0	4.0
12	--	--	--	--	--	--	--	--	--	--	6.0	4.0
13	--	--	--	--	--	--	--	--	--	--	6.0	5.0
14	--	--	--	--	--	--	--	--	--	--	5.0	5.0
15	--	--	--	--	--	--	--	--	--	--	6.0	5.0
16	--	--	--	--	--	--	--	--	--	--	6.0	5.0
17	--	--	--	--	--	--	--	--	--	--	6.0	4.0
18	--	--	--	--	--	--	--	--	6.0	5.0	5.0	4.0
19	--	--	--	--	--	--	--	--	6.0	5.0	6.0	5.0
20	--	--	--	--	--	--	--	--	5.0	4.0	6.0	4.0
21	--	--	--	--	--	--	--	--	5.0	4.0	6.0	5.0
22	--	--	--	--	--	--	--	--	5.0	5.0	6.0	6.0
23	--	--	--	--	--	--	--	--	5.0	4.0	6.0	5.0
24	--	--	--	--	--	--	--	--	5.0	4.0	6.0	4.0
25	--	--	--	--	--	--	--	--	6.0	5.0	7.0	6.0
26	--	--	--	--	--	--	--	--	5.0	5.0	7.0	6.0
27	--	--	--	--	--	--	--	--	6.0	5.0	7.0	6.0
28	--	--	--	--	--	--	--	--	6.0	6.0	7.0	6.0
29	--	--	--	--	--	--	--	--	--	--	7.0	6.0
30	--	--	--	--	--	--	--	--	--	--	7.0	6.0
31	--	--	--	--	--	--	--	--	--	--	6.0	6.0
AVG	--	--	--	--	--	--	--	--	--	--	6.1	5.2

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	6.0	7.0	7.0	12.0	10.0	12.0	11.0	13.0	13.0	14.0	13.0
2	6.0	6.0	7.0	7.0	13.0	11.0	12.0	11.0	13.0	13.0	13.0	13.0
3	6.0	6.0	7.0	7.0	13.0	11.0	11.0	10.0	14.0	12.0	13.0	12.0
4	7.0	6.0	9.0	7.0	13.0	12.0	10.0	9.0	13.0	13.0	12.0	11.0
5	6.0	6.0	10.0	8.0	13.0	12.0	10.0	10.0	13.0	12.0	11.0	11.0
6	7.0	6.0	11.0	8.0	13.0	12.0	10.0	10.0	13.0	12.0	12.0	11.0
7	7.0	6.0	11.0	8.0	12.0	12.0	10.0	10.0	12.0	12.0	13.0	11.0
8	8.0	6.0	10.0	8.0	14.0	12.0	11.0	10.0	14.0	12.0	14.0	13.0
9	7.0	6.0	10.0	8.0	14.0	13.0	13.0	11.0	14.0	13.0	14.0	13.0
10	7.0	6.0	10.0	8.0	14.0	13.0	13.0	12.0	13.0	13.0	14.0	13.0
11	8.0	6.0	11.0	8.0	13.0	13.0	12.0	11.0	14.0	13.0	14.0	14.0
12	8.0	6.0	11.0	8.0	13.0	13.0	11.0	10.0	13.0	12.0	14.0	14.0
13	6.0	6.0	10.0	7.0	14.0	13.0	11.0	10.0	15.0	12.0	14.0	12.0
14	6.0	6.0	8.0	8.0	15.0	14.0	11.0	10.0	16.0	13.0	12.0	11.0
15	7.0	6.0	10.0	7.0	16.0	13.0	11.0	10.0	14.0	13.0	11.0	10.0
16	7.0	6.0	9.0	8.0	16.0	14.0	12.0	11.0	13.0	12.0	11.0	11.0
17	7.0	7.0	11.0	7.0	16.0	15.0	12.0	11.0	13.0	12.0	11.0	11.0
18	7.0	7.0	9.0	8.0	16.0	14.0	13.0	11.0	13.0	13.0	11.0	11.0
19	7.0	7.0	8.0	8.0	15.0	14.0	14.0	12.0	13.0	13.0	11.0	11.0
20	7.0	7.0	9.0	8.0	14.0	13.0	13.0	12.0	13.0	13.0	11.0	11.0
21	9.0	7.0	12.0	8.0	13.0	13.0	13.0	12.0	14.0	13.0	11.0	11.0
22	8.0	7.0	11.0	8.0	13.0	12.0	14.0	12.0	14.0	13.0	11.0	11.0
23	8.0	7.0	11.0	8.0	12.0	11.0	15.0	13.0	15.0	13.0	11.0	11.0
24	7.0	7.0	9.0	9.0	11.0	10.0	16.0	13.0	15.0	13.0	11.0	11.0
25	7.0	7.0	10.0	8.0	10.0	9.0	13.0	12.0	14.0	13.0	11.0	11.0
26	8.0	7.0	10.0	9.0	11.0	9.0	13.0	12.0	13.0	13.0	11.0	10.0
27	9.0	7.0	9.0	8.0	9.0	9.0	14.0	12.0	13.0	13.0	11.0	11.0
28	7.0	7.0	8.0	8.0	9.0	9.0	14.0	13.0	13.0	12.0	11.0	11.0
29	7.0	7.0	8.0	8.0	10.0	9.0	14.0	13.0	13.0	12.0	11.0	11.0
30	7.0	7.0	8.0	8.0	12.0	9.0	15.0	13.0	13.0	12.0	11.0	11.0
31	--	--	11.0	8.0	--	--	14.0	13.0	14.0	12.0	--	--
AVG	7.1	6.4	9.5	7.8	12.9	11.8	12.4	11.2	13.5	12.5	12.0	11.5

12138200 SULTAN RIVER AT SULTAN, WASH.

LOCATION.--Lat 47°51'40", long 121°49'10", in NE¼NE¼ sec.6, T.27 N., R.8 E., Snohomish County, at bridge on U.S. Righway 2 at Sultan, 0.1 mile upstream from mouth.

DRAINAGE AREA.--106 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1963 to September 1968 (miscellaneous), October 1968 to September 1969 (monthly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
08...	3.7	3.7	.7	.9	.2	14	0	2.4	.5	.0	.1	--
JAN.												
20...	6.5	4.3	1.2	1.4	.4	18	0	3.6	.3	.1	.8	0
APR.												
09...	3.9	3.4	.6	1.0	.3	11	0	2.4	.4	.2	.4	--
JULY												
15...	3.8	3.6	.7	.6	.2	15	0	2.4	.4	.0	.0	--

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
08...	30	12	1	29	6.9	5	12	10.4	140	--	--	--
JAN.												
20...	26	16	1	38	6.9	10	3	9.6	130	0	0	0
APR.												
09...	16	11	2	27	6.9	0	9	12.2	16	--	--	--
JULY												
15...	15	12	0	29	T.2	0	18	10.0	250	0	0	0

12141100 SKYKOMISH RIVER AT MONROE, WASH.

LOCATION.--Lat 47°50'48", long 121°58'10", in NE¼NE¼ sec.12, T.27 N., R.6 E., Snohomish County, at crossing on State Highway 203 at Monroe, 0.1 mile downstream from Woods Creek and at mile 25.0.

DRAINAGE AREA.--834 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1966 to June 1969 (discontinued).
Sediment records: October 1966 to June 1969 (discontinued).

EXTREMES.--October 1968-June 1969:
Water temperatures: Maximum, 13.0°C Oct. 1; minimum, 1.0°C Jan. 27-31.
Sediment concentrations: Maximum daily, 586 mg/l Jan. 5; minimum daily, 2 mg/l Apr. 27, 28.
Sediment loads: Maximum daily, 98,100 tons Jan. 5; minimum daily, 16 tons Feb. 28, Mar. 1-3, 13, 14.

Period of record:
Water temperatures: Maximum, 21.0°C Aug. 15, 16, 1967, July 31, 1968; minimum, 1.0°C Dec. 20, 21, 1967, Jan. 27-31, 1969.
Sediment concentrations: Maximum daily, 586 mg/l Jan. 5, 1969; minimum daily, 1 mg/l Aug. 1-31, Oct. 5, 9, 10, 1967.
Sediment loads: Maximum daily, 98,100 tons Jan. 5, 1969; minimum daily, 2 tons Aug. 29, 1967.

REMARKS.--Water discharge estimated on basis of daily stage readings and water discharge from nearby stations. Streamflow above 12,000 cfs gaged.

TEMPERATURE (°C) OF WATER, OCTOBER 1968 TO JUNE 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	8.0	5.0	3.0	2.0	5.0	6.0	8.0	11.0	--	--	--
2	11.0	8.0	5.0	3.0	2.0	6.0	6.0	8.0	11.0	--	--	--
3	12.0	8.0	5.0	3.0	2.0	6.0	6.0	8.0	12.0	--	--	--
4	12.0	8.0	5.0	3.0	2.0	6.0	6.0	8.0	10.0	--	--	--
5	11.0	8.0	5.0	--	2.0	6.0	6.0	8.0	9.0	--	--	--
6	9.0	8.0	4.0	3.0	2.0	6.0	7.0	9.0	9.0	--	--	--
7	9.0	8.0	4.0	2.0	3.0	6.0	7.0	9.0	9.0	--	--	--
8	9.0	7.0	5.0	3.0	3.0	6.0	7.0	9.0	9.0	--	--	--
9	9.0	7.0	5.0	3.0	3.0	6.0	7.0	9.0	10.0	--	--	--
10	9.0	7.0	5.0	3.0	3.0	6.0	7.0	9.0	11.0	--	--	--
11	9.0	8.0	5.0	3.0	3.0	6.0	8.0	9.0	11.0	--	--	--
12	9.0	--	5.0	3.0	3.0	6.0	8.0	8.0	11.0	--	--	--
13	8.0	--	5.0	3.0	3.0	6.0	8.0	8.0	11.0	--	--	--
14	8.0	6.0	5.0	3.0	3.0	6.0	7.0	8.0	11.0	--	--	--
15	8.0	5.0	4.0	3.0	4.0	6.0	7.0	8.0	11.0	--	--	--
16	8.0	5.0	5.0	3.0	4.0	6.0	7.0	8.0	11.0	--	--	--
17	8.0	6.0	4.0	2.0	5.0	6.0	7.0	8.0	11.0	--	--	--
18	8.0	6.0	3.0	2.0	5.0	6.0	7.0	8.0	12.0	--	--	--
19	8.0	7.0	--	2.0	5.0	7.0	8.0	8.0	12.0	--	--	--
20	8.0	7.0	--	2.0	3.0	7.0	8.0	10.0	11.0	--	--	--
21	8.0	7.0	--	2.0	--	7.0	8.0	11.0	11.0	--	--	--
22	8.0	7.0	--	2.0	--	7.0	8.0	11.0	11.0	--	--	--
23	9.0	6.0	3.0	2.0	--	7.0	8.0	11.0	11.0	--	--	--
24	9.0	6.0	4.0	2.0	--	7.0	7.0	10.0	11.0	--	--	--
25	9.0	6.0	--	2.0	--	7.0	8.0	10.0	11.0	--	--	--
26	9.0	6.0	--	2.0	5.0	6.0	8.0	--	11.0	--	--	--
27	9.0	6.0	--	1.0	5.0	6.0	8.0	--	--	--	--	--
28	9.0	6.0	--	1.0	5.0	6.0	8.0	--	--	--	--	--
29	9.0	6.0	--	1.0	--	6.0	8.0	11.0	--	--	--	--
30	8.0	5.0	--	1.0	--	6.0	8.0	11.0	--	--	--	--
31	--	--	--	1.0	--	6.0	--	11.0	--	--	--	--
AVG	9.1	6.7	--	2.3	3.3	6.1	7.3	9.0	10.7	--	--	--

12141100 SKYKOMISH RIVER AT MONROE, WASH.--Continued

DAILY SUSPENDED SEDIMENT, OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	2160	6	35	8330	4	90	6900	5	93
2	2030	6	33	5800	4	63	6240	5	84
3	1940	6	31	6190	4	67	20400	119	8800
4	2360	21	134	5350	4	58	22000	76	5240
5	3180	32	275	4470	4	48	11600	17	532
6	4980	18	242	3980	4	43	8140	8	176
7	5310	5	72	3550	4	38	6620	8	143
8	4570	7	86	4450	4	48	8270	8	179
9	5040	5	68	8970	32	775	8200	8	177
10	5890	5	80	9600	18	467	8020	8	173
11	6040	5	82	13400	123	6210	7720	8	167
12	5860	5	79	20800	131	8080	7200	8	156
13	6000	5	81	13200	21	748	6760	8	146
14	6000	5	81	9140	5	123	6280	8	136
15	5970	5	81	7320	5	99	6040	8	130
16	7590	5	102	6150	5	83	5730	8	124
17	6440	5	87	5160	5	70	5180	8	112
18	5500	5	74	5910	5	80	4800	8	104
19	5000	5	68	8140	5	110	4400	8	95
20	5650	5	76	9440	5	127	4000	8	86
21	6990	5	94	8880	5	120	3700	8	80
22	7010	5	95	14900	5	201	3700	8	80
23	4940	5	67	12400	5	167	4400	8	95
24	4820	5	65	9050	5	122	5000	8	108
25	6080	5	82	7440	5	100	5000	8	108
26	5670	5	77	6370	5	86	4500	8	97
27	4680	5	63	6280	5	85	4200	8	91
28	4940	5	67	6240	5	84	3800	8	82
29	5910	5	80	5500	5	74	3500	8	76
30	8090	37	808	8410	5	114	3200	8	69
31	10400	24	674	--	--	--	3000	8	65
TOTAL	167040	--	4039	244820	--	18580	208500	--	17804

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	8540	8	184	2180	3	18	1930	3	16
2	9690	8	209	2270	3	18	1970	3	16
3	10900	128	3770	2330	3	19	2030	3	16
4	22300	478	23900	2400	3	19	2090	3	17
5	60700	586	98100	2430	3	20	2300	3	19
6	25000	117	7900	2520	3	20	2700	3	22
7	17100	43	1990	2640	3	21	2550	3	21
8	11400	22	677	2840	3	23	2440	3	20
9	8680	16	375	3250	3	26	2420	3	20
10	7440	15	301	3380	3	27	2170	3	18
11	6300	9	153	3300	3	27	2070	3	17
12	5350	3	43	3750	13	132	2050	3	17
13	4880	3	40	4280	17	196	1970	3	16
14	4490	3	36	3940	8	85	2010	3	16
15	4080	3	33	3260	3	26	2070	3	17
16	3720	3	30	2980	3	24	2300	3	19
17	3500	3	28	2810	3	23	3960	27	289
18	3200	3	26	2710	3	22	10000	84	2270
19	3120	3	25	2670	3	22	6350	21	360
20	2970	3	24	2620	3	21	5000	7	95
21	2780	3	23	2700	3	22	4580	3	37
22	2660	3	22	2880	3	23	4320	3	35
23	2560	3	21	3120	3	25	4260	3	35
24	2500	3	20	2440	3	20	4140	3	34
25	2440	3	20	2170	3	18	3910	3	32
26	2270	3	18	2090	3	17	3980	9	97
27	2110	3	17	2040	3	17	4380	7	83
28	2200	3	18	1970	3	16	5120	27	373
29	2350	3	19	--	--	--	6650	29	521
30	2290	3	19	--	--	--	7560	14	286
31	2180	3	18	--	--	--	8300	37	829
TOTAL	249700	--	138059	77970	--	947	117580	--	5663

12141100 SKYKOMISH RIVER AT MONROE, WASH.--Continued

DAILY SUSPENDED SEDIMENT, OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	8250	26	579	7230	11	215	11000	12	356
2	7320	11	217	6280	8	136	12600	16	544
3	6550	30	531	5890	7	111	13600	21	771
4	5800	12	188	5180	10	140	16200	23	1010
5	5460	5	74	5370	9	130	15700	8	339
6	5230	5	71	5820	34	534	14100	12	457
7	4880	5	66	7300	13	256	14800	8	320
8	4680	5	63	11200	17	514	16300	6	264
9	4720	5	64	14300	31	1200	14800	6	240
10	5520	5	75	15500	65	2720	13200	6	214
11	5890	5	80	14700	53	2100	11600	6	188
12	5910	5	80	13900	58	2180	11100	6	180
13	6300	5	85	13700	20	740	10200	6	165
14	6830	5	92	13100	22	778	9600	6	156
15	6130	5	83	11200	11	333	9110	6	148
16	5310	5	72	10000	10	270	8710	6	141
17	5500	15	223	9530	8	206	8330	6	135
18	6220	15	252	9560	19	490	8070	6	131
19	6780	15	275	10600	22	630	7890	6	128
20	7690	59	1230	10300	15	417	7820	6	127
21	6460	25	436	10800	16	467	7820	6	127
22	6670	18	324	12100	11	359	7760	6	126
23	9760	30	750	14100	19	723	7740	6	125
24	12000	146	4730	14400	16	622	7720	6	125
25	9530	30	772	13100	9	318	7740	6	125
26	7040	8	152	11400	10	308	6760	6	110
27	6390	2	35	9600	10	259	6330	6	103
28	6740	2	36	8090	11	240	6600	6	107
29	7060	3	57	10400	9	253	6690	6	108
30	7320	8	158	16600	13	583	6720	6	109
31	--	--	--	13300	17	610	--	--	--
TOTAL	199440	--	11850	334550	--	18842	306610	--	7179

TOTAL DISCHARGE FOR PERIOD (CFS-DAYS) 1906210
TOTAL LOAD FOR PERIOD (TONS) 222963

12144400 SNOQUALMIE RIVER AT SNOQUALMIE, WASH.

LOCATION.--Lat 47°31'40", long 121°48'40", on east line of NW¼ sec.32, T.24 N., R.8 E., King County, at 7th Avenue bridge in Meadowbrook, 1 mile east of Snoqualmie and at mile 42.3.

DRAINAGE AREA.--375 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to October 1968 (miscellaneous), October 1968 to September 1969 (quarterly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
DEC. 04...	5.5	2.7	.6	1.2	.4	10	0	1.4	.6	.1	1.2	0
MAR. 19...	5.6	3.3	.7	1.1	.4	13	0	2.2	.6	.1	.7	--
JUNE 23...	3.7	2.7	.4	.9	.4	12	0	3.0	.3	.0	.4	--
SEPT. 16...	7.2	6.1	1.0	2.0	.5	25	0	3.6	.8	.0	.4	--

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
DEC. 04...	24	9	1	25	6.6	10	5	10.7	400	0	0	0
MAR. 19...	32	11	1	29	7.1	10	6	12.2	170	--	--	--
JUNE 23...	15	8	0	20	6.8	5	11	10.6	1800	0	0	0
SEPT. 16...	35	19	0	50	7.2	0	13	10.7	2600	--	--	--

12148500 TOLT RIVER NEAR CARNATION, WASH.

LOCATION.--Lat 47°38'15", long 121°54'55", in SW¼NE¼ sec.21, T.25 N., R.7 E., King County, at bridge on State Highway 203, 0.8 mile south of Carnation, 8.1 miles downstream from gaging station, and at mile 0.6.

DRAINAGE AREA.--81.4 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1960 to October 1961 (monthly), October 1968 to September 1969 (quarterly), October 1965 to September 1968 (miscellaneous).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
DEC.									
05...	1340	5.9	3.6	.8	1.4	.3	14	0	3.2
MAR.									
19...	800	6.1	4.5	1.0	1.2	.3	18	0	3.4
JUNE									
17...	402	6.2	4.8	1.0	1.5	.3	20	0	3.4
SEPT.									
16...	147	7.4	6.7	1.5	1.8	.4	27	0	3.8

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
DEC.									
05...	.8	.0	.6	0	22	13	1	32	6.9
MAR.									
19...	.7	.0	.6	--	28	15	0	39	7.4
JUNE									
17...	.5	.1	.3	--	23	16	0	41	7.2
SEPT.									
16...	.8	.1	.3	--	39	23	1	58	6.3

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
DEC.							
05...	20	5	11.5	40	0	0	0
MAR.							
19...	5	8	12.2	30	--	--	--
JUNE							
17...	0	18	10.0	--	0	0	0
SEPT.							
16...	0	13	10.5	300	--	--	--

12149000 SNOQUALMIE RIVER NEAR CARNATION, WASH.

LOCATION.--Lat 47°39'58", long 121°55'27", in NW¼SW¼ sec.9, T.25 N., R.7 E., King County, at gaging station at highway bridge, 1.3 miles northwest of Carnation, 1.9 miles downstream from Tolt River, and at mile 23.0.

DRAINAGE AREA.--603 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1966 to June 1969 (discontinued).
Sediment records: Octoher 1966 to June 1969 (discontinued).

EXTREMES.--October 1968 to June 1969:
Water temperatures: Maximum, 12.0°C Oct. 1-3, May 6-10, 12-26, June 25-26; minimum, 1.0°C Dec. 31, Jan. 1.
Sediment concentrations: Maximum daily, 803 mg/l Jan. 5; minimum daily, 1 mg/l Mar. 9, 10.
Sediment loads: Maximum daily, 72,600 tons Jan. 5; minimum daily, 5.5 tons Mar. 10.

Period of record:
Water temperatures: Maximum, 24.0°C Aug. 15, 16, 1967; minimum, 1.0°C Dec. 31, 1968, Jan. 1, 1969.
Sediment concentrations: Maximum daily, 803 mg/l Jan. 20, 1968; minimum daily, 1 mg/l Mar. 9-10, 1969.
Sediment loads: Maximum daily, 72,600 tons Jan. 5, 1969; minimum daily, 2 tons Sept. 28, 29, 1967.

TEMPERATURE (°C) OF WATER, OCTOBER 1968 TO JUNE 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	8.0	--	1.0	3.0	6.0	7.0	7.0	9.0	--	--	--
2	12.0	8.0	--	2.0	3.0	6.0	7.0	8.0	10.0	--	--	--
3	12.0	8.0	--	3.0	2.0	6.0	7.0	--	10.0	--	--	--
4	11.0	8.0	4.0	4.0	2.0	6.0	7.0	10.0	10.0	--	--	--
5	11.0	8.0	6.0	3.0	2.0	6.0	7.0	11.0	10.0	--	--	--
6	11.0	8.0	--	4.0	2.0	6.0	7.0	12.0	10.0	--	--	--
7	10.0	8.0	--	4.0	2.0	6.0	7.0	12.0	10.0	--	--	--
8	10.0	8.0	--	3.0	3.0	6.0	7.0	12.0	10.0	--	--	--
9	10.0	8.0	--	4.0	4.0	6.0	7.0	12.0	10.0	--	--	--
10	9.0	8.0	--	4.0	4.0	6.0	7.0	12.0	10.0	--	--	--
11	9.0	7.0	--	4.0	4.0	6.0	7.0	10.0	11.0	--	--	--
12	9.0	8.0	--	4.0	4.0	7.0	7.0	12.0	11.0	--	--	--
13	9.0	7.0	--	4.0	5.0	7.0	7.0	12.0	11.0	--	--	--
14	8.0	7.0	--	4.0	--	7.0	7.0	12.0	11.0	--	--	--
15	8.0	7.0	--	4.0	--	7.0	7.0	12.0	11.0	--	--	--
16	8.0	8.0	--	4.0	--	7.0	7.0	12.0	11.0	--	--	--
17	8.0	8.0	--	4.0	6.0	7.0	7.0	12.0	9.0	--	--	--
18	8.0	8.0	--	4.0	--	6.0	7.0	12.0	9.0	--	--	--
19	8.0	8.0	--	4.0	--	6.0	7.0	12.0	9.0	--	--	--
20	8.0	8.0	--	4.0	4.0	6.0	7.0	12.0	8.0	--	--	--
21	8.0	8.0	--	4.0	--	6.0	7.0	12.0	8.0	--	--	--
22	9.0	8.0	--	3.0	5.0	6.0	6.0	--	9.0	--	--	--
23	10.0	8.0	--	3.0	5.0	6.0	7.0	12.0	9.0	--	--	--
24	10.0	8.0	--	2.0	--	6.0	7.0	--	11.0	--	--	--
25	9.0	8.0	--	2.0	--	6.0	7.0	12.0	12.0	--	--	--
26	9.0	8.0	--	2.0	5.0	6.0	7.0	12.0	12.0	--	--	--
27	8.0	8.0	--	2.0	5.0	6.0	7.0	--	--	--	--	--
28	8.0	8.0	--	2.0	6.0	6.0	7.0	--	11.0	--	--	--
29	8.0	8.0	--	2.0	--	6.0	7.0	9.0	--	--	--	--
30	--	--	--	2.0	--	7.0	7.0	8.0	8.0	--	--	--
31	8.0	--	1.0	2.0	--	7.0	--	9.0	--	--	--	--
AVG	9.2	7.8	--	3.1	--	6.2	6.9	11.0	10.0	--	--	--

DAILY SUSPENDED SEDIMENT, OCTOBER 1968 TO JUNE 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	1440	3	12	3250	3	26	4720	2	25
2	1340	4	14	2870	7	54	4320	4	47
3	1220	4	13	3700	13	130	11000	106	3600
4	1360	20	73	3080	10	83	18400	47	2330
5	1710	42	194	2560	17	118	9540	53	1370
6	2010	27	147	2240	25	151	6600	16	285
7	3550	41	393	2040	25	138	5310	7	100
8	2660	5	36	2430	26	171	6330	7	120
9	2100	2	11	5760	36	560	5990	7	113
10	2890	5	39	5050	18	245	6350	7	120
11	4610	15	187	7960	82	1760	6720	7	127
12	4010	2	22	12200	150	4940	5690	7	108
13	4910	9	119	8090	18	393	4720	7	89
14	4490	5	61	5990	7	113	4260	7	81
15	4750	24	308	4810	6	78	3860	7	73
16	5820	23	361	4110	6	67	4200	7	79
17	4310	5	58	3520	6	57	3700	7	70
18	4110	6	67	3860	22	229	3880	7	73
19	3610	7	68	5420	12	176	3520	7	67
20	6220	23	386	5230	12	169	3050	7	58
21	6540	22	388	5320	79	1130	2760	7	52
22	5290	10	143	8470	68	1560	2570	7	49
23	4640	7	88	7540	16	326	2840	7	54
24	4350	8	94	5660	14	214	5150	7	97
25	4030	7	76	4480	8	97	5410	7	102
26	3890	6	63	3780	7	71	4240	7	80
27	3050	3	25	3980	6	64	3630	7	69
28	2660	9	65	4200	26	295	3070	7	58
29	2590	17	119	4510	13	158	2570	7	49
30	3490	5	47	5860	4	63	1990	7	38
31	4360	9	106	--	--	--	1900	7	36
TOTAL	112010	--	3783	147970	--	13636	158290	--	9619

12149000 SNOQUALMIE RIVER NEAR CARNATION, WASH.--Continued

DAILY SUSPENDED SEDIMENT, OCTOBER 1968 TO JUNE 1969

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	2930	9	71	1950	3	16	1780	3	14
2	3640	25	246	2020	3	16	1770	3	14
3	3460	30	280	2260	3	18	1840	13	65
4	12000	348	14200	2260	3	18	1870	15	76
5	36400	803	72600	2290	3	19	2550	16	110
6	31700	252	23000	2120	3	17	3150	14	119
7	18900	110	5610	2060	3	17	2680	5	36
8	11100	102	3060	2380	3	19	2360	3	19
9	8280	58	1300	3070	3	25	2180	1	5.9
10	6910	28	522	2980	3	24	2050	1	5.5
11	5970	15	242	4320	3	35	1940	3	16
12	5150	11	153	4720	3	38	1880	3	15
13	4580	11	136	3860	3	31	1840	5	25
14	4220	4	46	3250	3	26	1820	46	226
15	3860	3	31	2930	3	24	1820	61	300
16	3640	3	29	2910	3	24	2110	58	330
17	3430	3	28	2900	3	23	4770	58	747
18	3180	3	26	2790	3	23	6120	54	892
19	3010	3	24	2680	3	22	4890	22	290
20	2840	3	23	2550	3	21	4260	11	127
21	2700	3	22	2290	3	19	3730	16	161
22	2550	3	21	2200	3	18	3630	17	167
23	2390	3	19	2110	3	17	4530	33	404
24	2290	3	19	2020	3	16	3860	17	177
25	2230	3	18	1940	3	16	3390	7	64
26	2260	3	18	1880	3	15	3390	8	73
27	2170	3	18	1840	3	15	4260	5	58
28	2090	3	17	1800	3	15	4450	6	72
29	2000	3	16	--	--	--	4300	2	23
30	1900	3	15	--	--	--	4930	17	226
31	1900	3	15	--	--	--	6600	43	766
TOTAL	199680	--	121825	72380	--	587	100750	--	5623.4

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	6720	18	327	4370	6	71	6510	29	510
2	5870	13	206	4260	5	58	6890	30	558
3	4850	9	118	3920	5	53	7290	29	571
4	4050	4	44	3610	5	49	7710	29	604
5	3970	4	43	3500	4	38	7820	20	422
6	4030	4	44	3940	5	53	6850	20	370
7	3700	5	50	5090	63	866	5810	16	251
8	3370	4	36	7400	78	1560	5470	14	207
9	3390	4	37	8990	80	1940	5810	16	251
10	3940	19	202	9470	92	2350	5830	17	268
11	3820	5	52	8590	73	1690	5450	15	221
12	4090	12	133	8000	48	1040	4970	11	148
13	5410	23	336	7840	33	699	4430	10	120
14	4600	4	50	7450	20	402	4410	11	131
15	3790	2	20	6240	14	236	3990	9	97
16	3460	2	19	5630	15	228	3820	7	72
17	3810	6	62	5310	16	229	3810	7	72
18	6300	37	629	5690	17	261	3730	8	81
19	6330	14	239	6330	13	222	3590	8	78
20	5450	10	147	5730	7	108	3180	10	86
21	4530	8	98	6050	28	457	2780	11	83
22	4950	7	94	7190	47	912	2900	13	102
23	6540	62	1090	8000	35	756	4320	15	175
24	6640	43	771	8590	35	812	7380	82	1630
25	5170	9	126	7190	7	136	7190	46	893
26	4280	9	104	5850	12	190	5750	15	233
27	3880	6	63	5730	20	309	4810	9	117
28	4260	6	69	5510	20	298	4430	8	96
29	5110	9	124	6510	249	6000	4280	7	81
30	4720	10	127	13300	363	13000	3920	6	64
31	--	--	--	8460	50	1140	--	--	--
TOTAL	141030	--	5460	203740	--	36163	155130	--	8592

TOTAL DISCHARGE FOR PERIOD (CFS-DAYS) 1290980
TOTAL LOAD FOR PERIOD (TONS) 205288.4

12155500 SNOHOMISH RIVER AT SNOHOMISH, WASH.

LOCATION.--Lat 47°54'40", long 122°05'50", in NE¼SE¼ sec.13, T.28 N., R.5 E., Snohomish County, at discontinued gaging station at bridge on State Highway 9 in Snohomish, 0.7 mile downstream from Pilchuck River and at mile 12.7.

DRAINAGE AREA.--1,714 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1969.
Water temperatures: July 1959 to September 1961.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
07...	5.5	4.4	.9	1.7	.4	18	0	1.2	1.1	.1	.7	--
NOV.												
19...	6.1	4.0	1.1	1.6	.4	18	0	2.6	.7	.1	1.0	--
DEC.												
03...	5.9	3.8	.9	1.6	.4	15	0	2.6	.9	.1	1.2	0
JAN.												
13...	7.7	4.7	1.2	2.0	.5	19	0	3.0	.9	.0	1.6	--
FEB.												
11...	7.5	4.8	1.5	2.9	.7	19	0	3.8	1.7	.1	3.1	--
MAR.												
18...	5.6	3.5	.9	1.4	.5	15	0	2.4	.8	.1	1.3	--
APR.												
08...	6.0	3.8	1.0	1.7	.4	18	--	2.0	1.1	.2	.7	--
MAY												
12...	4.5	2.7	.6	.9	.4	12	0	.2	.3	.0	.4	--
JUNE												
17...	4.2	2.7	.6	.9	.3	13	0	1.2	.3	.0	.2	--
JULY												
14...	5.2	4.2	.9	1.4	.4	19	0	.2	.7	.0	.2	--
AUG.												
11...	7.1	6.1	1.4	7.5	1.2	25	0	3.2	9.7	.0	2.6	--
SEPT.												
15...	6.9	6.1	1.4	2.4	.7	27	0	3.2	1.2	.0	.4	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
07...	32	15	0	37	6.9	10	11	10.2	5200	--	--	--
NOV.												
19...	22	15	0	38	7.2	5	6	11.6	8400	--	--	--
DEC.												
03...	30	13	1	36	6.8	10	6	11.8	700	0	0	0
JAN.												
13...	27	17	1	46	7.3	5	2	10.8	4600	--	--	--
FEB.												
11...	44	18	3	50	7.2	10	4	12.7	--	--	--	--
MAR.												
18...	27	12	0	33	6.9	5	7	12.1	480	--	--	--
APR.												
08...	28	14	0	39	6.9	0	10	11.6	840	--	--	--
MAY												
12...	34	9	0	23	7.3	10	12	11.7	460	--	--	--
JUNE												
17...	20	9	0	24	7.3	0	16	10.2	120	--	--	--
JULY												
14...	24	14	0	36	7.0	0	16	9.6	3000	0	0	0
AUG.												
11...	55	21	1	85	6.5	5	18	8.6	97000	--	--	--
SEPT.												
15...	37	21	0	57	6.7	0	16	9.6	2300	--	--	--

12167000 NORTH FORK STILLAGUAMISH RIVER NEAR ARLINGTON, WASH.

LOCATION.--Lat 48°16'05", long 122°00'45", in NE¼NE¼ sec.15, T.32 N., R.6 E., Snohomish County, at bridge on State Highway 530, 3.0 miles upstream from gaging station, 6.7 miles northeast of Arlington, and at mile 9.5.

DRAINAGE AREA.--262 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: November 1961 to September 1968 (miscellaneous), October 1968 to September 1969 (monthly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
DEC.									
04...	6260	5.0	4.0	1.4	1.1	.3	18	0	2.0
MAR.									
19...	2940	5.8	5.4	1.5	1.0	.4	22	0	2.6
JUNE									
17...	1260	5.1	4.6	1.2	1.4	.4	22	0	2.2
SEPT.									
16...	285	9.3	9.4	2.3	2.0	.7	42	0	3.2

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
DEC.									
04...	.9	.1	1.0	0	32	16	1	37	7.0
MAR.									
19...	.6	.0	.0	--	32	20	2	45	7.1
JUNE									
17...	.6	.0	.1	--	20	17	0	41	7.3
SEPT.									
16...	.8	.1	.2	--	53	33	0	77	7.2

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
DEC.							
04...	10	4	11.9	29	0	0	0
MAR.							
19...	5	7	12.2	67	--	--	--
JUNE							
17...	0	19	9.8	300	0	0	0
SEPT.							
16...	0	12	11.1	1300	--	--	--

12167700 STILLAGUAMISH RIVER NEAR SILVANA, WASH.

LOCATION.--Lat 48°11'50", long 122°12'30", in SW¼SE¼ sec.6, T.31 N., R.5 E., Snohomish County, at bridge on U.S. Highway 99 and Interstate 5, 1.5 miles east of Silvana, 6.7 miles downstream from confluence of North and South Forks, and at mile 11.1.

DRAINAGE AREA.--557 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
08...	5.1	5.0	1.6	1.5	.3	20	0	2.2	1.0	.0	.7	--
NOV.												
19...	4.1	3.4	1.0	1.0	.4	14	0	1.8	.7	.1	.7	--
DEC.												
03...	--	--	--	--	--	--	--	--	--	--	--	20
JAN.												
14...	7.9	6.1	2.0	1.9	.5	28	0	3.2	1.3	.0	2.2	--
FEB.												
11...	7.4	6.6	2.3	1.8	.6	26	0	3.4	1.9	.1	1.7	--
MAR.												
18...	4.6	3.6	1.2	1.0	.4	15	0	2.0	.7	.1	.7	--
APR.												
09...	6.0	4.9	1.5	1.4	.3	22	0	2.4	1.0	.1	1.3	--
MAY												
12...	3.8	3.4	.9	.9	.3	15	0	2.2	.5	.0	.3	--
JUNE												
17...	4.4	4.2	1.1	1.1	.3	20	0	2.0	.3	.0	.5	--
JULY												
15...	6.5	5.8	1.9	1.8	.4	28	0	4.2	.9	.0	.4	--
AUG.												
11...	8.5	8.5	2.6	2.6	.7	41	0	3.4	2.0	.0	.3	--
SEPT.												
15...	7.4	7.4	2.3	3.5	.6	35	0	3.2	1.3	.1	.6	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
08...	43	19	3	44	7.2	20	8	10.8	1600	--	--	--
NOV.												
19...	30	13	1	32	6.8	30	7	11.9	90	--	--	--
DEC.												
03...	--	--	--	--	--	--	6	12.0	230	0	0	0
JAN.												
14...	47	23	0	59	7.3	10	2	10.8	610	--	--	--
FEB.												
11...	47	26	5	58	7.3	5	4	13.2	--	--	--	--
MAR.												
18...	38	14	2	33	7.3	30	6	12.5	310	--	--	--
APR.												
09...	35	18	0	45	7.2	5	10	11.5	340	--	--	--
MAY												
12...	27	12	0	29	6.9	10	13	11.4	50	--	--	--
JUNE												
17...	22	15	0	37	7.1	0	20	9.5	15	0	0	0
JULY												
15...	38	23	0	55	7.1	5	15	10.3	170	--	--	--
AUG.												
11...	49	32	0	78	69.0	0	18	9.2	330	--	--	--
SEPT.												
15...	46	28	0	68	7.4	0	14	10.3	170	--	--	--

12168500 PILCHUCK CREEK NEAR BRYANT, WASH.

LOCATION (revised).--Lat 48°15'58", long 122°09'46", in NE¼NE¼ sec.16, T.32 N., R.5 E., Snohomish County, temperature recorder at gaging station on right bank, 500 ft upstream from bridge on State Highway 534, 1.8 miles north of Bryant, and at mile 6.4.

DRAINAGE AREA.--52.0 sq mi.

PERIOD OF RECORD.--Water temperatures: March 1952 to August 1968, March to September 1969.

EXTREMES.--March to September 1969:
Water temperatures: Maximum, 23.0°C June 18; minimum, 3.0°C Mar. 14.

Period of record:
Water temperatures: Maximum, 28.0°C July 28, 1958; minimum, 1.0°C on many days during winter periods.

TEMPERATURE (°C) OF WATER, MARCH TO SEPTEMBER 1969

	MAR			MAR	
DAY	MAX	MIN	DAY	MAX	MIN
14	4.0	3.0	23	4.0	4.0
15	4.0	4.0	24	4.0	4.0
16	4.0	4.0	25	5.0	4.0
17	4.0	4.0	26	6.0	4.0
18	4.0	4.0	27	6.0	4.0
19	4.0	4.0	28	6.0	4.0
20	4.0	4.0	29	6.0	5.0
21	4.0	4.0	30	6.0	5.0
22	4.0	4.0	31	6.0	6.0

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	6.0	6.0	6.0	14.0	12.0	18.0	15.0	18.0	17.0	17.0	14.0
2	6.0	4.0	6.0	6.0	16.0	14.0	17.0	14.0	17.0	16.0	16.0	15.0
3	5.0	4.0	7.0	6.0	17.0	15.0	14.0	13.0	17.0	16.0	15.0	14.0
4	6.0	5.0	8.0	6.0	18.0	16.0	13.0	12.0	17.0	15.0	14.0	14.0
5	6.0	6.0	9.0	7.0	18.0	17.0	13.0	12.0	15.0	15.0	14.0	12.0
6	7.0	6.0	10.0	8.0	18.0	17.0	14.0	13.0	15.0	13.0	13.0	12.0
7	6.0	6.0	11.0	9.0	17.0	16.0	14.0	14.0	15.0	14.0	14.0	12.0
8	7.0	6.0	12.0	9.0	19.0	16.0	17.0	14.0	17.0	14.0	14.0	13.0
9	7.0	6.0	12.0	9.0	21.0	18.0	19.0	16.0	18.0	16.0	16.0	14.0
10	7.0	6.0	12.0	10.0	19.0	18.0	18.0	16.0	17.0	16.0	16.0	15.0
11	8.0	6.0	12.0	9.0	18.0	17.0	16.0	14.0	17.0	16.0	16.0	15.0
12	8.0	7.0	12.0	10.0	18.0	17.0	14.0	13.0	16.0	16.0	16.0	15.0
13	7.0	7.0	12.0	11.0	18.0	17.0	14.0	13.0	19.0	16.0	15.0	14.0
14	7.0	6.0	12.0	12.0	21.0	17.0	14.0	13.0	19.0	17.0	14.0	13.0
15	7.0	6.0	12.0	10.0	21.0	17.0	16.0	13.0	18.0	16.0	13.0	11.0
16	7.0	7.0	12.0	11.0	22.0	18.0	17.0	14.0	18.0	15.0	12.0	11.0
17	7.0	6.0	13.0	11.0	22.0	18.0	18.0	15.0	16.0	14.0	12.0	12.0
18	7.0	6.0	13.0	12.0	23.0	19.0	18.0	15.0	16.0	15.0	12.0	12.0
19	7.0	6.0	13.0	12.0	22.0	19.0	19.0	16.0	16.0	15.0	12.0	12.0
20	7.0	6.0	13.0	12.0	20.0	18.0	18.0	17.0	16.0	16.0	12.0	12.0
21	8.0	7.0	14.0	12.0	18.0	17.0	18.0	15.0	18.0	16.0	12.0	12.0
22	8.0	7.0	14.0	13.0	17.0	17.0	19.0	16.0	18.0	14.0	12.0	12.0
23	8.0	8.0	15.0	13.0	17.0	16.0	21.0	18.0	18.0	15.0	12.0	12.0
24	8.0	7.0	15.0	13.0	16.0	14.0	21.0	18.0	17.0	16.0	12.0	12.0
25	8.0	7.0	13.0	12.0	14.0	13.0	19.0	17.0	17.0	16.0	12.0	12.0
26	8.0	7.0	14.0	12.0	16.0	14.0	19.0	16.0	16.0	15.0	12.0	12.0
27	9.0	8.0	14.0	12.0	15.0	14.0	19.0	16.0	16.0	15.0	12.0	12.0
28	9.0	8.0	12.0	11.0	14.0	14.0	19.0	17.0	15.0	14.0	12.0	12.0
29	8.0	6.0	11.0	9.0	14.0	14.0	18.0	15.0	15.0	13.0	12.0	12.0
30	6.0	6.0	10.0	9.0	16.0	13.0	19.0	16.0	16.0	14.0	12.0	12.0
31	--	--	12.0	9.0	--	--	19.0	16.0	16.0	13.0	--	--
AVG	7.1	6.3	11.6	10.0	17.9	16.0	17.1	14.9	16.7	15.1	13.4	12.7

12179000 SKAGIT RIVER ABOVE ALMA CREEK, NEAR MARBLEMOUNT, WASH.

LOCATION (revised).--Lat 48°36'27", long 121°21'37", in SW¼NE¼ sec.15, T.36 N., R.11 E., Skagit County, Ross Lake National Recreation Area, temperature recorder at gaging station on right bank, 0.6 mile upstream from Alma Creek, 6.8 miles north of Marblemount, and at mile 85.8.

DRAINAGE AREA.--1,274 sq mi, of which 400 sq mi is in Canada.

PERIOD OF RECORD.--Chemical analyses: July 1959 to July 1960.
Water temperatures: January 1953 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 11.0°C on many days during June to September; minimum, 2.0°C on many days during January to February.

Period of record:
Water temperatures: Maximum, 13.5°C July 30, 1961, Sept. 5, 1966; minimum, 1.5°C Mar. 1, 1956.

REMARKS.--Clock stopped Dec. 30 to Jan. 28; recorded range in temperature, 2.0°C to 5.0°C. Thermograph not operating properly Jan. 29 to Feb. 5, May 1 to June 17; no temperature range available.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	9.0	8.0	8.0	7.0	7.0	--	--	--	--	3.0	3.0
2	9.0	9.0	8.0	8.0	7.0	7.0	--	--	--	--	3.0	3.0
3	9.0	9.0	8.0	8.0	7.0	7.0	--	--	--	--	3.0	3.0
4	9.0	9.0	8.0	8.0	7.0	7.0	--	--	--	--	3.0	3.0
5	9.0	9.0	8.0	8.0	7.0	7.0	--	--	--	2.0	3.0	3.0
6	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
7	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
8	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
9	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
10	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
11	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
12	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
13	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
14	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
15	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
16	9.0	9.0	8.0	8.0	7.0	7.0	--	--	2.0	2.0	3.0	3.0
17	9.0	9.0	8.0	8.0	7.0	7.0	--	--	3.0	2.0	3.0	3.0
18	9.0	9.0	8.0	8.0	7.0	6.0	--	--	3.0	3.0	3.0	3.0
19	9.0	9.0	8.0	7.0	6.0	6.0	--	--	3.0	3.0	3.0	3.0
20	9.0	9.0	7.0	7.0	6.0	6.0	--	--	3.0	3.0	3.0	3.0
21	9.0	9.0	7.0	7.0	6.0	6.0	--	--	3.0	3.0	4.0	3.0
22	9.0	9.0	7.0	7.0	6.0	6.0	--	--	3.0	3.0	4.0	4.0
23	9.0	9.0	7.0	7.0	6.0	6.0	--	--	3.0	3.0	4.0	4.0
24	9.0	9.0	7.0	7.0	6.0	6.0	--	--	3.0	3.0	4.0	3.0
25	9.0	8.0	7.0	7.0	6.0	6.0	--	--	3.0	3.0	4.0	3.0
26	8.0	8.0	7.0	7.0	6.0	5.0	--	--	3.0	3.0	4.0	4.0
27	8.0	8.0	7.0	7.0	5.0	5.0	--	--	3.0	3.0	4.0	4.0
28	8.0	8.0	7.0	7.0	5.0	5.0	--	--	3.0	3.0	4.0	4.0
29	8.0	8.0	7.0	7.0	5.0	5.0	--	--	--	--	4.0	4.0
30	8.0	8.0	7.0	7.0	--	--	--	--	--	--	4.0	4.0
31	8.0	8.0	--	--	--	--	--	--	--	--	4.0	4.0
AVG	8.8	8.7	7.6	7.6	6.5	6.4	--	--	2.5	2.4	3.3	3.2

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.0	4.0	--	--	--	--	10.0	9.0	11.0	11.0	11.0	10.0
2	4.0	4.0	--	--	--	--	9.0	9.0	11.0	11.0	11.0	11.0
3	4.0	4.0	--	--	--	--	9.0	9.0	11.0	11.0	11.0	11.0
4	4.0	4.0	--	--	--	--	9.0	9.0	11.0	11.0	11.0	10.0
5	4.0	4.0	--	--	--	--	9.0	9.0	11.0	11.0	10.0	10.0
6	4.0	4.0	--	--	--	--	9.0	9.0	11.0	11.0	10.0	9.0
7	4.0	4.0	--	--	--	--	10.0	9.0	11.0	11.0	10.0	9.0
8	4.0	4.0	--	--	--	--	10.0	9.0	11.0	11.0	10.0	9.0
9	4.0	4.0	--	--	--	--	10.0	9.0	11.0	11.0	10.0	10.0
10	4.0	4.0	--	--	--	--	10.0	10.0	11.0	11.0	10.0	10.0
11	4.0	4.0	--	--	--	--	10.0	9.0	11.0	11.0	10.0	10.0
12	4.0	4.0	--	--	--	--	9.0	9.0	11.0	11.0	10.0	10.0
13	5.0	4.0	--	--	--	--	10.0	9.0	11.0	11.0	10.0	10.0
14	5.0	4.0	--	--	--	--	10.0	9.0	11.0	11.0	10.0	10.0
15	5.0	4.0	--	--	--	--	10.0	9.0	11.0	11.0	11.0	10.0
16	5.0	5.0	--	--	--	--	10.0	9.0	11.0	11.0	11.0	10.0
17	5.0	5.0	--	--	--	--	10.0	9.0	11.0	10.0	11.0	11.0
18	5.0	5.0	--	--	11.0	11.0	10.0	10.0	11.0	11.0	11.0	11.0
19	5.0	5.0	--	--	11.0	11.0	10.0	10.0	11.0	11.0	11.0	11.0
20	5.0	5.0	--	--	11.0	11.0	11.0	10.0	11.0	11.0	11.0	10.0
21	5.0	5.0	--	--	11.0	11.0	11.0	11.0	11.0	11.0	11.0	10.0
22	5.0	5.0	--	--	11.0	11.0	11.0	11.0	11.0	11.0	11.0	10.0
23	5.0	5.0	--	--	11.0	10.0	11.0	11.0	11.0	11.0	11.0	10.0
24	5.0	5.0	--	--	10.0	10.0	11.0	11.0	11.0	11.0	10.0	10.0
25	5.0	5.0	--	--	10.0	10.0	11.0	11.0	11.0	11.0	10.0	10.0
26	5.0	5.0	--	--	10.0	10.0	11.0	11.0	11.0	11.0	10.0	10.0
27	5.0	5.0	--	--	10.0	10.0	11.0	11.0	11.0	11.0	10.0	10.0
28	5.0	5.0	--	--	10.0	9.0	11.0	11.0	11.0	11.0	10.0	10.0
29	5.0	5.0	--	--	9.0	9.0	11.0	11.0	11.0	11.0	10.0	10.0
30	5.0	5.0	--	--	10.0	9.0	11.0	11.0	11.0	11.0	10.0	10.0
31	--	--	--	--	--	--	11.0	11.0	11.0	10.0	--	--
AVG	4.6	4.5	--	--	--	--	10.1	9.8	11.0	10.9	10.4	10.0

12181000 SKAGIT RIVER AT MARBLEMOUNT, WASH.

LOCATION.--Lat 48°31'35", long 121°25'40", on north line of NW¼ sec.18, T.35 N., R.10 E., Skagit County, at Cascade Road Bridge in Marblemount, 0.1 mile upstream from Cascade River and at mile 78.2.

DRAINAGE AREA.--1,381 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1963 to September 1968 (miscellaneous), October 1968 to September 1969 (monthly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
DEC.												
04...	4.8	6.8	1.0	.8	.4	25	0	4.0	.1	.1	.3	10
MAR.												
19...	6.2	9.1	1.2	.8	.5	32	0	4.7	.1	.1	.2	--
JUNE												
17...	4.0	5.3	.8	.7	.7	22	0	2.8	.1	.1	.3	--
SEPT.												
16...	4.5	6.5	.9	.7	.4	24	0	3.6	.2	.1	.2	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
DEC.												
04...	28	21	1	48	7.1	5	6	11.5	29	0	0	0
MAR.												
19...	36	28	2	63	7.7	0	5	12.7	27	--	--	--
JUNE												
17...	30	17	0	39	7.3	0	12	11.3	32	0	0	0
SEPT.												
16...	31	20	0	46	7.2	0	10	11.1	140	--	--	--

12182500 CASCADE RIVER AT MARBLEMOUNT, WASH.

LOCATION (revised).--Lat 48°31'26", long 121°22'58", in N½ sec.16, T.35 N., R.11 E., Skagit County, temperature recorder at gaging station on right bank, 1.1 miles downstream from Boulder Creek, 2.2 miles east of Marblemount, and at mile 2.9.

DRAINAGE AREA.--168 sq mi.

PERIOD OF RECORD.--Water temperatures: May 1952 to September 1964, October 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 12.0°C on several days during July to September; minimum, freezing point on Jan. 29 to Feb. 1.

Period of record:
Water temperatures (1952-63, 1965-69): Maximum, 14.5°C July 27-29, 1958, and on several days during August 1961, Aug. 12, 13, 1983; minimum (1952-63, 1965-66, 1967-69), freezing point Feb. 1, 2, 18, 1956, Nov. 16, 1959, Jan. 19, 1960, Jan. 5, 1966, Jan. 29 to Feb. 1, 1969.

REMARKS.--Clock stopped Jan. 25-28; range in temperature not determined.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	8.0	7.0	6.0	6.0	6.0	2.0	2.0	1.0	0.0	6.0	4.0
2	8.0	7.0	7.0	6.0	6.0	5.0	3.0	2.0	1.0	1.0	7.0	4.0
3	8.0	7.0	7.0	7.0	5.0	5.0	3.0	3.0	1.0	1.0	5.0	4.0
4	8.0	8.0	7.0	6.0	5.0	5.0	3.0	3.0	2.0	1.0	5.0	4.0
5	8.0	8.0	6.0	6.0	5.0	4.0	3.0	3.0	2.0	2.0	4.0	4.0
6	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	2.0	1.0	5.0	4.0
7	8.0	8.0	7.0	6.0	4.0	4.0	3.0	3.0	1.0	1.0	5.0	4.0
8	8.0	8.0	7.0	7.0	4.0	4.0	3.0	3.0	2.0	1.0	6.0	4.0
9	8.0	7.0	7.0	7.0	4.0	4.0	3.0	3.0	3.0	2.0	6.0	3.0
10	8.0	7.0	7.0	7.0	5.0	4.0	3.0	3.0	3.0	3.0	6.0	3.0
11	8.0	8.0	7.0	7.0	5.0	5.0	3.0	3.0	3.0	3.0	7.0	3.0
12	8.0	8.0	7.0	7.0	5.0	4.0	3.0	3.0	3.0	3.0	7.0	3.0
13	8.0	8.0	7.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	7.0	3.0
14	8.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	6.0	3.0
15	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	5.0	4.0
16	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0
17	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0
18	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	5.0	4.0
19	7.0	7.0	6.0	6.0	4.0	3.0	3.0	3.0	3.0	3.0	6.0	5.0
20	7.0	7.0	6.0	6.0	3.0	3.0	3.0	3.0	3.0	2.0	6.0	5.0
21	7.0	7.0	6.0	6.0	3.0	3.0	3.0	2.0	3.0	2.0	6.0	5.0
22	8.0	7.0	6.0	6.0	3.0	3.0	2.0	2.0	3.0	3.0	6.0	5.0
23	8.0	8.0	6.0	6.0	3.0	3.0	2.0	2.0	3.0	3.0	6.0	5.0
24	8.0	8.0	6.0	6.0	3.0	3.0	2.0	2.0	4.0	3.0	6.0	5.0
25	8.0	8.0	6.0	6.0	3.0	3.0	--	--	4.0	3.0	6.0	5.0
26	8.0	7.0	6.0	6.0	3.0	3.0	--	--	4.0	3.0	6.0	5.0
27	8.0	7.0	6.0	6.0	3.0	2.0	--	--	5.0	2.0	6.0	5.0
28	8.0	8.0	6.0	6.0	2.0	2.0	--	--	5.0	3.0	6.0	5.0
29	8.0	8.0	6.0	6.0	2.0	2.0	0.0	0.0	--	--	6.0	4.0
30	8.0	8.0	6.0	6.0	2.0	2.0	0.0	0.0	--	--	4.0	4.0
31	8.0	7.0	--	--	2.0	2.0	0.0	0.0	--	--	4.0	4.0
AVG	7.8	7.4	6.3	6.2	3.8	3.6	2.5	2.4	2.8	2.2	5.6	4.1

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.0	4.0	6.0	5.0	9.0	7.0	11.0	9.0	11.0	10.0	11.0	10.0
2	4.0	4.0	6.0	6.0	9.0	7.0	11.0	9.0	11.0	10.0	11.0	11.0
3	4.0	4.0	7.0	6.0	9.0	7.0	9.0	9.0	11.0	9.0	11.0	9.0
4	5.0	4.0	8.0	6.0	9.0	7.0	9.0	9.0	11.0	9.0	9.0	9.0
5	5.0	4.0	8.0	6.0	9.0	7.0	9.0	9.0	9.0	9.0	9.0	9.0
6	4.0	4.0	8.0	6.0	9.0	7.0	9.0	9.0	11.0	8.0	9.0	9.0
7	6.0	4.0	8.0	6.0	8.0	7.0	9.0	9.0	11.0	10.0	11.0	9.0
8	6.0	4.0	7.0	6.0	9.0	7.0	11.0	9.0	12.0	9.0	11.0	10.0
9	6.0	4.0	7.0	6.0	9.0	8.0	12.0	10.0	12.0	10.0	11.0	11.0
10	6.0	5.0	7.0	6.0	10.0	8.0	12.0	9.0	12.0	11.0	12.0	11.0
11	6.0	4.0	7.0	6.0	10.0	8.0	9.0	9.0	12.0	11.0	11.0	11.0
12	6.0	4.0	8.0	6.0	9.0	8.0	9.0	8.0	11.0	10.0	11.0	11.0
13	5.0	4.0	7.0	6.0	9.0	8.0	9.0	8.0	12.0	10.0	11.0	9.0
14	6.0	4.0	7.0	6.0	9.0	8.0	9.0	8.0	12.0	11.0	9.0	8.0
15	6.0	4.0	7.0	6.0	10.0	7.0	10.0	8.0	12.0	11.0	9.0	8.0
16	6.0	4.0	7.0	6.0	10.0	8.0	11.0	9.0	11.0	9.0	8.0	8.0
17	4.0	4.0	8.0	6.0	11.0	8.0	11.0	9.0	11.0	9.0	9.0	8.0
18	4.0	4.0	8.0	6.0	11.0	9.0	11.0	9.0	10.0	10.0	9.0	9.0
19	4.0	4.0	7.0	7.0	11.0	9.0	12.0	10.0	11.0	10.0	9.0	9.0
20	5.0	4.0	8.0	7.0	11.0	9.0	12.0	10.0	10.0	10.0	9.0	9.0
21	6.0	5.0	8.0	6.0	9.0	9.0	11.0	9.0	12.0	10.0	9.0	9.0
22	6.0	5.0	8.0	6.0	9.0	9.0	12.0	10.0	11.0	10.0	9.0	9.0
23	6.0	4.0	8.0	6.0	9.0	9.0	12.0	10.0	12.0	10.0	9.0	9.0
24	4.0	4.0	7.0	7.0	9.0	8.0	12.0	11.0	12.0	11.0	9.0	8.0
25	5.0	4.0	7.0	6.0	8.0	8.0	12.0	10.0	11.0	11.0	8.0	8.0
26	6.0	4.0	7.0	7.0	8.0	8.0	11.0	9.0	11.0	10.0	8.0	8.0
27	6.0	5.0	7.0	6.0	8.0	8.0	12.0	10.0	11.0	10.0	8.0	8.0
28	6.0	5.0	7.0	6.0	8.0	8.0	12.0	10.0	11.0	10.0	8.0	8.0
29	5.0	4.0	7.0	7.0	8.0	8.0	11.0	10.0	10.0	9.0	8.0	8.0
30	5.0	4.0	7.0	6.0	11.0	8.0	11.0	9.0	11.0	9.0	8.0	8.0
31	--	--	8.0	6.0	--	--	11.0	9.0	11.0	9.0	--	--
AVG	5.2	4.1	7.3	6.1	9.2	7.9	10.7	9.2	11.1	9.8	9.4	9.0

12200500 SKAGIT RIVER NEAR MOUNT VERNON, WASH.

LOCATION.--Lat 48°26'40", long 122°20'25", in SW¼SE¼ sec.7, T.34 N., R.4 E., Skagit County, at U.S. Interstate Highway 5, 1,200 ft downstream from gaging station, 1 mile north of Mount Vernon, and at mile 15.6.
DRAINAGE AREA.--3,093 sq mi, of which 400 sq mi is in Canada.
PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1969.
Water temperatures: July 1962 to September 1969.
EXTREMES.--1968-69:
Water temperatures: Maximum, 16.0°C on several days during August to September; minimum, 1.0°C Jan. 26 to Feb. 1.
Period of record:
Water temperatures: Maximum, 16.5°C Aug. 8, 9, 30, 31, 1963; minimum, 1.0°C Jan. 28 to Feb. 1, 1969.
REMARKS.--Coliform, and dissolved oxygen data furnished by Washington State Water Pollution Control Commission.
Temperature recorder at gaging station 1,200 ft upstream from sampling site. Temperature recorder not operating properly Sept. 1-8; no range in temperature available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
08...	14000	5.2	6.5	1.2	1.2	.5	24	0	4.6
NOV.									
19...	21700	5.5	6.1	1.4	1.2	.5	23	0	4.0
DEC.									
03...	24800	5.9	7.2	1.3	1.2	.5	27	0	4.8
JAN.									
14...	18100	7.1	7.8	1.5	1.3	.5	30	0	4.8
FEB.									
11...	12000	7.4	8.5	1.7	1.6	.7	32	0	5.0
MAR.									
18...	17400	5.8	7.0	1.5	1.0	.5	27	0	4.0
APR.									
09...	12400	6.5	9.0	1.6	1.4	.6	34	--	4.3
MAY									
12...	29300	4.9	4.6	.8	.8	.5	18	0	2.9
JUNE									
17...	34600	4.4	4.5	.8	.8	.4	17	0	2.8
JULY									
15...	12800	5.5	5.8	1.0	1.0	.5	22	0	3.6
AUG.									
11...	7120	6.5	6.3	1.3	1.7	.7	26	0	4.2
SEPT.									
15...	6780	6.4	6.2	1.3	1.4	.7	24	0	4.6

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
08...	.4	.1	.3	--	38	21	2	49	7.0
NOV.									
19...	.3	.1	.4	--	32	21	2	48	7.1
DEC.									
03...	.3	.1	.5	10	42	24	2	54	7.2
JAN.									
14...	.4	.1	.5	--	31	26	1	60	7.4
FEB.									
11...	1.0	.1	.6	--	36	28	2	67	7.3
MAR.									
18...	.6	.0	.7	--	38	24	2	54	7.3
APR.									
09...	.5	.2	.4	--	44	26	0	67	7.0
MAY									
12...	.3	.1	.3	--	31	15	0	36	7.0
JUNE									
17...	.1	.0	.3	--	15	15	1	35	7.3
JULY									
15...	.5	.1	.1	--	30	19	1	44	7.2
AUG.									
11...	1.0	.0	.4	--	32	21	0	54	7.1
SEPT.									
15...	.5	.1	.2	--	34	21	2	52	6.0

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
08...	5	10	10.5	780	--	--	--
NOV.							
19...	5	7	11.6	90	--	--	--
DEC.							
03...	5	5	11.7	78	0	0	0
JAN.							
14...	5	2	11.6	330	--	--	--
FEB.							
11...	10	3	13.1	--	--	--	--
MAR.							
18...	5	6	12.4	170	--	--	--
APR.							
09...	5	10	11.8	56	--	--	--
MAY							
12...	5	12	11.4	58	--	--	--
JUNE							
17...	0	15	10.6	340	0	0	0
JULY							
15...	0	14	10.5	3600	--	--	--
AUG.							
11...	0	16	9.4	19000	--	--	--
SEPT.							
15...	0	13	10.3	2400	--	--	--

12200500 SKAGIT RIVER NEAR MOUNT VERNON, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	11.0	8.0	7.0	6.0	6.0	2.0	2.0	2.0	1.0	3.0	3.0
2	11.0	11.0	7.0	7.0	6.0	5.0	3.0	2.0	2.0	2.0	3.0	3.0
3	11.0	11.0	7.0	7.0	5.0	5.0	3.0	3.0	2.0	2.0	3.0	3.0
4	11.0	11.0	7.0	7.0	5.0	5.0	3.0	3.0	2.0	2.0	3.0	3.0
5	11.0	10.0	7.0	7.0	5.0	5.0	3.0	3.0	2.0	2.0	3.0	3.0
6	10.0	10.0	7.0	7.0	5.0	5.0	3.0	3.0	2.0	2.0	4.0	3.0
7	10.0	10.0	7.0	7.0	5.0	5.0	3.0	3.0	2.0	2.0	4.0	4.0
8	10.0	10.0	7.0	7.0	5.0	4.0	3.0	3.0	2.0	2.0	4.0	4.0
9	10.0	9.0	7.0	7.0	4.0	4.0	3.0	3.0	2.0	2.0	4.0	4.0
10	9.0	9.0	7.0	7.0	4.0	4.0	3.0	3.0	3.0	2.0	4.0	4.0
11	9.0	9.0	7.0	7.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0
12	9.0	9.0	7.0	7.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0
13	9.0	9.0	7.0	7.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0
14	9.0	8.0	7.0	7.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0
15	8.0	8.0	7.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0
16	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0	4.0
17	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0	4.0
18	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0	4.0
19	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0
20	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0
21	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	4.0
22	8.0	8.0	6.0	6.0	4.0	4.0	3.0	2.0	3.0	3.0	5.0	4.0
23	8.0	8.0	6.0	6.0	4.0	4.0	2.0	2.0	3.0	3.0	5.0	5.0
24	9.0	8.0	6.0	6.0	4.0	4.0	2.0	2.0	3.0	3.0	6.0	5.0
25	9.0	9.0	6.0	6.0	4.0	4.0	2.0	2.0	3.0	3.0	6.0	6.0
26	9.0	8.0	6.0	6.0	4.0	4.0	2.0	2.0	3.0	3.0	7.0	6.0
27	8.0	8.0	6.0	6.0	4.0	4.0	2.0	2.0	3.0	3.0	7.0	7.0
28	8.0	8.0	6.0	6.0	4.0	2.0	2.0	1.0	3.0	3.0	7.0	7.0
29	8.0	8.0	6.0	6.0	2.0	2.0	1.0	1.0	--	--	7.0	7.0
30	8.0	8.0	6.0	6.0	2.0	2.0	1.0	1.0	--	--	7.0	7.0
31	8.0	8.0	--	--	2.0	2.0	1.0	1.0	--	--	7.0	7.0
AVG	9.0	8.8	6.5	6.4	4.1	4.0	2.5	2.4	2.7	2.6	4.6	4.4

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	6.0	6.0	6.0	10.0	9.0	13.0	12.0	15.0	14.0	--	--
2	6.0	6.0	6.0	6.0	11.0	10.0	13.0	12.0	14.0	14.0	--	--
3	6.0	6.0	7.0	6.0	11.0	10.0	12.0	11.0	14.0	13.0	--	--
4	6.0	6.0	7.0	7.0	11.0	11.0	11.0	11.0	14.0	13.0	--	--
5	6.0	6.0	8.0	7.0	11.0	11.0	11.0	11.0	13.0	13.0	--	--
6	7.0	6.0	9.0	8.0	11.0	10.0	12.0	11.0	13.0	12.0	--	--
7	7.0	6.0	9.0	9.0	11.0	10.0	12.0	11.0	13.0	12.0	--	--
8	7.0	7.0	9.0	9.0	11.0	11.0	12.0	11.0	14.0	12.0	--	--
9	7.0	7.0	9.0	9.0	11.0	11.0	13.0	12.0	14.0	13.0	16.0	14.0
10	7.0	7.0	9.0	8.0	11.0	11.0	13.0	12.0	14.0	14.0	15.0	14.0
11	8.0	7.0	8.0	8.0	11.0	11.0	12.0	12.0	15.0	14.0	15.0	14.0
12	8.0	8.0	8.0	8.0	11.0	11.0	12.0	11.0	15.0	14.0	14.0	14.0
13	8.0	7.0	8.0	8.0	12.0	11.0	11.0	11.0	14.0	14.0	14.0	14.0
14	7.0	7.0	8.0	8.0	12.0	12.0	12.0	11.0	16.0	14.0	14.0	13.0
15	7.0	7.0	8.0	8.0	12.0	12.0	12.0	12.0	16.0	14.0	13.0	12.0
16	7.0	7.0	8.0	8.0	12.0	12.0	13.0	12.0	14.0	14.0	13.0	12.0
17	7.0	7.0	8.0	8.0	12.0	12.0	13.0	13.0	14.0	14.0	12.0	12.0
18	7.0	7.0	9.0	8.0	12.0	12.0	13.0	13.0	14.0	14.0	12.0	12.0
19	7.0	7.0	10.0	9.0	12.0	12.0	13.0	13.0	14.0	13.0	12.0	12.0
20	7.0	7.0	9.0	9.0	12.0	12.0	13.0	13.0	14.0	13.0	12.0	12.0
21	7.0	7.0	9.0	9.0	12.0	11.0	13.0	13.0	13.0	13.0	12.0	12.0
22	8.0	7.0	9.0	9.0	11.0	11.0	14.0	13.0	14.0	13.0	12.0	12.0
23	8.0	8.0	9.0	9.0	11.0	11.0	14.0	13.0	14.0	14.0	12.0	12.0
24	8.0	7.0	9.0	9.0	11.0	11.0	14.0	14.0	15.0	14.0	12.0	12.0
25	7.0	7.0	9.0	9.0	11.0	11.0	14.0	14.0	15.0	14.0	12.0	11.0
26	7.0	7.0	9.0	9.0	11.0	11.0	14.0	13.0	14.0	14.0	12.0	12.0
27	7.0	7.0	9.0	9.0	11.0	11.0	--	13.0	14.0	13.0	12.0	11.0
28	7.0	7.0	9.0	9.0	11.0	11.0	--	--	13.0	13.0	11.0	11.0
29	7.0	6.0	9.0	9.0	11.0	11.0	14.0	13.0	13.0	13.0	12.0	11.0
30	6.0	6.0	9.0	9.0	12.0	11.0	14.0	14.0	14.0	13.0	12.0	11.0
31	--	--	9.0	9.0	--	--	15.0	14.0	--	13.0	--	--
AVG	7.0	6.7	8.4	8.2	11.3	11.0	12.8	12.3	14.1	13.3	12.7	12.2

12201500 SAMISH RIVER NEAR BURLINGTON, WASH.

LOCATION.--Lat 48°32'55", long 122°20'00", in SE¼SE¼ sec.6, T.35 N., R.4 E., Skagit County, at Washington State Fisheries fish trap, 0.2 mile upstream from bridge on U.S. Highway 99, 0.2 mile downstream from Friday Creek, 0.3 mile upstream from gaging station, 4.9 miles north of Burlington, and at mile 10.6.

DRAINAGE AREA.--87.8 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to July 1960, October 1966 to September 1969 (monthly), October 1960 to September 1961, October 1963 to September 1966 (miscellaneous).

REMARKS.--Coliform, dissolved oxygen and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
08...	139	7.4	8.0	2.6	3.1	.7	34	0	5.4
NOV.									
19...	314	6.7	6.4	2.2	2.7	.4	25	0	4.2
DEC.									
03...	823	5.7	5.2	1.7	2.5	.9	18	0	5.2
JAN.									
14...	418	6.9	6.3	2.0	3.0	.5	23	0	4.6
FEB.									
11...	551	6.3	5.4	1.9	2.6	.8	18	0	4.6
MAR.									
18...	311	5.7	5.8	1.8	2.2	.5	22	0	4.4
APR.									
09...	232	5.5	6.9	1.9	2.7	.5	27	0	2.9
MAY									
12...	194	6.1	6.9	2.1	2.7	.5	28	0	4.9
JUNE									
17...	47	11	11	3.7	3.5	.9	48	0	5.4
JULY									
15...	65	9.5	9.7	3.2	3.3	.8	43	0	5.2
AUG.									
11...	32	12	11	4.1	3.9	1.0	54	0	5.2
SEPT.									
15...	28	13	12	4.3	3.9	1.0	55	0	5.4

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
08...	2.3	.1	1.6	--	62	31	3	76	7.1
NOV.									
19...	2.0	.1	3.3	--	46	25	5	65	6.9
DEC.									
03...	2.4	.1	3.9	10	49	20	5	56	6.7
JAN.									
14...	2.0	.1	4.2	--	--	24	5	66	7.2
FEB.									
11...	3.3	.1	4.2	--	53	22	7	61	6.8
MAR.									
18...	2.4	.0	2.4	--	42	22	4	59	7.4
APR.									
09...	2.2	.2	2.3	--	48	25	3	67	7.0
MAY									
12...	2.4	.1	2.1	--	44	26	3	67	7.6
JUNE									
17...	1.6	.1	3.3	--	62	43	3	100	7.3
JULY									
15...	2.1	.1	2.6	--	63	37	2	93	7.3
AUG.									
11...	2.9	.0	3.5	--	68	45	0	113	7.6
SEPT.									
15...	2.1	.1	2.5	--	74	48	3	115	7.2

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
08...	30	10	10.4	1800	--	--	--
NOV.							
19...	20	8	11.1	670	--	--	--
DEC.							
03...	20	7	11.5	1800	0	0	0
JAN.							
14...	10	3	11.4	1500	--	--	--
FEB.							
11...	10	4	13.0	--	--	--	--
MAR.							
18...	10	8	10.5	1100	--	--	--
APR.							
09...	5	9	11.5	540	--	--	--
MAY							
12...	10	15	10.0	330	--	--	--
JUNE							
17...	5	18	10.3	1300	0	0	10
JULY							
15...	5	15	10.8	1700	--	--	--
AUG.							
11...	0	16	9.5	4000	--	--	--
SEPT.							
15...	0	13	10.2	340	--	--	--

12202500 WHATCOM LAKE NEAR BELLINGHAM, WASH.

LOCATION.--Lat 48°45'45", long 122°25'10", in SW¼SW¼ sec.22, T.38 N., R.3 E., Whatcom County, at bridge on Electric Avenue, 2.7 miles east of Bellingham City Hall.

DRAINAGE AREA.--55.9 sq mi (at gaging station at outlet of lake).

PERIOD OF RECORD.--Chemical analyses: October 1964 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
08...	2.0	5.3	1.7	3.0	.4	25	0	5.0	1.9	.0	.0	--
NOV.												
19...	2.5	5.1	1.7	2.9	.5	23	0	5.2	1.6	.1	.5	--
DEC.												
03...	--	--	--	--	--	--	--	--	--	--	--	0
JAN.												
14...	3.1	5.0	1.6	3.1	.4	22	0	5.2	1.7	.1	.9	--
FEB.												
11...	6.0	5.3	1.8	3.4	.6	23	0	5.6	2.7	.0	.9	--
MAR.												
19...	2.5	5.1	1.6	3.0	.5	21	0	6.4	2.3	.1	1.0	--
APR.												
09...	2.5	5.1	1.6	3.2	.5	21	0	5.6	2.2	.1	2.0	--
MAY												
12...	1.5	5.1	1.6	3.2	.6	22	0	5.5	2.5	.1	.7	--
JUNE												
17...	1.9	5.5	1.7	3.2	.5	24	0	5.6	1.6	.1	.9	--
JULY												
15...	1.3	5.5	1.6	3.1	.4	23	0	5.2	2.1	.1	.0	--
AUG.												
11...	1.2	5.2	1.6	2.9	.5	23	0	5.0	2.4	.0	.7	--
SEPT.												
15...	1.6	5.2	1.6	3.2	.5	23	0	5.0	2.0	.1	.6	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
08...	40	20	0	56	6.9	5	14	8.8	34	--	--	--
NOV.												
19...	36	20	1	57	6.8	0	9	10.4	100	--	--	--
DEC.												
03...	--	--	--	--	--	--	7	11.2	150	0	0	0
JAN.												
14...	28	19	1	56	7.1	0	3	10.6	500	--	--	--
FEB.												
11...	39	21	2	62	7.0	5	3	12.8	--	--	--	--
MAR.												
19...	32	19	2	57	7.2	0	6	11.9	70	--	--	--
APR.												
09...	43	19	3	50	6.8	5	10	12.1	18	--	--	--
MAY												
12...	31	19	1	57	7.1	0	16	10.8	17	--	--	--
JUNE												
17...	27	21	1	59	7.2	0	25	7.8	240	0	0	0
JULY												
15...	32	20	1	57	7.3	0	20	9.2	440	--	--	--
AUG.												
11...	30	20	1	58	6.8	0	19	--	2000	--	--	--
SEPT.												
15...	36	20	1	57	6.8	0	17	9.5	80	--	--	--

12207200 NORTH FORK NOOKSACK RIVER NEAR DEMING, WASH.

LOCATION.--Lat 48°52'24", long 122°08'56", in NW¼NW¼ sec.15, T.39 N., R.5 E., Whatcom County, temperature recorder at gaging station, on left bank 1.0 mile downstream from Coal Creek, 3.6 miles upstream from confluence with Middle Fork, and 4.5 miles northeast of Deming.

DRAINAGE AREA.--282 sq mi.

PERIOD OF RECORD.--Water temperatures: April 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 16.0°C on several days during July, Aug. 1; minimum, freezing point Dec. 27-29, Jan. 23-29.

Period of record:
Water temperatures: Maximum, 16.0°C Aug. 1, 2, 9, 10, 1968, on several days during July and Aug. 1, 1969; minimum, freezing point Dec. 27-29, 1968, Jan. 23-29, 1969.

REMARKS.--Clock stopped July 25-29; range in temperature 8.0°C to 16.0°C.

TEMPERATURE (°C) OF WATER, WATER YRAR OCTOBER 1968 TO SEPTEMBRR 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	8.0	6.0	4.0	5.0	5.0	2.0	1.0	2.0	2.0	6.0	4.0
2	10.0	6.0	7.0	6.0	6.0	5.0	3.0	2.0	2.0	2.0	6.0	4.0
3	9.0	6.0	7.0	5.0	6.0	5.0	4.0	2.0	4.0	2.0	7.0	4.0
4	9.0	8.0	6.0	4.0	5.0	3.0	3.0	2.0	3.0	2.0	6.0	5.0
5	9.0	7.0	6.0	4.0	4.0	3.0	4.0	3.0	4.0	2.0	6.0	4.0
6	8.0	7.0	6.0	4.0	5.0	4.0	4.0	3.0	3.0	1.0	7.0	3.0
7	8.0	7.0	7.0	5.0	5.0	4.0	3.0	3.0	3.0	2.0	6.0	3.0
8	8.0	6.0	7.0	6.0	6.0	4.0	4.0	3.0	4.0	3.0	6.0	4.0
9	7.0	6.0	7.0	6.0	6.0	5.0	4.0	3.0	4.0	3.0	7.0	3.0
10	8.0	7.0	6.0	5.0	6.0	5.0	3.0	2.0	4.0	3.0	7.0	3.0
11	7.0	6.0	7.0	6.0	6.0	4.0	3.0	3.0	3.0	2.0	7.0	3.0
12	8.0	7.0	6.0	5.0	5.0	3.0	3.0	2.0	4.0	2.0	7.0	3.0
13	8.0	7.0	5.0	4.0	5.0	4.0	3.0	3.0	5.0	3.0	7.0	3.0
14	7.0	6.0	6.0	4.0	6.0	5.0	4.0	2.0	4.0	3.0	6.0	4.0
15	8.0	6.0	5.0	4.0	6.0	6.0	3.0	3.0	5.0	3.0	5.0	4.0
16	7.0	6.0	4.0	3.0	6.0	4.0	3.0	2.0	6.0	4.0	6.0	4.0
17	8.0	6.0	5.0	4.0	5.0	4.0	3.0	2.0	5.0	3.0	6.0	4.0
18	8.0	7.0	6.0	5.0	5.0	3.0	2.0	2.0	6.0	3.0	6.0	4.0
19	7.0	6.0	6.0	6.0	3.0	3.0	2.0	1.0	6.0	3.0	6.0	4.0
20	8.0	6.0	7.0	6.0	3.0	2.0	2.0	1.0	6.0	2.0	8.0	4.0
21	7.0	6.0	7.0	6.0	3.0	3.0	1.0	1.0	6.0	2.0	8.0	4.0
22	8.0	6.0	6.0	6.0	3.0	3.0	1.0	1.0	4.0	3.0	5.0	4.0
23	8.0	7.0	6.0	4.0	4.0	3.0	1.0	0.0	4.0	3.0	8.0	4.0
24	9.0	7.0	5.0	4.0	5.0	4.0	1.0	0.0	6.0	3.0	8.0	4.0
25	8.0	7.0	6.0	4.0	5.0	4.0	1.0	0.0	5.0	3.0	9.0	4.0
26	7.0	6.0	6.0	5.0	4.0	2.0	1.0	0.0	5.0	3.0	9.0	4.0
27	8.0	6.0	6.0	6.0	2.0	0.0	1.0	0.0	6.0	3.0	9.0	4.0
28	8.0	7.0	6.0	4.0	1.0	0.0	1.0	0.0	7.0	3.0	9.0	4.0
29	8.0	7.0	6.0	5.0	1.0	0.0	1.0	0.0	--	--	8.0	4.0
30	7.0	7.0	5.0	4.0	1.0	1.0	1.0	1.0	--	--	8.0	6.0
31	7.0	6.0	--	--	1.0	1.0	2.0	1.0	--	--	7.0	6.0
AVG	8.0	6.5	6.0	4.8	4.3	3.2	2.3	1.5	4.5	2.6	6.9	3.9

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	5.0	7.0	6.0	12.0	7.0	14.0	9.0	16.0	10.0	14.0	9.0
2	6.0	3.0	8.0	6.0	13.0	7.0	12.0	9.0	13.0	10.0	13.0	10.0
3	6.0	3.0	8.0	6.0	13.0	7.0	9.0	8.0	14.0	10.0	11.0	9.0
4	7.0	4.0	11.0	6.0	13.0	7.0	10.0	8.0	12.0	9.0	10.0	8.0
5	7.0	5.0	12.0	6.0	13.0	7.0	10.0	8.0	9.0	9.0	11.0	8.0
6	9.0	6.0	12.0	6.0	12.0	7.0	12.0	8.0	13.0	9.0	13.0	8.0
7	9.0	6.0	12.0	7.0	13.0	7.0	12.0	8.0	11.0	9.0	14.0	9.0
8	10.0	5.0	12.0	6.0	13.0	6.0	14.0	9.0	15.0	9.0	14.0	9.0
9	9.0	5.0	11.0	6.0	13.0	7.0	15.0	10.0	15.0	10.0	14.0	10.0
10	8.0	6.0	11.0	6.0	13.0	7.0	13.0	9.0	13.0	9.0	13.0	9.0
11	10.0	4.0	11.0	6.0	12.0	8.0	11.0	9.0	13.0	9.0	13.0	9.0
12	9.0	6.0	11.0	6.0	11.0	8.0	10.0	8.0	13.0	9.0	11.0	9.0
13	7.0	6.0	11.0	6.0	11.0	8.0	11.0	7.0	12.0	9.0	15.0	9.0
14	8.0	4.0	10.0	6.0	13.0	8.0	12.0	8.0	10.0	8.0	15.0	10.0
15	9.0	4.0	11.0	6.0	14.0	8.0	13.0	8.0	11.0	7.0	13.0	9.0
16	7.0	6.0	9.0	6.0	14.0	8.0	14.0	9.0	13.0	9.0	10.0	9.0
17	7.0	6.0	12.0	6.0	14.0	8.0	15.0	9.0	13.0	8.0	10.0	9.0
18	7.0	5.0	12.0	6.0	14.0	8.0	15.0	9.0	11.0	10.0	11.0	9.0
19	6.0	5.0	12.0	7.0	11.0	8.0	16.0	10.0	12.0	9.0	9.0	8.0
20	8.0	4.0	11.0	7.0	11.0	8.0	15.0	10.0	11.0	9.0	9.0	8.0
21	8.0	6.0	12.0	6.0	9.0	8.0	15.0	9.0	11.0	8.0	11.0	8.0
22	9.0	6.0	12.0	6.0	11.0	8.0	16.0	9.0	13.0	8.0	10.0	9.0
23	8.0	6.0	12.0	6.0	10.0	8.0	16.0	10.0	14.0	8.0	9.0	8.0
24	7.0	4.0	9.0	7.0	9.0	8.0	16.0	10.0	13.0	9.0	9.0	8.0
25	8.0	4.0	8.0	6.0	10.0	7.0	--	9.0	12.0	9.0	11.0	8.0
26	9.0	4.0	9.0	7.0	10.0	8.0	--	--	11.0	8.0	10.0	8.0
27	9.0	6.0	8.0	6.0	9.0	8.0	--	--	11.0	9.0	9.0	8.0
28	8.0	6.0	8.0	6.0	9.0	8.0	--	--	12.0	8.0	9.0	8.0
29	6.0	4.0	8.0	7.0	10.0	8.0	15.0	--	12.0	8.0	12.0	9.0
30	7.0	4.0	9.0	6.0	14.0	8.0	16.0	10.0	14.0	9.0	10.0	9.0
31	--	--	11.0	6.0	--	--	16.0	10.0	14.0	9.0	--	--
AVG	7.8	4.9	10.3	6.1	11.8	7.6	13.4	8.8	12.4	8.8	11.4	8.7

12210500 NOOKSACK RIVER AT DEMING, WASH.

LOCATION.--Lat 48°50'30", long 122°17'35", in SE¼NE¼ sec.28, T.39 N., R.4 E., Whatcom County, at bridge on State Highway 542, 4.0 mile northwest of Deming, 5.7 miles downstream from gaging station, and at mile 30.9.

DRAINAGE AREA.--584 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1960 (daily), October 1960 to September 1962, October 1968 to September 1969 (monthly), October 1964 to September 1968 (miscellaneous). Prior to October 1962 published as "at Lawrence."

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
DEC.									
03...	11000	5.7	5.1	1.7	1.5	.5	19	0	5.8
MAR.									
19...	4000	7.5	8.2	2.7	1.6	.4	34	0	6.0
JUNE									
17...	5720	5.1	6.4	1.6	1.2	.2	23	0	6.8
SEPT.									
16...	1140	8.1	11	3.1	1.9	.6	40	0	12

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
DEC.									
03...	.5	.1	.7	10	47	20	4	45	6.5
MAR.									
19...	1.0	.1	1.1	--	55	32	4	72	7.3
JUNE									
17...	.3	.1	.2	--	40	23	4	52	7.3
SEPT.									
16...	.7	.1	.4	--	56	41	8	95	7.6

DATE	COLOR (PLAT-(NUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
DEC.							
03...	50	5	11.8	700	0	0	0
MAR.							
19...	10	6	12.1	20	--	--	--
JUNE							
17...	0	12	10.9	20	0	0	0
SEPT.							
16...	0	10	10.5	350	--	--	--

12213100 NOOKSACK RIVER AT FERNDALE, WASH.

LOCATION.--Lat 48°50'45", long 122°35'15", in NE¼NW¼ sec.29, T.39 N., R.2 E., Whatcom County, at bridge on Mountain View Road at Ferndale, 300 ft upstream from gaging station, 1.0 mile downstream from Tenmile Creek, and 5.9 miles upstream from mouth.

DRAINAGE AREA.--786 sq mi, of which 48.9 sq mi is in Canada.

PERIOD OF RECORD.--Chemical analyses: October 1961 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
08...	3040	--	--	--	--	--	--	--	--
NOV.									
19...	7190	6.9	6.9	2.4	1.6	.6	28	0	6.0
DEC.									
03...	7700	--	--	--	--	--	--	--	--
JAN.									
14...	3600	9.7	11	3.9	3.1	.6	45	0	9.6
FEB.									
11...	3500	--	--	--	--	--	--	--	--
MAR.									
19...	3930	7.8	8.1	3.1	2.1	.6	34	0	6.8
APR.									
09...	3590	8.0	9.2	3.2	2.4	.6	39	0	8.0
MAY									
12...	8140	5.9	6.5	2.1	1.4	.5	26	0	5.9
JUNE									
17...	5570	5.5	6.8	1.8	1.4	.4	25	0	7.6
JULY									
15...	2610	6.2	9.6	2.8	1.9	.5	35	0	9.6
AUG.									
11...	1540	6.9	10	2.7	1.9	.6	35	0	11
SEPT.									
16...	1210	8.4	11	3.3	2.3	.7	41	0	11

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
08...	--	--	--	--	--	--	--	--	--
NOV.									
19...	.8	.1	.9	--	48	27	4	64	7.1
DEC.									
03...	--	--	--	20	--	--	--	--	--
JAN.									
14...	2.0	.1	1.8	--	56	44	7	103	7.3
FEB.									
11...	--	--	--	--	--	--	--	--	--
MAR.									
19...	1.6	.0	1.6	--	51	33	5	79	7.3
APR.									
09...	1.8	.2	1.1	--	62	36	4	88	7.0
MAY									
12...	.7	.0	.5	--	52	25	3	56	7.0
JUNE									
17...	.3	.0	.2	--	34	25	4	57	7.4
JULY									
15...	1.0	.1	.3	--	40	36	7	79	7.4
AUG.									
11...	1.2	.0	.5	--	52	36	8	87	7.3
SEPT.									
16...	1.4	.1	.5	--	65	41	8	98	7.1

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
08...	--	9	10.6	510	--	--	--
NOV.							
19...	20	6	11.6	470	--	--	--
DEC.							
03...	--	6	11.0	1400	0	0	0
JAN.							
14...	5	1	11.0	5700	--	--	--
FEB.							
11...	--	4	12.3	--	--	--	--
MAR.							
19...	10	6	11.5	720	--	--	--
APR.							
09...	0	10	11.1	120	--	--	--
MAY							
12...	10	12	11.1	330	--	--	--
JUNE							
17...	5	15	10.1	100	0	0	0
JULY							
15...	0	13	10.3	530	--	--	--
AUG.							
11...	0	15	10.7	--	--	--	--
SEPT.							
16...	0	12	10.0	7000	--	--	--

12301500 KOOTENAI RIVER NEAR REXFORD, MONT.

LOCATION.--Lat 48°52'28", long 115°13'37", in SE¼NE¼NW¼ sec.21, T.36 N., R.28 W., Lincoln County, at gaging station at bridge on State Highway 37, 300 ft downstream from Sullivan Creek, 1.1 miles southwest of Rexford, 3.5 miles downstream from Tobacco River, and at mile 260.5.

DRAINAGE AREA.--8,420 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: June to September 1967 (miscellaneous), October 1967 to September 1969 (monthly).

Water temperatures: October 1967 to September 1969.

Sediment records: October 1967 to September 1969.

EXTREMES.--1968-69:

Water temperatures: Maximum, 20.0°C Aug. 21; minimum, freezing point on many days during December to February.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)
OCT.												
04...	7320	6.0	30	41	10	2.4	.4	127	0	37	1.6	1.1
NOV.												
06...	5580	5.4	30	39	11	2.6	1.0	138	0	32	2.4	.9
DEC.												
02...	4090	6.5	60	38	12	3.2	.6	149	0	38	1.9	.9
JAN.												
06...	3300	7.7	240	46	14	3.4	.8	164	0	43	2.5	.9
FEB.												
07...	2800	7.1	30	45	13	3.6	.8	158	0	45	2.6	.9
MAR.												
06...	2620	6.9	60	46	14	3.8	1.0	160	0	45	2.0	1.2
APR.												
01...	4550	6.6	40	48	13	4.2	1.1	158	0	47	2.6	1.1
MAY												
02...	17900	5.8	90	34	9.2	2.1	.6	128	0	23	1.0	.3
JUNE												
09...	57800	4.1	90	31	6.3	1.1	.9	125	0	12	1.0	.3
JULY												
09...	30700	4.5	90	31	8.6	1.6	.5	124	0	20	2.0	.3
AUG.												
07...	11400	4.9	30	35	11	2.9	1.1	140	0	26	2.2	.0
SEPT.												
04...	6130	5.0	40	40	13	4.2	.9	158	0	31	3.0	.2

DATE	NITRITE (NO2) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)
OCT.					
04...	--	--	--	.50	--
NOV.					
06...	--	--	--	1.3	.44
DEC.					
02...	--	--	--	.58	--
FEB.					
07...	--	--	--	.50	.18
MAR.					
06...	--	--	--	.81	.27
APR.					
01...	--	--	--	.02	.03
MAY					
02...	--	--	--	.29	.10
JUNE					
09...	--	.08	.38	--	--
JULY					
09...	.01	.56	.04	.14	.22
AUG.					
07...	.02	.28	.52	.14	.34
SEPT.					
04...	.00	.32	.04	.10	.07

12301500 KOOTENAI RIVER NEAR REXFORD, MONT.--Continued

EXTREMES.--1968-69--Continued:
Sediment concentrations: Maximum daily, 537 mg/l May 14; minimum daily, 1 mg/l Jan. 22-25.
Sediment loads: Maximum daily, 89,900 tons May 27; minimum daily, 7.8 tons Jan. 23, 24.
Period of record:
Water temperatures: Maximum, 21.0°C Aug. 3, 1968; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 870 mg/l June 4, 1968; minimum daily, 1 mg/l Jan. 22-25, 1969.
Sediment loads: Maximum daily, 150,000 tons June 4, 1968; minimum daily, 7.8 tons Jan. 23, 24, 1969.
REMARKS.--Flow affected by ice Dec. 28 to Feb. 22.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM COBALT UNITS)
OCT.											
04...	.1	0	163	.22	3220	144	39	.1	281	7.7	3
NOV.											
06...	.0	10	178	.24	2680	142	28	.1	285	7.5	1
DEC.											
02...	.1	0	161	.22	1780	145	23	.1	313	7.6	3
JAN.											
06...	.0	60	217	.30	1930	170	36	.1	340	7.6	1
FEB.											
07...	.4	50	212	.29	1600	167	37	.1	341	8.0	1
MAR.											
06...	.0	10	215	.29	1520	172	41	.1	341	7.9	2
APR.											
01...	.0	0	207	.28	2540	174	45	.1	353	7.7	4
MAY											
02...	.3	0	153	.21	7390	123	18	.1	248	8.0	4
JUNE											
09...	.3	0	122	.17	19000	103	1	.0	218	7.7	5
JULY											
09...	.1	20	131	.18	10900	113	11	.1	227	7.6	4
AUG.											
07...	.0	10	155	.21	4770	131	16	.1	268	7.4	3
SEPT.											
04...	.0	0	183	.25	3030	151	21	.1	314	7.9	5

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	11	11	10	8	10	10	8	8	7	9	9	8	7	6	7	6	4	5	6	6	5	6	5	6	7	8	8	8	7	8	7	7
NOVEMBER.	4	5	4	4	4	4	3	3	3	3	3	5	5	3	4	3	2	1	2	3	3	4	5	4	3	3	3	4	1	2	--	3
DECEMBER.	1	0	2	1	1	1	0	2	1	1	3	2	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
JANUARY..	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0
FEBRUARY.	0	0	0	0	0	0	0	1	2	2	2	2	3	2	2	2	2	1	0	0	1	1	1	1	1	1	1	--	--	--		1
MARCH....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	5	7	5	6	2
APRIL....	5	4	6	7	8	8	7	7	6	8	7	8	6	8	8	8	9	8	7	7	7	7	10	9	11	8	8	7	7	6	--	7
MAY.....	7	8	7	7	8	9	9	9	11	10	10	9	8	10	9	8	7	8	8	7	9	10	10	11	13	12	9	9	9	9	8	9
JUNE.....	12	9	10	12	13	13	10	11	11	13	13	12	12	12	14	13	11	16	13	14	16	14	13	10	13	10	9	11	10	12	--	12
JULY.....	14	12	13	13	12	11	13	14	16	17	15	14	14	14	15	16	16	16	15	16	16	17	18	18	15	16	16	16	15	16	17	15
AUGUST...	19	17	18	18	18	17	16	18	18	18	17	17	16	17	18	18	19	19	18	18	20	18	18	17	17	17	17	17	16	16	16	18
SEPTEMBER	16	16	16	13	15	15	15	15	15	15	15	15	15	14	15	14	14	14	11	11	13	12	12	12	13	13	13	14	14	14	--	14

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS B, BOTTOM WITHDRAWAL TUBE C, CHEMICALLY DISPERSED N, IN NATIVE WATER P, PIPET S, SIEVE V, VISUAL ACCUMULATION TUBE W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
APR 25, 1969	0750	11	34500	366	34100	--	21	--	46	--	79	91	100	--	--	--	VPWC
MAY 12.....	1320	11	47100	485	61700	--	14	--	38	--	76	88	98	100	--	--	VPWC
JUN 9.....	1300	12	56300	225	34200	--	21	--	40	--	76	88	99	100	--	--	VPWC

12301500 KOOTENAI RIVER NEAR REXFORD, MONT.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	7990	9	194	6470	7	122	4110	4	44
2	7760	5	105	6420	5	87	4060	4	44
3	7480	5	101	6260	6	101	4110	5	55
4	7340	7	139	6130	8	132	4220	6	68
5	7120	5	96	5950	8	129	4220	5	57
6	7090	5	96	5740	6	93	3810	12	123
7	6950	5	94	5620	5	76	3260	31	273
8	6750	4	73	5330	4	58	3420	14	129
9	6490	3	53	5130	6	83	3800	8	82
10	6310	4	68	5080	6	82	3830	6	62
11	6550	4	71	5080	5	69	4380	7	83
12	6730	5	91	5300	7	100	4360	7	82
13	6980	4	75	5520	6	89	3800	12	123
14	6920	5	93	5240	6	85	3500	13	123
15	6730	12	218	5040	5	68	3640	8	79
16	6550	6	106	5020	14	190	3880	6	63
17	6230	9	151	4690	8	101	4080	7	77
18	5980	13	210	4690	4	51	4080	9	99
19	5780	6	94	4580	10	124	4060	13	143
20	5830	4	63	4580	23	284	3400	7	64
21	5780	3	47	4710	16	203	3210	6	52
22	5640	3	46	4840	5	65	2840	6	46
23	5520	4	60	5080	6	82	2960	4	32
24	5380	5	73	4970	5	67	2840	4	31
25	5380	4	58	4930	5	67	3040	5	41
26	5640	4	61	4640	5	63	3260	7	62
27	6130	5	83	4460	4	48	2840	8	61
28	6210	6	101	4240	4	46	2600	13	91
29	6080	3	49	4240	3	34	2400	23	149
30	6130	4	66	4170	4	45	2300	13	81
31	6650	6	108	--	--	--	2200	5	30
TOTAL	200100	--	2943	154150	--	2844	108510	--	2549

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	2400	9	58	2700	5	36	2750	13	97
2	2600	8	56	2700	4	29	2740	9	67
3	2800	8	60	2800	5	38	2740	10	74
4	3000	13	105	2900	6	47	2710	6	44
5	3200	18	156	3000	5	40	2730	10	74
6	3300	20	178	2900	6	47	2790	7	53
7	3400	12	110	2800	9	68	2820	5	38
8	3500	10	94	2700	9	66	2640	7	50
9	3600	13	126	2600	13	91	2640	7	50
10	3500	15	142	2500	11	74	2650	5	36
11	3400	15	138	2500	15	101	2650	5	36
12	3300	13	116	2600	13	91	2650	7	50
13	3200	15	130	2600	11	77	2660	9	65
14	3200	11	95	2600	12	84	2760	17	127
15	3300	10	89	2700	16	117	2760	7	52
16	3500	9	85	2700	15	109	2750	6	45
17	3600	11	107	2600	13	91	2990	14	113
18	3600	21	204	2600	11	77	3270	16	141
19	3500	9	85	2500	10	68	3460	5	47
20	3300	3	27	2400	13	84	3460	15	140
21	3100	2	17	2500	12	81	3360	21	191
22	3000	1	8.1	2600	13	91	3360	14	127
23	2900	1	7.8	2730	10	74	3380	10	91
24	2900	1	7.8	2730	8	59	3270	21	185
25	3000	1	8.1	2730	9	66	3260	17	150
26	3100	3	25	2760	7	52	3230	18	157
27	3200	10	86	2750	9	67	3230	9	78
28	3100	2	17	2750	7	52	3390	11	101
29	3000	3	24	--	--	--	3640	14	138
30	2800	5	38	--	--	--	3480	18	169
31	2700	7	51	--	--	--	4000	23	248
TOTAL	98000	--	2450.8	74950	--	1977	94220	--	3034

12301500 KOOTENAI RIVER NEAR REXFORD, MONT.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	4580	28	346	19800	57	3050	46500	138	17300
2	4990	34	458	18100	42	2050	44300	119	14200
3	5190	37	518	17200	31	1440	48100	156	20300
4	5330	39	561	16700	30	1350	56100	300	45400
5	5400	30	437	16200	25	1090	63400	378	64700
6	5950	42	675	16300	25	1100	67900	487	89300
7	7120	65	1250	18400	37	1840	69200	458	85600
8	8410	82	1860	22400	69	4170	65200	294	51800
9	9250	70	1750	25300	96	6560	57300	245	37900
10	10400	71	1990	30600	199	16400	51900	200	28000
11	11000	77	2290	38500	370	38500	50900	147	20200
12	11800	71	2260	47100	439	55800	49900	112	15100
13	12800	66	2290	52700	535	76100	46700	109	13700
14	13500	49	1790	52200	537	75700	41700	98	11000
15	13500	47	1710	57800	490	76500	36100	94	9160
16	13400	43	1560	53900	325	47300	32600	76	6690
17	13600	46	1690	46700	200	25200	31500	75	6380
18	15500	77	3220	41800	131	14800	32100	66	5720
19	17700	110	5260	39000	104	11000	33900	69	6320
20	17000	65	2980	38500	84	9150	37900	137	14000
21	15000	45	1820	37600	76	7700	44200	137	16300
22	13900	37	1390	37300	65	6550	48500	174	24100
23	14800	55	2200	40000	79	8530	46200	91	11400
24	23000	232	14400	46100	88	11000	43400	98	11500
25	31300	327	27600	53100	230	40100	42600	98	11300
26	28200	178	13600	59800	463	74800	46900	108	13700
27	23300	107	6730	63400	525	89900	48100	129	16800
28	21000	63	3570	59100	314	50100	48700	139	18300
29	19400	50	2620	50900	208	28600	48600	120	15700
30	20400	55	3030	48100	177	23000	47000	88	11200
31	--	--	--	50100	218	29500	--	--	--
TOTAL	416720	--	111845	1214700	--	838880	1427400	--	713070

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	43200	85	9910	13200	15	535	6340	5	86
2	40500	76	8310	12700	11	377	6260	5	85
3	38900	61	6410	12300	10	322	6110	6	99
4	39200	67	7090	12000	9	292	5890	8	127
5	38400	65	6740	11400	8	246	5800	7	110
6	36700	72	7130	11400	7	215	5780	5	78
7	34000	49	4500	11500	9	279	5700	8	123
8	32800	93	8240	11000	9	267	5700	7	108
9	30600	86	7110	10600	9	258	5300	8	114
10	29700	57	4570	10300	9	250	5300	5	72
11	29100	41	3220	9920	8	214	5300	3	43
12	27900	39	2940	9800	8	212	5150	5	70
13	26800	35	2530	9650	8	208	5150	7	97
14	24500	39	2580	9230	8	199	5160	5	70
15	23000	43	2670	8970	7	170	5560	4	60
16	21300	40	2300	8680	5	117	5700	5	77
17	20000	29	1570	8680	8	187	5430	4	59
18	19200	35	1810	8640	8	187	5300	4	57
19	18600	27	1360	8390	7	159	5300	5	72
20	18200	31	1520	7980	6	129	5300	6	86
21	17900	16	773	7780	7	147	5720	6	93
22	17800	10	481	7640	7	144	5910	8	128
23	17500	18	850	7580	5	102	5910	9	144
24	17400	18	846	7580	7	143	6550	11	195
25	17200	13	604	7480	9	182	6850	14	259
26	17200	15	697	7480	8	162	6790	14	257
27	16600	14	627	7640	9	186	6700	12	217
28	15700	12	509	7480	9	182	6400	8	138
29	15000	13	527	7320	5	99	6000	7	113
30	14400	13	505	7160	5	97	6400	7	121
31	13800	17	633	6700	7	127	--	--	--
TOTAL	773100	--	99562	288220	--	6394	174780	--	3358

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 5024850
TOTAL LOAD FOR YEAR (TONS) 1788906.8

12301850 KOOTENAI RIVER AT WARLAND BRIDGE, NEAR LIBBY, MONT.

LOCATION.--Lat 48°30'00", long 115°17'02", in NW¼NE¼NE¼ sec.34, T.32 N., R.29 W., Lincoln County, temperature recorder at gaging station on right bank at county road bridge, 0.1 mile downstream from Barron Creek, 14.5 miles northeast of Libby, and at mile 228.6.

DRAINAGE AREA.--8,892 sq mi (approximately).

PERIOD OF RECORD.--Water temperatures: June 1962 to September 1969 (seasonal records only).

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C on many days during July and August.

Period of record:
Water temperatures: Maximum, 20.0°C Aug. 14, 15, 1963.

REMARKS.--Recorder removed Nov. 6 to Mar. 25. Records furnished by Corps of Engineers, U.S. Army.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
OCTOBER																																
MAXIMUM	12	12	11	10	9	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	8	7	7	6	7	7	8
MINIMUM	11	9	9	8	7	7	7	7	7	7	7	7	7	6	6	6	6	5	5	6	6	6	6	6	6	6	6	5	5	5	6	6
NOVEMBER																																
MAXIMUM	7	6	6	6	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	5	4	4	4	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DECEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JANUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MARCH																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	7	7	7	7	7	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	4	4	5	5	6	--
APRIL																																
MAXIMUM	7	7	7	8	8	9	9	8	8	8	8	8	8	8	9	9	9	9	9	8	8	10	10	10	9	8	8	9	9	9	--	9
MINIMUM	6	5	6	6	6	7	7	7	7	7	7	7	7	7	7	8	8	8	7	7	7	7	9	8	6	6	7	7	8	7	--	7
MAY																																
MAXIMUM	8	8	8	9	11	11	12	12	11	11	11	11	11	11	10	9	9	10	11	11	11	12	12	12	12	12	11	11	10	10	10	11
MINIMUM	7	7	7	7	8	9	10	9	9	10	10	9	9	9	8	7	8	8	9	9	9	10	11	11	10	10	9	9	9	9	8	9
JUNE																																
MAXIMUM	11	12	13	14	14	13	12	11	12	12	13	13	12	12	13	14	14	14	14	14	14	13	13	12	12	12	11	11	11	12	--	13
MINIMUM	9	10	11	12	12	11	10	10	10	11	11	11	11	11	11	12	13	13	13	13	13	12	11	11	11	10	10	9	9	9	--	11
JULY																																
MAXIMUM	13	13	13	13	12	12	13	14	14	15	15	15	15	14	14	14	15	16	16	17	17	17	18	18	18	18	17	18	18	18	18	15
MINIMUM	11	12	12	11	11	11	11	12	13	13	14	14	13	13	13	13	13	14	14	15	16	16	16	17	17	16	16	16	16	16	17	14
AUGUST																																
MAXIMUM	18	18	18	18	18	17	16	17	18	18	18	18	17	18	18	18	17	17	17	17	17	18	18	18	18	18	18	18	17	16	16	17
MINIMUM	17	17	17	17	16	15	14	15	16	16	17	16	15	16	16	16	16	15	16	16	16	17	17	16	17	17	16	15	14	14	16	16
SEPTEMBER																																
MAXIMUM	16	17	17	16	14	14	15	16	16	16	17	17	17	17	16	14	14	14	13	13	13	13	13	13	13	13	13	13	13	13	--	15
MINIMUM	14	14	14	13	12	12	13	13	14	14	14	15	16	14	13	12	12	12	12	12	11	12	11	11	11	11	12	12	12	12	--	13

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.

LOCATION.--Lat 48°22'00", long 115°19'20", in SE¼NE¼ sec.17, T.30 N., R.29 W., Lincoln County, on downstream side of bridge, 3.5 miles downstream from Libby Dam, 11 miles east of Libby, and at mile 218.2.
DRAINAGE AREA.--9,047 sq mi.
PERIOD OF RECORD.--Chemical analyses: June to September 1967 (miscellaneous), October 1967 to September 1969 (daily).
Water temperatures: October 1967 to September 1969.
Sediment records: October 1967 to September 1969.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 211 mg/l Mar. 4; minimum, 114 mg/l June 1-9.
Hardness: Maximum, 169 mg/l Feb. 4, Mar. 4; minimum, 94 mg/l June 22-30.
Specific conductance: Maximum daily, 339 micromhos Dec. 26-28; minimum daily, 174 micromhos May 26.
Water temperatures: Maximum, 21.0°C Aug. 25; minimum, freezing point on many days during winter period.
Sediment concentrations: Maximum daily, 851 mg/l June 7; minimum daily, 3 mg/l Oct. 6, Dec. 6, 8, 24.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)
OCT.												
01-31	6670	5.4	--	38	11	2.8	1.2	137	0	33	1.6	1.0
NOV.												
01-30	5510	6.1	--	39	11	2.7	.8	142	0	33	2.0	.8
DEC.												
01-28	3740	6.7	--	43	12	3.2	1.9	154	0	39	1.9	.8
FEB.												
04...	2900	7.5	120	46	13	3.4	.8	158	0	44	2.8	.9
MAR.												
04...	2700	7.2	70	46	13	3.5	.8	160	0	44	2.2	1.1
17-31	3830	7.3	--	44	12	3.7	.9	148	0	44	1.8	1.3
APR.												
01-11	7950	8.9	--	39	10	2.9	.8	132	0	31	.6	.7
12-30	18900	7.8	--	35	8.3	2.1	.8	125	0	21	.7	.4
MAY												
01-09	21400	7.7	--	32	8.3	2.0	.5	126	0	13	3.8	.4
10-31	46300	5.6	--	28	6.3	1.5	.5	114	0	14	.8	.2
JUNE												
01-09	56200	5.0	--	28	6.0	1.3	1.0	114	0	12	.8	.2
10-21	40400	1.9	--	32	6.4	1.4	.7	112	0	19	1.2	.3
22-30	47500	4.6	--	27	6.4	1.4	.4	104	0	15	1.8	.4
JULY												
01-16	33200	4.2	--	31	7.7	2.0	.9	119	0	21	.6	.1
17-31	16500	5.6	--	33	9.8	2.2	.7	134	0	22	1.2	.2
AUG.												
01-31	9130	4.8	--	40	11	3.4	.6	144	0	28	2.6	.3
SEPT.												
01-30	6040	5.6	--	42	12	3.5	.8	152	0	35	2.4	.5
WTD. AVG.	--	5.2	--	32	8.0	2.0	1.7	123	0	20	1.3	.3
TIME WTD. AVG.	A16800	5.8	--	37	9	2.6	1.2	135	0	28	1.7	.6
TONS PER DAY	--	238	--	1470	361	90	76	5560	0	922	60	16

ANALYSES OF ADDITIONAL SAMPLES

OCT.												
01...	B8260	--	--	--	--	--	--	--	--	--	--	--
DEC.												
05...	B4650	6.3	100	42	12	3.0	.8	148	0	36	2.1	.9
APR.												
03...	B 7500	8.3	80	40	11	3.3	1.0	139	0	38	1.6	.8
MAY												
07...	B20900	7.3	60	34	8.8	2.5	.6	119	0	19	1.0	.3
JUNE												
05...	B61000	2.8	40	30	6.3	1.0	.6	119	0	12	.8	.2
JULY												
08...	B33500	4.5	70	36	8.4	2.1	.5	132	0	17	1.6	.3
AUG.												
04...	B11800	4.8	30	35	11	2.6	.9	138	0	27	2.0	.2
SEPT.												
02...	B6400	5.2	80	38	12	3.3	2.6	153	0	28	2.4	.2

A MEAN DISCHARGE FOR 295 DAYS CHEMICAL ANALYSES. MEAN DISCHARGE FOR 365 DAYS, 13,910 (CFS).
B DISCHARGE AT TIME OF SAMPLING.

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

EXTREMES.--1968-69--Continued:
Sediment loads: Maximum daily, 159,000 tons June 7; minimum daily observed, 23 tons Dec. 24.
Period of record:
Dissolved solids: Maximum, 333 mg/l Feb. 1-26, 1968; minimum, 114 mg/l June 1-9, 1969.
Hardness: Maximum, 265 mg/l Dec. 14-31, 1967; minimum, 94 mg/l June 22-30, 1969.
Specific conductance: Maximum daily, 525 micromhos Dec. 24, 1967; minimum daily, 174 micromhos May 26, 1969.
Water temperatures: Maximum, 21.0°C Aug. 25, 1969; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 1,200 mg/l June 5, 1968; minimum daily, 1 mg/l Apr. 13, 1968.
Sediment loads: Maximum daily, 200,000 tons June 5, 1968; minimum daily, 12 tons Apr. 13, 1968.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Recorder removed Nov. 4 to Mar. 27. Thermograph records furnished by Corps of Engineers, U.S. Army. Records of discharge are given for Kootenai River at Warland Bridge, near Libby (station 12301850). Flow affected by ice Jan. 1 to Mar. 16.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLATI-NUM-COBALT UNITS)
OCT.											
01-31	.1	0	170	.23	3060	139	27	.1	285	7.9	3
NOV.											
01-30	.1	0	172	.23	2560	143	27	.1	287	8.0	1
DEC.											
01-28	.1	20	196	.27	1980	157	31	.1	321	8.0	4
FEB.											
04...	.8	40	208	.28	1850	169	40	.1	331	8.0	1
MAR.											
04...	.3	10	211	.29	1570	169	38	.1	335	7.9	2
17-31	.2	10	208	.28	2150	160	39	.1	320	8.2	1
APR.											
01-11	.2	10	184	.25	3950	139	31	.1	273	7.9	15
12-30	.1	10	154	.21	7860	121	19	.1	231	7.9	10
MAY											
01-09	.0	20	156	.21	9010	114	11	.1	239	7.4	2
10-31	.1	0	132	.18	16500	96	2	.1	200	7.7	5
JUNE											
01-09	.0	0	114	.16	17300	95	1	.1	195	8.0	8
10-21	.1	0	123	.17	13400	106	15	.1	208	7.9	2
22-30	.0	0	122	.17	15600	94	8	.1	189	7.5	7
JULY											
01-16	.0	10	137	.19	12300	109	12	.1	233	7.3	3
17-31	.0	20	142	.19	6330	123	13	.1	256	7.7	5
AUG.											
01-31	.0	0	164	.22	4040	146	28	.1	290	7.8	5
SEPT.											
01-30	.0	50	180	.24	2940	153	28	.1	305	7.6	7
WTD. AVG.	.1	0	142	.19	6440	113	13	--	231	7.7	--
TIME											
WTD. AVG.	.1	11	163	--	--	133	22	.1	268	7.8	--
TONS PER DAY	2.5	0	--	--	6440	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES											
OCT.											
01...	--	--	--	--	--	--	--	--	--	--	--
DEC.											
05...	.0	10	171	.23	2150	155	33	.1	309	7.6	3
APR.											
03...	.0	10	183	.25	3710	144	30	.1	297	7.7	3
MAY											
07...	.2	0	149	.20	8410	121	23	.1	232	8.2	7
JUNE											
05...	.4	0	151	.21	24900	101	3	.0	199	7.8	3
JULY											
08...	.0	0	133	.18	12000	124	16	.1	233	7.4	3
AUG.											
04...	.0	20	161	.22	5130	131	17	.1	269	7.7	4
SEPT.											
02...	.0	0	174	.24	3010	145	19	.1	303	8.0	5

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	NITRITE (NO2) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)
FEB.					
04...	--	--	--	.61	.21
MAR.					
04...	--	--	--	.59	.20
ANALYSES OF ADDITIONAL SAMPLES					
OCT.					
01...	--	--	--	.49	--
DEC.					
05...	--	--	--	1.3	1.2
APR.					
03...	--	--	--	.03	.02
MAY					
07...	--	--	--	.17	.07
JUNE					
05...	--	.10	.66	--	--
JULY					
08...	.02	.76	.08	.10	.24
AUG.					
04...	.02	.36	.36	.70	.49
SEPT.					
02...	.00	.40	.08	.07	.23

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	270	271	306	--	--	--	301	228	204	215	261	311
2	270	269	303	--	--	--	303	227	204	227	261	293
3	277	271	303	--	--	--	289	232	204	227	264	299
4	269	269	303	--	--	--	289	238	192	248	269	299
5	269	269	306	--	--	--	289	242	191	210	269	311
6	270	276	306	--	--	--	273	240	188	225	269	311
7	269	274	309	--	--	--	259	227	186	217	269	308
8	271	269	312	--	--	--	255	227	179	224	274	304
9	271	283	309	--	--	--	255	225	188	233	279	301
10	270	283	306	--	--	--	257	210	192	231	279	305
11	270	271	306	--	--	--	253	203	190	231	284	308
12	270	286	303	--	--	--	248	207	194	229	282	310
13	270	274	306	--	--	--	244	184	204	227	282	313
14	270	271	306	--	--	--	248	184	200	229	282	315
15	270	271	306	--	--	--	248	203	205	231	282	317
16	270	278	303	--	--	--	244	203	215	233	282	314
17	270	286	306	--	--	323	240	204	214	246	282	311
18	270	288	306	--	--	320	236	206	215	240	284	307
19	280	291	318	--	--	317	248	207	203	250	284	300
20	280	291	315	--	--	319	238	206	204	255	284	306
21	280	291	309	--	--	317	236	204	194	255	282	308
22	280	291	312	--	--	317	236	204	181	267	282	311
23	283	291	312	--	--	322	226	196	188	252	284	311
24	280	291	312	--	--	326	204	190	188	255	287	307
25	280	291	322	--	--	329	216	179	190	250	290	301
26	281	286	339	--	--	330	213	174	186	252	290	298
27	280	291	339	--	--	330	221	179	188	252	284	298
28	280	288	339	--	--	314	224	179	189	246	282	298
29	277	291	--	--	--	310	221	182	189	252	284	298
30	277	291	--	--	--	310	226	192	188	250	284	298
31	273	--	--	--	--	299	--	184	--	262	290	--
AVG	274	281	311	--	--	--	248	205	195	239	279	305

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

(TEMPERATURE RECORDER)

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	13	12	12	11	11	10	10	10	10	10	10	10	9	9	9	8	8	8	8	8	8	8	9	9	9	9	8	8	8	8	9
MINIMUM	11	10	9	8	8	8	8	7	7	8	8	8	7	7	7	6	6	6	6	6	6	6	6	6	7	7	6	6	6	6	6	7
NOVEMBER																																
MAXIMUM	8	8	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	6	5	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DECEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JANUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MARCH																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8	8	8	8	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	6	--
APRIL																																
MAXIMUM	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	10	10	10	9	8	9	11	11	11	9	8	9	10	9	9	--	9
MINIMUM	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	8	8	8	6	6	6	8	9	7	6	5	6	7	7	6	--	7
MAY																																
MAXIMUM	8	8	9	11	12	12	13	13	13	12	12	12	12	12	11	9	10	11	12	12	12	13	13	13	13	13	12	11	11	11	11	12
MINIMUM	6	6	6	7	8	9	9	9	10	9	9	9	8	8	7	7	8	9	9	9	10	11	10	10	10	9	8	8	8	8	8	8
JUNE																																
MAXIMUM	12	13	14	14	14	14	13	12	12	14	14	14	13	13	14	14	15	16	16	16	16	14	13	13	13	12	12	12	11	13	--	14
MINIMUM	9	10	11	11	11	11	10	10	10	11	11	11	10	10	11	12	12	13	13	13	12	12	12	11	11	10	10	9	9	9	--	11
JULY																																
MAXIMUM	14	14	14	13	13	13	14	15	16	16	16	16	16	16	16	16	16	17	17	18	18	19	19	19	19	19	18	19	19	19	19	17
MINIMUM	11	12	11	11	11	10	12	12	13	14	14	14	13	13	13	13	14	14	15	16	16	16	17	17	17	16	16	17	17	17	17	14
AUGUST																																
MAXIMUM	19	19	19	19	18	18	18	18	19	19	19	18	18	18	19	19	18	17	18	18	18	19	20	20	21	20	19	18	18	17	17	19
MINIMUM	17	17	17	17	15	14	15	15	16	17	17	16	16	16	17	16	16	16	16	16	16	16	17	17	17	16	16	16	14	14	14	16
SEPTEMBER																																
MAXIMUM	17	18	18	16	16	14	16	16	16	17	17	17	17	17	16	15	14	14	14	14	14	14	13	13	13	14	14	14	14	14	--	15
MINIMUM	14	14	14	14	13	12	13	14	14	14	15	16	16	14	13	12	12	13	13	12	12	12	12	12	12	11	12	12	12	12	--	13

ONCE-DAILY MEASUREMENT

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NOVEMBER.	--	--	--	5	5	5	4	3	3	3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	--	3
DECEMBER.	3	3	3	2	2	1	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
JANUARY..	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FEBRUARY.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0
MARCH....	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	--	2	3	2	5	5	4	3	5	5	7	8	--	--	--	--	--
APRIL....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JUNE.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JULY.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AUGUST...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEPTEMBER	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS B, BOTTOM WITHDRAWAL TUBE C, CHEMICALLY DISPERSED N, IN NATIVE WATER P, PIPET S, SIEVE, V, VISUAL ACCUMULATION TUBE W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
APR 25, 1969	1320	7	31900	615	53000	--	20	--	42	--	70	84	100	--	--	--	VPWC
MAY 14.....	1115	11	53700	516	74800	--	15	--	39	--	72	86	99	100	--	--	VPWC
MAY 21.....	1400	10	35800	76	7350	--	15	--	40	--	71	83	98	100	--	--	VPWC

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	8260	11	245	6430	10	174	4530	4	49
2	8050	10	217	6740	10	182	4430	5	60
3	7760	9	189	6550	8	141	4400	6	71
4	7520	17	345	6360	7	120	4430	6	72
5	7320	5	99	6180	6	100	4430	4	48
6	7200	3	58	6140	6	99	4180	3	34
7	7120	4	77	6030	6	98	3600	4	39
8	6970	5	94	5780	6	94	3600	3	29
9	6810	5	92	5600	6	91	3800	16	164
10	6620	4	71	5500	7	104	4120	25	278
11	6550	7	124	5460	6	88	4370	25	295
12	6620	8	143	5570	8	120	4620	34	424
13	6890	11	205	5890	7	111	4430	36	431
14	7080	7	134	5920	6	96	4050	35	383
15	6930	6	112	5670	6	92	4490	18	218
16	6740	5	91	5430	5	73	4180	12	135
17	6510	5	88	5260	6	85	4080	11	121
18	6320	5	85	5020	7	95	4120	10	111
19	6180	4	67	4790	7	91	4080	7	77
20	6100	4	66	4820	9	117	4000	5	54
21	6070	7	115	4950	8	107	3000	7	57
22	6000	8	130	5160	8	111	2600	6	42
23	5890	7	111	5460	8	118	2700	4	29
24	5780	8	125	5500	7	104	2900	3	23
25	5710	8	123	5290	8	114	2700	4	29
26	5850	7	111	5090	9	124	2600	12	84
27	6280	7	119	4820	4	52	2500	13	88
28	6400	7	121	4720	4	51	1900	12	62
29	6400	7	121	4590	4	50	1800	6	29
30	6400	9	156	4660	4	50	1900	12	62
31	6510	10	176	--	--	--	2000	12	65
TOTAL	206840	--	4010	165380	--	3052	110540	--	3663

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	2100			2600			2600	--	--
2	2200	--	--	2700	--	--	2600	--	--
3	2300	--	--	2800	--	--	2700	--	--
4	2400	--	--	2900	--	--	2700	--	--
5	2500	--	--	3000	--	--	2800	--	--
6	2600	--	--	2900	--	--	2900	--	--
7	2900	--	--	2800	--	--	2800	--	--
8	3500	--	--	2700	--	--	2800	--	--
9	4200	--	--	2700	--	--	2700	--	--
10	4300	--	--	2600	--	--	2700	--	--
11	4200	--	--	2600	--	--	2700	--	--
12	4000	--	--	2600	--	--	2800	--	--
13	3800	--	--	2700	--	--	2800	--	--
14	3600	--	--	2700	--	--	2800	--	--
15	3600	--	--	2700	--	--	2900	--	--
16	3600	--	--	2800	--	--	3000	--	--
17	3700	--	--	2900	--	--	3300	18	160
18	3700	--	--	3000	--	--	3700	37	370
19	3600	--	--	2900	--	--	3900	53	558
20	3500	--	--	2800	--	--	4010	60	650
21	3500	--	--	2700	--	--	3780	42	429
22	3400	--	--	2700	--	--	3700	25	250
23	3300	--	--	2600	--	--	3700	20	200
24	3200	--	--	2500	--	--	3630	19	186
25	2900	--	--	2400	--	--	3530	19	181
26	2600	--	--	2400	--	--	3450	23	214
27	2800	--	--	2500	--	--	3530	24	229
28	3000	--	--	2500	--	--	3800	35	359
29	2700	--	--	--	--	--	4190	40	453
30	2400	--	--	--	--	--	4400	33	392
31	2500	--	--	--	--	--	4820	57	742
TOTAL	98600	--	3190	75700	--	2450	101740	--	6571

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	5340	62	894	22100	64	3820	45100	229	27900
2	5830	54	850	20900	58	3270	42400	161	18400
3	6110	53	874	19900	52	2790	45000	228	27700
4	6280	56	950	19300	38	1980	52700	479	68200
5	6350	53	909	18900	39	1990	61100	767	127000
6	6910	72	1340	19200	44	2280	65800	802	142000
7	8320	125	2810	21200	54	3090	69000	851	159000
8	9480	157	4020	24300	80	5250	66500	660	119000
9	9920	133	3560	27200	148	10900	58000	258	40400
10	10900	115	3380	31800	224	19200	50900	276	37900
11	12000	123	3990	38700	263	27500	49900	264	35600
12	12600	105	3570	46100	288	35800	48800	148	19500
13	13300	112	4020	52200	530	74700	47000	178	22600
14	14000	100	3780	55800	597	89900	42800	161	18600
15	13800	107	3990	57700	639	99500	36800	177	17600
16	13400	80	2890	54000	549	80000	33400	161	14500
17	13900	77	2890	46100	352	43800	31800	140	12000
18	15800	100	4270	41100	232	25700	31900	121	10400
19	18200	180	8850	38500	205	21300	33000	170	15100
20	18000	142	6900	37000	206	20600	36200	78	7620
21	16100	77	3350	35900	166	16100	42400	252	28800
22	14700	53	2100	35000	142	13400	48300	198	25800
23	16000	70	3020	36800	148	14700	47100	322	40900
24	24400	362	S 23000	41700	240	27000	44400	377	45200
25	31700	596	51000	48200	414	53900	43000	168	19500
26	29900	320	25800	56700	395	60500	47300	186	23800
27	25700	236	16400	62000	570	95400	48400	218	28500
28	22500	107	6500	59200	648	104000	50400	198	26900
29	22000	72	4280	50000	364	49100	50000	181	24400
30	22600	76	4640	45700	213	26300	48800	159	20900
31	--	--	--	48400	319	41700	--	--	--
TOTAL	446040	--	204827	1211600	--	1075470	1418200	--	1225720

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	45400	227	27800	12900	12	418	6700	5	90
2	42600	128	14700	12300	11	365	6560	7	124
3	40000	103	11100	11900	13	418	6320	7	119
4	39600	85	9090	11700	13	411	6180	5	83
5	39200	73	7730	11200	13	393	6180	7	117
6	37600	76	7720	11000	17	505	6180	6	100
7	35700	81	7810	10800	22	642	6140	7	116
8	33500	61	5520	10500	16	454	5930	4	64
9	31500	50	4250	10100	13	355	5790	6	94
10	30000	46	3730	9840	11	292	5690	4	61
11	28900	48	3750	9640	13	338	5620	5	76
12	28400	44	3370	9480	13	333	5580	6	90
13	28000	39	2950	9360	12	303	5650	6	92
14	25900	40	2800	9200	21	522	5550	5	75
15	23300	43	2710	8920	14	337	5690	7	108
16	21700	51	2990	8640	11	257	6000	9	146
17	20300	51	2800	8480	12	275	5900	8	127
18	19100	39	2010	8560	10	231	5720	6	93
19	18300	30	1480	8400	8	181	5580	7	105
20	17700	35	1670	8080	9	196	5480	4	59
21	17300	27	1260	7880	12	255	5760	7	109
22	17200	16	743	7680	9	187	5860	10	158
23	17000	18	826	7400	6	120	6040	9	147
24	16300	18	792	7640	6	124	6210	17	285
25	15800	16	683	7440	7	141	6530	15	264
26	15500	21	879	7440	15	301	6740	14	255
27	16000	17	734	7640	6	124	6630	13	233
28	15400	17	707	7520	6	122	6530	12	212
29	14300	16	618	7300	6	118	6280	13	220
30	13800	13	484	7120	6	115	6210	13	218
31	13400	11	398	6950	5	94	--	--	--
TOTAL	778700	--	134104	283010	--	8927	181230	--	4040

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 5077580
TOTAL LOAD FOR YEAR (TONS) 2676024

S COMPUTED BY SUBDIVIDING DAY.

12301990 FISHER RIVER ABOVE WOLF CREEK, NEAR LIBBY, MONT.

LOCATION.--Lat 48°13'00", long 115°16'20", in SE¼ sec.1, T.28 N., R.29 W., Lincoln County, at bridge 1.6 miles upstream from Wolf Creek and 18 miles southeast of Libby.
DRAINAGE AREA.--768 sq mi.
PERIOD OF RECORD.--Chemical analyses: June to September 1967 (miscellaneous), October 1967 to September 1969 (monthly).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)
OCT.												
01...	181	10	20	20	7.1	2.2	.4	94	0	4.7	.6	.0
NOV.												
04...	221	9.7	140	15	5.5	1.9	.8	76	0	3.3	.2	.0
DEC.												
03...	245	10	80	16	6.2	5.4	.6	83	0	5.5	.5	.1
JAN.												
07...	500	9.2	40	11	4.2	1.6	.4	62	0	3.0	.5	.0
FEB.												
04...	200	11	20	17	6.7	2.2	.6	95	0	4.3	.5	.2
MAR.												
05...	172	11	110	22	7.7	2.4	1.0	108	0	4.5	.4	.0
APR.												
03...	1450	13	100	14	4.8	2.2	1.1	72	0	4.7	.8	.2
MAY												
06...	1170	12	120	13	4.5	2.2	.8	63	0	4.7	.5	.1
JUNE												
03...	1220	6.1	200	8.1	2.9	1.4	.6	46	0	1.2	.4	.0
JULY												
02...	505	9.5	70	17	5.4	3.8	.7	81	0	11	1.0	.1
AUG.												
04...	136	11	30	22	8.8	2.9	1.2	118	0	4.5	1.0	.0
SEPT.												
02...	95	11	30	25	10	3.0	.9	136	0	6.0	.5	.0

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	DATE	TIME	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)
OCT 6, 1968	1830	158	5	2.1	APR 21.....	1750	1810	58	283
OCT 20.....	1845	227	3	1.8	APR 24.....	1240	3140	484	4100
OCT 26.....	1425	297	4	3.2	MAY 6.....	0915	1240	34	114
NOV 9.....	1530	201	4	2.2	MAY 6.....	1810	1230	24	80
NOV 24.....	1640	399	5	5.4	MAY 21.....	1645	1260	28	95
DEC 8.....	1525	D 235	2	1.3	MAY 21.....	1745	1250	28	95
DEC 21.....	1320	D 120	9	2.9	JUN 3.....	0930	1210	30	98
JAN 5, 1969	1305	D 464	18	23	JUN 3.....	1630	1170	39	123
JAN 18.....	1435	D 230	6	3.7	JUN 20.....	1515	439	8	9.5
FEB 8.....	1425	D 196	10	5.3	JUL 7.....	1225	417	5	5.6
FEB 24.....	1200	D 252	6	4.1	JUL 20.....	1430	218	4	2.4
MAR 8.....	1655	D 137	21	7.8	AUG 3.....	0620	138	14	5.2
MAR 20.....	1615	D 227	48	29	AUG 18.....	1235	111	3	.90
APR 6.....	1725	1680	194	880	SEP 7.....	1420	99	6	1.6
APR 8.....	1000	1960	203	1070	SEP 21.....	1220	118	3	.96
APR 18.....	0830	D 2040	115	633					

D DAILY MEAN DISCHARGE.

12301990 FISHER RIVER ABOVE WOLF CREEK, NEAR LIBBY, MONT.--Continued

PERIOD OF RECORD.--Continued:
Sediment records: February 1968 to September 1969 (partial record).
REMARKS.--Water discharge computed by subtracting the discharge of Wolf Creek near Libby (station 12301999) from that of Fisher River near Jennings (station 12302000). Flow affected by ice during most of winter period.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM COBALT UNITS)
OCT.											
01...	.1	0	87	.12	42.5	79	2	.1	157	7.5	4
NOV.											
04...	.1	20	85	.12	50.7	59	0	.1	125	7.6	1
DEC.											
03...	.3	10	90	.12	59.5	66	0	.3	217	8.0	3
JAN.											
07...	.1	20	71	.10	95.8	45	0	.1	101	7.7	1
FEB.											
04...	.2	10	100	.14	54.0	70	0	.1	153	7.8	1
MAR.											
05...	.0	0	99	.13	46.0	87	0	.1	172	7.8	3
APR.											
03...	.2	10	84	.11	329	54	0	.1	119	7.5	7
MAY											
06...	.2	0	95	.13	300	52	0	.1	111	7.8	4
JUNE											
03...	.2	0	50	.07	165	32	0	.1	73	7.4	3
JULY											
02...	.0	0	87	.12	119	65	0	.2	126	7.4	5
AUG.											
04...	.0	0	114	.16	41.9	91	0	.1	187	7.7	5
SEPT.											
02...	.0	0	121	.16	31.0	104	0	.1	213	7.8	4

12301999 WOLF CREEK NEAR LIBBY, MONT.

LOCATION (revised).--Lat 48°14'01", long 115°16'25", in SE¼NE¼ sec.34, T.29 N., R.29 W., Lincoln County, at bridge 0.4 mile downstream from gaging station, 0.6 mile upstream from mouth, and 16.5 miles southeast of Libby.
DRAINAGE AREA.--216 sq mi (at gaging station).
PERIOD OF RECORD.--Chemical analyses: June to September 1967 (miscellaneous), October 1967 to September 1969 (daily).
Water temperatures: August 1967 to September 1969.
Sediment records: September 1967 to September 1969.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 145 mg/l Sept. 1-30; minimum, 79 mg/l May 1-17.
Hardness: Maximum, 107 mg/l Sept. 1-30; minimum, 34 mg/l May 1-17.
Specific conductance: Maximum daily, 242 micromhos Sept. 14; minimum daily, 65 micrombos May 12.
Water temperatures: Maximum, 22.0°C on several days during July and August; minimum, freezing point on many days during winter period.
Sediment concentrations: Maximum daily, 976 mg/l Apr. 24; minimum daily, 1 mg/l on many days during September.
Sediment loads: Maximum daily, 3,460 tons Apr. 24; minimum daily, 0.03 ton on several days during September.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)
OCT.												
01-31	19	15	--	26	5.7	7.6	2.3	116	0	12	1.6	.1
NOV.												
01-30	24	16	--	22	4.9	6.7	2.0	104	0	10	2.2	.2
DEC.												
01-31	23	17	--	25	5.1	6.8	2.0	106	0	13	2.4	.2
JAN.												
01-30	20	19	--	23	5.0	6.6	1.8	105	0	11	1.7	.2
31...	30	17	--	25	5.0	6.8	2.1	112	0	9.5	1.8	.2
FEB.												
01-28	30	17	--	25	5.0	6.8	2.1	112	0	9.5	1.8	.2
MAR.												
01-28	40	17	--	24	5.2	6.7	3.5	108	0	11	2.2	.3
29-31	395	20	--	18	3.8	7.2	2.7	70	0	14	.9	.2
APR.												
01-03	395	20	--	18	3.8	7.2	2.7	70	0	14	.9	.2
04-11	903	20	--	16	3.1	4.2	2.3	58	0	14	.5	.2
12-30	734	18	--	12	2.3	4.1	1.5	44	0	8.0	.7	.2
MAY												
01-17	366	16	--	10	2.2	3.2	1.2	43	0	6.2	1.0	.1
18-27	143	17	--	14	2.1	5.2	1.4	60	0	4.5	1.0	.1
28-31	79	16	--	21	4.1	5.2	2.0	89	0	8.2	1.2	.1
JUNE												
01-18	79	16	--	21	4.1	5.2	2.0	89	0	8.2	1.2	.1
19-27	85	17	--	22	4.4	6.0	2.0	92	0	8.7	1.2	.1
28-30	228	17	--	13	2.8	3.9	1.5	57	0	6.5	.8	.2
JULY												
01-07	228	17	--	13	2.8	3.9	1.5	57	0	6.5	.8	.2
08-14	76	16	--	19	4.2	5.5	1.8	87	0	7.3	1.0	.1
15-23	40	17	--	22	5.2	6.4	2.1	108	0	8.8	2.1	.1
24-31	25	16	--	24	6.0	7.5	2.3	121	0	9.0	1.9	.2
AUG.												
01-31	15	14	--	28	6.7	7.7	2.3	133	0	9.5	1.8	.2
SEPT.												
01-30	12	16	--	31	7.1	8.0	2.5	142	0	10	2.0	.1
WTD. AVG. TIME	--	18	--	15	3.1	4.7	1.8	62	0	9.3	1.0	.2
WTD. AVG. TONS PER DAY	116	17	--	23	4.9	6.4	2.1	101	0	9	1.7	.2
	--	5.6	--	4.8	1.0	1.5	.6	19	0	2.9	.3	.1
ANALYSES OF ADDITIONAL SAMPLES (DISCHARGE AT TIME OF SAMPLING)												
OCT.												
01...	15	15	--	27	6.1	8.6	2.1	121	0	13	2.3	.2
NOV.												
04...	19	15	--	25	5.3	6.8	2.5	108	0	10	2.0	.1
DEC.												
03...	27	17	260	22	4.9	7.0	2.0	104	0	11	2.4	.3
JAN.												
07...	24	16	150	21	5.0	6.4	2.0	105	0	9.0	1.8	.1
FEB.												
04...	33	18	120	23	4.8	6.2	1.8	104	0	10	2.3	.2
MAR.												
05...	26	16	120	24	5.4	6.8	2.1	114	0	11	1.8	.2
APR.												
02...	534	20	300	14	3.4	5.3	3.1	66	0	12	1.2	.3
MAY												
06...	327	17	120	12	2.8	3.9	1.4	50	0	7.5	.7	.1
JUNE												
03...	81	13	110	17	4.4	5.0	1.9	82	0	7.8	1.6	.2
JULY												
02...	219	17	280	13	2.8	3.8	1.3	56	0	8.0	1.6	.2
AUG.												
04...	21	15	70	27	6.3	7.3	2.6	123	0	10	1.4	.1
SEPT.												
02...	12	14	110	27	7.4	10	4.5	141	0	10	1.8	.2

12301999 WOLF CREEK NEAR LIBBY, MONT.--Continued

Period of record:
Dissolved solids: Maximum, 179 mg/l Dec. 12-25, 1967; minimum, 79 mg/l May 1-17, 1969.
Hardness: Maximum, 132 mg/l Dec. 12-25, 1967; minimum, 34 mg/l May 1-17, 1969.
Specific conductance: Maximum daily, 308 micromhos Dec. 15, 1967; minimum daily, 65 micromhos May 12, 1969.
Water temperatures: Maximum, 24.0°C July 7-9, 11, 1968; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 1,000 mg/l Feb. 20, 1968; minimum daily, 1 mg/l on many days during September 1969.
Sediment loads: Maximum daily, 3,460 tons Apr. 24, 1969; minimum daily, 0.03 ton on several days during September 1969.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Temperature recorder at gaging station 0.4 mile upstream from sampling site. Flow affected by ice Nov. 17-19, Nov. 28 to Mar. 28. During periods of ice effect, sediment samples are taken in open channel.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	MON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM COBALT UNITS)
OCT.											
01-31	.2	10	136	.18	6.98	88	0	.4	206	7.9	7
NOV.											
01-30	.1	10	126	.17	8.16	75	0	.3	185	7.9	1
DEC.											
01-31	.1	30	127	.17	7.89	83	0	.3	188	7.8	5
JAN.											
01-30	.5	10	128	.17	6.91	78	0	.3	186	7.8	2
31...	.1	0	122	.17	9.88	83	0	.3	200	8.0	4
FEB.											
01-28	.1	0	122	.17	9.88	83	0	.3	200	8.0	4
MAR.											
01-28	.2	10	128	.17	13.8	81	0	.3	192	7.8	5
29-31	.4	30	129	.18	138	60	2	.4	141	7.7	45
APR.											
01-03	.4	30	129	.18	138	60	2	.4	141	7.7	45
04-11	.5	0	123	.17	300	53	5	.3	115	7.6	60
12-30	.4	0	100	.14	198	40	4	.3	87	7.6	50
MAY											
01-17	.3	0	79	.11	78.1	34	0	.2	83	7.6	36
18-27	.2	0	87	.12	33.6	43	0	.3	112	7.7	21
28-31	.1	0	104	.14	22.2	69	0	.3	152	7.9	14
JUNE											
01-18	.1	0	104	.14	22.2	69	0	.3	152	7.9	14
19-27	.3	0	109	.15	25.0	73	0	.3	160	7.9	13
28-30	.2	0	84	.11	51.7	43	0	.3	103	7.6	30
JULY											
01-07	.2	0	84	.11	51.7	43	0	.3	103	7.6	30
08-14	.1	0	104	.14	21.3	65	0	.3	151	7.6	20
15-23	.1	0	117	.16	12.6	76	0	.3	181	7.7	6
24-31	.1	0	128	.17	8.64	85	0	.4	204	7.8	8
AUG.											
01-31	.1	0	139	.19	5.63	97	0	.3	233	7.7	7
SEPT.											
01-30	.0	0	145	.20	4.70	107	0	.3	237	7.6	9
WTD. AVG. TIME	.3	0	106	.15	--	51	2	--	116	7.7	--
WTD. AVG. TONS PER DAY	.1	0	--	--	33.6	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES											
OCT.											
01...	.1	10	138	.19	5.59	92	0	.4	226	7.5	5
NOV.											
04...	.1	10	134	.18	6.87	84	0	.3	191	7.7	4
DEC.											
03...	.1	20	128	.17	9.33	75	0	.4	182	7.8	6
JAN.											
07...	.1	70	124	.17	8.04	73	0	.3	182	7.8	2
FEB.											
04...	.1	30	132	.18	11.8	77	0	.3	185	7.7	2
MAR.											
05...	.0	0	134	.18	9.41	82	0	.3	203	7.9	3
APR.											
02...	1.2	40	117	.16	169	50	0	.3	127	7.3	45
MAY											
06...	.3	20	91	.12	80.3	42	1	.3	103	7.9	24
JUNE											
03...	.3	20	103	.14	22.5	61	0	.3	146	7.5	15
JULY											
02...	.1	10	83	.11	49.1	44	0	.2	103	7.3	25
AUG.											
04...	.0	20	145	.20	8.22	93	0	.3	220	7.8	2
SEPT.											
02...	.2	0	143	.19	4.63	98	0	.4	238	7.8	5

12301999 WOLF CREEK NEAR LIBBY, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221	190	181	185	192	195	130	88	134	99	211	222
2	219	194	189	185	180	193	122	91	136	98	217	227
3	221	192	175	198	181	194	127	93	143	105	212	231
4	221	189	174	199	181	193	117	97	150	114	217	231
5	232	194	181	192	183	204	121	92	156	119	215	229
6	221	147	175	190	182	203	116	113	163	124	215	229
7	221	192	192	181	188	193	116	83	165	110	217	229
8	221	190	186	184	183	194	126	75	165	137	212	229
9	218	193	191	184	182	195	105	74	143	141	199	229
10	218	190	191	182	192	196	101	71	99	155	218	236
11	218	186	186	184	190	201	103	66	156	151	218	233
12	218	187	184	184	190	203	96	65	164	157	222	238
13	212	190	192	181	190	201	96	69	165	166	225	234
14	207	188	185	183	197	200	91	73	143	138	218	242
15	206	184	183	181	190	195	91	76	143	170	220	236
16	205	183	183	184	190	191	94	83	150	172	223	240
17	203	183	183	190	183	190	88	91	157	174	225	240
18	201	184	184	181	190	194	88	97	165	177	225	234
19	205	182	181	181	192	181	79	101	172	168	232	236
20	196	175	192	181	192	184	83	104	173	175	225	231
21	201	182	194	181	202	182	90	107	175	187	232	231
22	196	183	184	175	202	181	89	113	180	168	230	224
23	193	182	192	183	194	181	81	118	182	160	232	224
24	192	183	194	182	193	182	84	120	184	199	228	229
25	192	182	193	183	193	194	75	125	184	188	230	231
26	191	183	193	181	194	181	76	129	163	158	228	234
27	191	174	185	182	193	181	84	132	133	204	234	234
28	191	182	190	182	194	179	88	136	89	179	230	236
29	190	183	192	182	--	170	86	140	89	201	230	238
30	192	180	194	183	--	162	78	147	88	204	232	240
31	191	--	194	202	--	148	--	152	--	212	230	--
AVG	206	184	186	184	189	188	97	100	150	158	222	232

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	11	10	8	7	7	8	7	6	6	7	6	7	7	6	6	5	4	4	5	5	5	6	6	5	5	5	4	4	4	5	4	6
MINIMUM	10	7	6	5	5	6	6	5	4	5	5	6	6	5	5	4	3	3	3	4	4	4	4	4	4	4	3	2	2	4	3	5
NOVEMBER																																
MAXIMUM	3	2	3	3	3	3	2	1	1	2	2	2	2	1	0	0	0	0	0	1	1	2	2	1	0	1	1	0	0	0	--	1
MINIMUM	2	1	2	2	2	2	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	--	1
DECEMBER																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JANUARY																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FEBRUARY																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0
MARCH																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0
APRIL																																
MAXIMUM	2	3	3	3	4	4	4	4	4	5	4	5	6	5	5	5	6	6	6	5	6	7	8	7	6	4	6	7	7	6	--	5
MINIMUM	2	2	2	2	3	3	3	3	4	4	4	4	5	4	5	5	5	6	5	5	5	6	7	6	4	4	4	6	6	5	--	4
MAY																																
MAXIMUM	6	6	7	8	9	10	10	10	10	10	10	11	10	10	10	12	13	13	12	13	14	15	15	15	15	14	14	14	13	14		11
MINIMUM	5	5	6	6	6	8	8	8	9	9	9	9	10	10	9	8	9	9	10	9	9	10	11	12	12	13	13	12	12	12	11	9
JUNE																																
MAXIMUM	13	15	17	18	18	16	16	15	16	17	16	16	14	14	14	17	17	19	17	20	17	16	16	15	13	12	11	10	10	10	--	15
MINIMUM	10	12	14	14	15	14	14	14	14	14	13	12	10	10	12	12	14	15	16	15	16	15	14	13	12	11	10	10	10	9	--	13
JULY																																
MAXIMUM	14	14	14	12	12	14	15	16	17	18	17	16	17	17	17	18	18	19	20	21	21	21	22	22	20	20	21	22	21	21	22	18
MINIMUM	10	11	12	11	10	10	11	13	14	15	16	15	14	14	14	14	14	15	15	16	16	16	16	17	17	14	15	16	16	15	15	14
AUGUST																																
MAXIMUM	22	22	22	22	18	18	19	20	21	21	20	19	19	20	21	20	19	18	18	19	20	21	21	22	21	18	18	16	16	16	16	19
MINIMUM	15	15	15	15	15	12	13	14	14	15	15	15	13	14	15	16	13	14	14	14	15	15	16	17	16	14	15	12	11	12	12	14
SEPTEMBER																																
MAXIMUM	17	16	16	13	12	13	14	15	16	17	17	17	17	14	11	12	13	12	13	12	12	12	12	12	12	12	12	13	13	13	--	14
MINIMUM	12	12	12	12	10	9	10	11	12	14	13	14	14	11	9	9	10	11	11	10	11	10	11	10	10	10	10	12	11	12	--	11

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS B, BOTTOM WITHDRAWAL TUBE C, CHEMICALLY DISPERSED N, IN NATIVE WATER P, PIPET S, SIEVE
V, VISUAL ACCUMULATION TUBE W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
MAR 31, 1969	1330	3	330	571	509	--	13	--	55	--	100	--	--	--	--	--	PWC
APR 2.....	0935	2	534	408	588	--	16	--	58	--	95	98	99	100	--	--	VPWC
APR 7.....	0955	3	1170	992	3130	--	15	--	50	--	93	98	99	100	--	--	VPWC
APR 8.....	1310		1050	307	870	--	16	--	56	--	95	99	100	--	--	--	VPWC
APR 24.....	1900	6	1610	1120	4870	--	17	--	54	--	90	96	99	100	--	--	VPWC

12301999 WOLF CREEK NEAR LIBBY, MONT.—Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	15	10	.40	21	4	.23	24	18	1.2
2	14	7	.26	20	4	.22	25	28	1.9
3	15	7	.28	20	3	.16	27	27	2.0
4	15	26	1.1	19	5	.26	28	59	4.5
5	15	49	2.0	19	8	.41	26	40	2.8
6	15	30	1.2	19	7	.36	25	20	1.4
7	15	18	.73	18	4	.19	24	25	1.6
8	15	30	1.2	18	3	.15	25	35	2.4
9	16	41	1.8	19	3	.15	25	37	2.5
10	14	19	.72	19	4	.21	26	42	2.9
11	14	16	.60	20	16	.86	27	31	2.3
12	17	35	1.6	21	12	.68	25	23	1.6
13	18	28	1.4	23	6	.37	22	13	.77
14	19	16	.82	27	15	1.1	23	22	1.4
15	21	17	.96	29	30	2.3	24	16	1.0
16	20	17	.92	27	22	1.6	25	30	2.0
17	20	12	.65	24	43	2.8	24	26	1.7
18	20	10	.54	21	44	2.5	22	28	1.7
19	19	8	.41	22	11	.65	21	20	1.1
20	20	7	.38	24	11	.71	20	9	.49
21	21	12	.68	24	9	.58	20	15	.81
22	23	12	.75	26	18	1.3	21	9	.51
23	24	9	.58	30	14	1.1	23	20	1.2
24	23	8	.50	31	13	1.1	24	30	1.9
25	22	10	.59	32	13	1.1	25	50	3.4
26	22	15	.89	31	8	.67	24	24	1.6
27	21	6	.34	30	8	.65	22	21	1.2
28	21	10	.57	28	14	1.1	20	10	.54
29	21	6	.34	26	12	.84	15	10	.40
30	21	5	.28	25	12	.81	10	12	.32
31	21	13	.74	--	--	--	12	9	.29
TOTAL	577	--	24.23	713	--	25.16	704	--	49.43

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	15	14	.57	24	15	.97	25	11	.74
2	18	16	.78	27	14	1.0	26	9	.63
3	21	26	1.5	30	11	.89	26	13	.91
4	24	24	1.6	33	17	1.5	26	16	1.1
5	26	19	1.3	34	13	1.2	26	14	.98
6	25	24	1.6	34	12	1.1	25	18	1.2
7	24	46	3.0	34	12	1.1	25	22	1.5
8	23	36	2.2	34	12	1.1	23	19	1.2
9	23	54	3.4	34	15	1.4	27	21	1.2
10	22	52	3.1	35	16	1.5	22	28	1.7
11	22	46	2.7	35	15	1.4	24	35	2.3
12	22	27	1.6	34	18	1.7	26	30	2.1
13	22	29	1.7	33	20	1.8	28	15	1.1
14	22	48	2.9	32	15	1.3	29	12	.94
15	21	41	2.3	33	15	1.3	29	14	1.1
16	21	27	1.5	32	16	1.4	31	18	1.5
17	21	30	1.7	31	22	1.8	35	35	3.3
18	20	27	1.5	30	10	.81	40	50	5.4
19	20	12	.65	29	13	1.0	43	45	5.2
20	20	11	.59	28	19	1.4	46	40	5.0
21	19	9	.46	27	18	1.3	48	53	6.9
22	18	9	.44	26	14	.98	50	54	7.3
23	17	9	.41	27	10	.73	52	31	4.4
24	17	12	.55	28	11	.83	55	41	6.1
25	17	8	.37	27	11	.80	60	50	8.1
26	18	9	.44	26	13	.91	70	110	21
27	18	10	.49	25	13	.88	85	191	44
28	18	10	.49	24	9	.58	110	266	79
29	19	9	.46	--	--	--	156	258	109
30	20	13	.70	--	--	--	218	265	156
31	22	9	.53	--	--	--	339	540	494
TOTAL	635	--	41.53	846	--	32.68	1820	--	974.90

12301999 WOLF CREEK NEAR LIBBY, MONT.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	518	708	990	437	61	72	110	8	2.4
2	534	402	580	385	58	60	93	8	2.0
3	607	509	834	348	57	54	81	10	2.2
4	655	382	676	316	56	48	73	9	1.8
5	655	317	561	295	49	39	66	7	1.2
6	863	698	1630	317	51	44	62	8	1.3
7	1130	880	2680	375	60	61	68	8	1.5
8	1050	339	961	414	57	64	89	9	2.2
9	976	281	740	410	47	52	74	9	1.8
10	960	198	513	438	53	63	64	14	2.4
11	938	199	504	471	52	66	59	11	1.8
12	856	266	615	448	41	50	69	20	3.7
13	882	188	448	398	35	38	98	18	4.8
14	864	132	308	353	34	32	93	11	2.8
15	738	118	235	312	53	45	74	10	2.0
16	666	98	176	270	32	23	64	10	1.7
17	670	80	145	228	31	19	57	8	1.2
18	761	80	164	203	23	13	52	5	.70
19	798	80	172	185	18	9.0	49	5	.66
20	677	75	137	168	19	8.6	47	5	.63
21	539	90	131	154	19	7.9	43	11	1.3
22	494	90	120	141	14	5.3	40	8	.86
23	668	200	361	131	10	3.5	39	5	.53
24	1270	976	S 3460	124	7	2.3	61	83	14
25	1190	373	1200	117	8	2.5	91	54	13
26	788	161	343	107	7	2.0	144	51	20
27	578	108	169	99	7	1.9	255	93	64
28	497	75	101	93	5	1.3	369	85	85
29	495	60	80	88	6	1.4	312	50	42
30	517	60	84	96	8	2.1	341	43	40
31	--	--	--	116	10	3.1	--	--	--
TOTAL	22834	--	19118	8037	--	893.9	3137	--	319.48

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	294	32	25	20	5	.27	12	1	.03
2	225	21	13	20	4	.22	12	1	.03
3	185	15	7.5	20	8	.43	11	8	.24
4	161	13	5.7	20	6	.32	12	2	.06
5	144	15	5.8	19	5	.26	12	1	.03
6	132	11	3.9	19	5	.26	12	1	.03
7	119	8	2.6	19	3	.15	12	2	.06
8	106	8	2.3	18	5	.24	12	1	.03
9	92	9	2.2	18	5	.24	11	2	.06
10	80	5	1.1	17	3	.14	11	1	.03
11	71	5	.96	17	3	.14	11	3	.09
12	65	6	1.1	17	5	.23	11	1	.03
13	60	7	1.1	16	3	.13	11	1	.03
14	55	4	.59	16	9	.39	11	1	.03
15	51	7	.96	15	6	.24	11	1	.03
16	48	5	.65	15	2	.08	11	1	.03
17	45	4	.49	14	4	.15	11	1	.03
18	42	5	.57	14	2	.08	11	2	.06
19	38	14	1.4	14	6	.23	11	2	.06
20	37	7	.70	14	5	.19	12	4	.13
21	34	4	.37	13	5	.18	13	1	.04
22	31	3	.25	13	2	.07	13	3	.11
23	31	4	.33	13	3	.11	13	1	.04
24	30	7	.57	13	3	.11	13	1	.04
25	27	7	.51	13	3	.11	12	1	.03
26	25	5	.34	12	3	.10	12	1	.03
27	25	3	.20	12	3	.10	12	1	.03
28	25	9	.61	12	10	.32	12	1	.03
29	23	6	.37	12	5	.16	12	2	.06
30	22	4	.24	12	4	.13	12	1	.03
31	21	4	.23	12	7	.23	--	--	--
TOTAL	2344	--	81.64	479	--	6.01	352	--	1.56

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 42478
TOTAL LOAD FOR YEAR (TONS) 21568.52

S COMPUTED BY SUBDIVIDING DAY.

12302000 FISHER RIVER NEAR JENNINGS, MONT.

LOCATION.--Lat 48°14'33", long 115°17'30", in NW¼NE¼SW¼ sec.27, T.29 N., R.29 W., Lincoln County, temperature recorder at gaging station on left bank, 0.4 mile downstream from bridge, 2.3 miles downstream from Wolf Creek, 8.5 miles southeast of Jennings, and 8.6 miles upstream from mouth.

DRAINAGE AREA.--780 sq mi.

PERIOD OF RECORD.--Water temperatures: May 1963 to September 1969 (seasonal records only), discontinued.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C July 25.

Period of record:
Water temperatures: Maximum, 22.0°C on several days in 1965, 1968, and 1969.

REMARKS.--Recorder removed Nov. 4 to Mar. 27. Recorder stopped Apr. 30 to May 6, May 22 to June 3, July 27 to Aug. 8, Sept. 6-30. Records furnished by Corps of Engineers, U.S. Army.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	12	9	8	8	8	8	8	7	8	8	7	7	7	7	6	6	6	6	6	6	7	7	7	7	7	6	4	5	7	6	7
MINIMUM	9	7	5	6	5	7	6	5	4	6	6	6	6	4	5	4	3	4	4	4	4	5	4	4	5	4	3	2	3	4	4	5
NOVEMBER																																
MAXIMUM	5	3	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	2	1	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DECEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JANUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MARCH																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	6	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	2	3	2	--
APRIL																																
MAXIMUM	5	6	6	5	7	7	6	6	7	7	6	7	7	7	8	8	8	8	8	9	10	11	9	8	8	9	9	9	8	--	--	8
MINIMUM	2	2	3	3	3	3	3	3	3	3	3	4	5	4	5	4	6	5	4	4	6	7	6	4	4	5	6	6	6	--	--	4
MAY																																
MAXIMUM	--	--	--	--	--	--	12	11	12	12	11	11	11	11	10	9	11	12	12	13	10	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	7	7	7	7	7	7	7	7	8	7	8	8	8	8	7	--	--	--	--	--	--	--	--	--	--	--
JUNE																																
MAXIMUM	--	--	--	16	16	13	13	14	14	14	15	15	14	15	15	17	17	18	18	18	18	15	14	14	13	12	14	14	13	14	--	15
MINIMUM	--	--	--	9	10	10	10	11	11	11	10	11	8	11	11	12	13	13	14	13	14	13	12	12	11	11	10	11	11	11	--	11
JULY																																
MAXIMUM	16	16	16	14	14	16	16	19	19	19	18	17	18	18	18	19	19	20	21	21	21	21	21	21	22	19	--	--	--	--	--	18
MINIMUM	11	13	13	11	12	12	12	14	14	15	16	14	13	13	13	13	14	14	14	16	15	15	16	16	17	14	--	--	--	--	--	14
AUGUST																																
MAXIMUM	--	--	--	--	--	--	--	--	21	21	20	19	19	19	21	21	19	19	19	19	21	21	21	21	21	19	19	18	17	17	17	--
MINIMUM	--	--	--	--	--	--	--	--	15	15	15	13	14	16	16	13	14	13	14	15	16	16	17	16	14	14	13	12	12	12	--	--
SEPTEMBER																																
MAXIMUM	18	18	18	16	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	13	13	13	13	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

12302055 FISHER RIVER NEAR LIBBY, MONT.

LOCATION.--Lat 48°21'02", long 115°18'40", in SE¼SE¼NW¼ sec.21, T.30 N., R.29 W., Lincoln County, at bridge 0.2 mile upstream from gaging station, 1 mile upstream from mouth, and 11.6 miles east of Libby.
DRAINAGE AREA.--838 sq mi (at gaging station).
PERIOD OF RECORD.--Chemical analyses: June to September 1967 (miscellaneous), October 1967 to September 1969 (daily).
Water temperatures: September 1967 to September 1969.
Sediment records: September 1967 to September 1969.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 143 mg/l Sept. 1-30; minimum, 66 mg/l May 8-29.
Hardness: Maximum, 123 mg/l Sept. 1-30; minimum, 41 mg/l May 8-29.
Specific conductance: Maximum daily, 254 micromhos Sept. 13; minimum daily, 63 micromhos May 30.
Water temperatures: Maximum, 22.0°C Aug. 23, 24; minimum, freezing point on many days during winter period.
Sediment concentrations: Maximum daily, 876 mg/l Apr. 24; minimum daily, 2 mg/l on several days during November, August, and September.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS- CHARGE (CFS)	SILICA (SIO2) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	CAL- CIUM (CA) (MG/L)	MAG- NE- SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO- RIDE (CL) (MG/L)	FLUO- RIDE (F) (MG/L)
OCT.												
01-12	183	11	--	21	7.9	3.2	1.2	112	0	4.7	.5	.0
13-31	283	10	--	18	6.1	2.4	1.0	88	0	5.0	.4	.0
NOV.												
01-12	253	11	--	18	6.3	3.1	.8	93	0	5.0	1.3	.1
13-30	339	11	--	16	5.7	2.4	.6	84	0	4.8	.7	.1
DEC.												
01-19	286	11	--	18	6.3	2.7	.8	93	0	2.5	.7	.1
20-29	172	12	--	20	7.3	3.2	.8	106	0	5.3	.7	.1
30-31	267	13	--	22	8.3	3.3	1.0	121	0	5.3	.7	.2
JAN.												
01-05	267	13	--	22	8.3	3.3	1.0	121	0	5.3	.7	.2
06-21	333	11	--	16	5.5	2.3	.8	82	0	3.5	.6	.1
22-31	216	12	--	19	6.9	3.1	1.0	103	0	5.0	.7	.1
FEB.												
01-13	255	11	--	21	8.4	2.8	.5	107	0	4.7	.6	.1
14-28	291	11	--	23	8.4	3.0	1.0	114	0	6.0	.6	.1
MAR.												
01-27	258	12	--	22	7.9	3.2	1.0	109	0	8.7	.6	.1
28-31	1530	15	--	20	5.5	3.1	1.5	78	0	7.2	.3	.1
APR.												
01-05	1530	15	--	20	5.5	3.1	1.5	78	0	7.2	.3	.1
06-18	2780	15	--	18	4.5	3.0	1.3	70	0	6.2	.5	.2
19-30	2910	14	--	16	3.7	2.5	1.0	62	0	5.0	.6	.1
MAY												
01-07	1690	13	--	14	4.2	3.0	1.0	66	0	4.7	.8	.1
08-29	1870	11	--	11	3.2	1.7	1.0	52	0	3.0	.3	.0
30-31	1090	8.8	--	13	3.7	1.9	.7	60	0	3.0	1.6	.1
JUNE												
01-16	1090	8.8	--	13	3.7	1.9	.7	60	0	3.0	1.6	.1
17-29	658	11	--	18	5.2	2.7	.9	81	0	4.0	1.2	.1
30...	596	12	--	20	6.7	3.9	1.1	97	0	5.5	.6	.1
JULY												
01-15	596	12	--	20	6.7	3.9	1.1	97	0	5.5	.6	.1
16-31	271	12	--	24	8.2	3.4	1.1	117	0	5.3	1.1	.1
AUG.												
01-31	159	11	--	28	9.9	3.8	1.4	141	0	4.7	1.2	.1
SEPT.												
01-30	131	11	--	31	11	3.9	1.3	150	0	4.5	1.1	.1
WTD. AVG.	--	12	--	17	5.0	2.6	1.0	76	0	4.8	.7	.1
TIME												
WTD. AVG.	648	11	--	20	6.9	3.0	1.0	99	0	4.9	.8	.1
TONS PER DAY	--	22	--	29	8.8	4.6	1.8	133	0	8.4	1.2	.2
ANALYSES OF ADDITIONAL SAMPLES (DISCHARGE AT TIME OF SAMPLING)												
DEC.												
03...	275	12	150	19	6.3	2.6	1.0	93	0	5.5	1.4	.2
JAN.												
07...	527	9.5	40	14	5.0	2.2	.8	75	0	3.7	.7	.1
FEB.												
04...	252	11	40	21	7.3	2.8	.8	102	0	4.8	.7	.1
MAR.												
05...	213	11	30	22	8.0	3.7	1.0	115	0	4.8	.6	.1
APR.												
02...	1940	15	100	15	4.7	5.0	1.5	76	0	12	1.0	.2
MAY												
06...	1510	13	80	14	4.1	2.6	1.0	68	0	6.0	.2	1.1
JUNE												
03...	1270	8.0	50	21	7.7	2.7	1.3	110	0	4.2	.6	.1
JULY												
02...	777	12	120	18	5.2	2.6	.8	82	0	5.0	1.0	.1
AUG.												
04...	193	11	60	26	9.8	3.6	1.4	137	0	6.0	4.5	.0
SEPT.												
02...	120	11	30	30	11	3.7	2.4	150	0	5.5	1.0	.1

12302055 FISHER RIVER NEAR LIBBY, MONT.--Continued

EXTREMES.--1968-69--Continued:
Sediment loads: Maximum daily, 10,000 tons Apr. 24; minimum daily, 0.63 ton Sept. 13.
Period of record:
Dissolved solids: Maximum, 143 mg/l Sept. 1-30, 1969; minimum, 56 mg/l June 1-13, 1968.
Hardness: Maximum, 123 mg/l Sept. 1-30, 1969; minimum, 36 mg/l May 12-31, 1968.
Specific conductance: Maximum daily, 254 micromhos Sept. 13, 1969; minimum daily, 63 micromhos May 30, 1969.
Water temperatures: Maximum recorded, 24.0°C July 11, Aug. 3, 1968; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 1,300 mg/l Jan. 28, 1968; minimum daily, 1 mg/l Sept. 17, 22, 1967.
Sediment loads: Maximum daily, 10,000 tons Apr. 24, 1969; minimum daily, 0.30 ton Sept. 17, 22, 1967.
REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Temperature recorder at gaging station 0.2 mile downstream from sampling site. Recorder inoperative May 16-27. Flow affected by ice during most of winter period. During periods of ice effect, sediment samples are taken in open channel.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM COBALT UNITS)
OCT.											
01-12	.1	10	115	.16	56.8	85	0	.2	179	7.9	2
13-31	.1	0	125	.17	95.5	70	0	.1	143	7.8	2
NOV.											
01-12	.1	0	94	.13	64.2	70	0	.2	161	8.2	1
13-30	.1	10	83	.11	76.0	63	0	.1	133	8.1	2
DEC.											
01-19	.0	10	97	.13	74.9	70	0	.1	149	7.9	1
20-29	.1	20	109	.15	50.6	80	0	.2	172	8.0	1
30-31	.1	10	125	.17	90.1	89	0	.2	196	7.9	1
JAN.											
01-05	.1	10	125	.17	90.1	89	0	.2	196	7.9	1
06-21	.1	10	89	.12	80.0	62	0	.1	134	7.9	1
22-31	.1	10	109	.15	63.6	75	0	.2	170	7.9	2
FEB.											
01-13	.0	0	107	.15	73.7	87	0	.1	183	8.0	1
14-28	.1	0	116	.16	91.1	92	0	.1	185	7.9	1
MAR.											
01-27	.2	0	123	.17	85.7	87	0	.1	184	8.1	3
28-31	.3	10	111	.15	459	72	7	.2	150	8.0	20
APR.											
01-05	.3	10	111	.15	459	72	7	.2	150	8.0	20
06-18	.3	30	110	.15	826	62	5	.2	123	7.7	40
19-30	.4	20	102	.14	801	56	5	.1	108	7.7	5
MAY											
01-07	.1	10	93	.13	424	52	0	.2	115	7.8	15
08-29	.1	10	66	.09	333	41	0	.1	87	7.8	10
30-31	.0	40	76	.10	224	47	0	.1	94	7.3	5
JUNE											
01-16	.0	40	76	.10	224	47	0	.1	94	7.3	5
17-29	.1	0	91	.12	162	66	0	.1	128	7.2	10
30...	.2	0	97	.13	156	77	0	.2	173	7.7	12
JULY											
01-15	.2	0	97	.13	156	77	0	.2	173	7.7	12
16-31	.1	0	110	.15	80.5	94	0	.2	186	7.8	5
AUG.											
01-31	.1	4	131	.18	56.2	111	0	.2	261	7.9	1
SEPT.											
01-30	.1	10	143	.19	50.6	123	0	.2	234	7.9	1
WTD. AVG.	.2	0	97	.13	--	62	2	--	129	7.8	--
WTD. AVG. TONS PER DAY	.1	9	107	--	--	78	1	.1	165	7.8	--
	.3	0	--	--	169	--	--	--	--	--	--

ANALYSES OF ADDITIONAL SAMPLES

DEC.											
03...	.1	80	94	.13	69.8	72	0	.1	155	8.0	3
JAN.											
07...	.0	30	75	.10	107	56	0	.1	137	8.0	2
FEB.											
04...	.1	110	107	.15	72.8	82	0	.1	166	8.1	1
MAR.											
05...	.0	0	105	.14	60.4	88	0	.2	194	7.9	5
APR.											
02...	.3	30	104	.14	545	57	0	.3	131	7.3	20
MAY											
06...	.1	30	91	.12	371	53	0	.2	113	7.4	10
JUNE											
03...	.3	0	104	.14	357	84	0	.1	179	7.7	1
JULY											
02...	.1	40	84	.11	176	66	0	.1	130	7.5	15
AUG.											
04...	.0	8	132	.18	68.8	105	0	.2	219	7.9	3
SEPT.											
02...	.0	2	135	.18	43.7	121	0	.1	243	8.1	5

12302055 FISHER RIVER NEAR LIBBY, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170	132	129	223	169	178	129	107	83	118	208	228
2	177	135	141	206	169	179	125	113	86	125	201	228
3	180	138	150	192	165	179	129	114	84	131	203	228
4	184	139	134	180	164	181	125	117	84	127	208	229
5	182	141	141	172	165	179	130	112	82	133	206	229
6	181	186	132	135	169	179	130	121	88	135	205	228
7	180	148	150	121	170	181	129	100	91	140	209	228
8	174	154	144	108	172	188	121	92	98	144	209	228
9	179	149	148	117	177	190	120	91	98	145	210	226
10	181	148	150	119	173	205	119	86	150	152	213	231
11	174	153	145	123	169	191	116	82	105	150	213	231
12	164	151	148	128	169	187	115	80	110	151	213	231
13	135	120	149	141	169	181	127	80	115	155	213	254
14	137	127	148	135	177	181	116	80	122	163	213	235
15	142	133	150	140	180	190	114	80	123	166	213	233
16	135	128	147	152	188	179	115	86	157	174	215	231
17	145	134	149	145	179	183	111	89	124	172	216	235
18	151	139	150	147	179	169	132	92	128	174	216	236
19	151	141	151	154	185	171	105	89	124	177	216	229
20	152	141	164	154	186	179	110	86	129	183	218	224
21	145	139	184	155	189	176	111	90	130	183	220	219
22	146	139	160	180	190	177	111	92	130	184	221	219
23	147	118	166	164	189	170	106	88	131	186	218	219
24	148	122	163	172	188	170	106	82	137	186	226	219
25	146	123	166	175	186	179	97	82	130	189	224	216
26	135	127	162	171	178	174	103	81	136	190	223	221
27	126	128	163	170	187	175	109	83	134	194	226	221
28	133	132	166	171	183	162	111	88	124	196	224	223
29	134	135	194	167	--	152	107	95	119	196	226	223
30	136	137	213	170	--	148	103	63	--	197	224	221
31	130	--	222	171	--	143	--	71	--	206	224	--
AVG	154	137	157	156	177	176	116	90	115	165	215	227

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	12	10	9	8	9	9	9	8	7	10	9	8	8	8	7	7	6	6	6	6	7	7	6	7	7	7	6	5	5	7	6	7
MINIMUM	10	8	7	6	6	8	8	6	5	7	8	7	7	6	6	5	4	5	5	6	5	6	5	5	6	6	4	4	4	5	5	6
NOVEMBER																																
MAXIMUM	5	4	5	5	5	4	4	3	3	4	3	4	4	4	3	2	2	2	3	4	3	4	4	3	3	3	4	3	2	2	--	3
MINIMUM	4	3	3	4	4	3	3	2	2	3	2	3	3	2	2	2	1	1	2	3	3	3	3	2	2	2	3	2	1	2	--	3
DECEMBER																																
MAXIMUM	2	2	3	3	2	1	1	1	1	2	3	3	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1
MINIMUM	2	1	2	2	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
JANUARY																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FEBRUARY																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0
MARCH																																
MAXIMUM	0	0	1	1	1	1	1	1	0	1	1	2	2	2	1	2	4	3	4	4	4	3	3	4	5	5	6	5	4	4	4	3
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	1
APRIL																																
MAXIMUM	4	4	4	4	5	5	4	4	5	5	5	6	6	6	6	7	7	7	7	6	7	8	8	8	6	6	7	7	7	6	--	6
MINIMUM	2	2	3	3	4	4	4	4	4	4	4	4	5	4	5	5	6	6	6	5	5	6	7	6	5	5	5	6	6	6	--	5
MAY																																
MAXIMUM	6	6	7	8	8	10	10	10	10	10	10	10	10	10	10	--	--	--	--	--	--	--	--	--	--	--	--	13	13	12	12	--
MINIMUM	6	6	6	6	7	7	9	9	9	9	9	9	10	10	10	--	--	--	--	--	--	--	--	--	--	--	--	11	12	12	11	--
JUNE																																
MAXIMUM	12	14	15	15	15	14	14	14	14	14	14	14	14	14	14	15	16	16	16	16	16	16	15	15	14	14	14	14	14	14	--	15
MINIMUM	12	12	14	14	14	14	13	13	13	14	13	13	12	13	14	14	15	15	15	15	16	15	15	14	14	13	13	13	13	13	--	14
JULY																																
MAXIMUM	15	16	16	16	16	16	17	17	18	18	18	18	18	18	18	18	18	19	20	21	21	21	21	21	21	20	20	21	21	21	21	19
MINIMUM	14	14	16	15	15	15	16	16	17	17	18	17	16	17	17	17	17	18	19	19	19	19	20	20	20	19	19	20	19	19	19	18
AUGUST																																
MAXIMUM	21	21	21	19	19	18	19	20	21	20	20	18	19	20	20	20	19	17	19	20	21	21	22	22	20	20	19	17	17	17	18	20
MINIMUM	19	19	19	17	15	13	14	14	15	16	16	15	13	14	16	16	14	14	14	14	15	16	16	18	16	14	15	13	12	12	12	15
SEPTEMBER																																
MAXIMUM	18	18	17	14	13	15	16	17	17	19	19	19	18	15	13	14	15	14	14	14	14	13	12	13	13	13	14	14	14	14	--	15
MINIMUM	13	14	13	13	11	10	11	12	14	15	15	15	15	12	9	10	11	12	12	11	11	11	11	11	11	11	11	13	12	12	--	12

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS B, BOTTOM WITHDRAWAL TUBE C, CHEMICALLY DISPERSED N, IN NATIVE WATER P, PIPET S, SIEVE V, VISUAL ACCUMULATION TUBE W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
APR 1, 1969	1545	5	1880	549	2790	--	12	--	42	--	83	91	99	100	--	--	VPWC
APR 2.....	1512	6	1920	251	1300	--	19	--	53	--	87	94	99	100	--	--	VPWC
APR 7.....	0930	4	3030	873	7140	--	15	--	43	--	82	90	98	100	--	--	VPWC
APR 10.....	1720	6	2920	227	1790	--	18	--	51	--	85	91	97	100	--	--	VPWC
APR 24.....	0740	7	4310	1330	15500	--	14	--	36	--	75	87	96	100	--	--	VPWC

12302055 FISHER RIVER NEAR LIBBY, MONT.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	195	4	2.1	293	5	4.0	294	7	5.6
2	181	4	2.0	274	3	2.2	281	7	5.3
3	172	6	2.8	267	5	3.6	278	6	4.5
4	169	70	32	263	3	2.1	352	27	26
5	175	48	23	252	3	2.0	339	14	13
6	172	13	6.0	241	3	2.0	300	13	11
7	182	7	3.4	232	3	1.9	270	11	8.0
8	180	5	2.4	223	3	1.8	287	23	18
9	173	6	2.8	228	2	1.2	276	11	8.2
10	170	5	2.3	233	3	1.9	264	6	4.3
11	181	6	2.9	233	2	1.3	304	7	5.7
12	247	15	10	297	7	5.6	313	5	4.2
13	325	14	12	366	10	9.9	257	7	4.9
14	303	9	7.4	345	8	7.5	273	5	3.7
15	289	30	23	328	4	3.5	289	10	7.8
16	312	20	17	319	4	3.4	280	9	6.8
17	284	6	4.6	294	6	4.8	265	8	5.7
18	265	5	3.6	274	5	3.7	255	7	4.8
19	254	4	2.7	267	8	5.8	251	7	4.7
20	248	4	2.7	270	12	8.7	186	11	5.5
21	270	4	2.9	281	5	3.8	150	17	6.9
22	267	6	4.3	329	11	9.8	160	86	37
23	264	5	3.6	457	31	38	175	171	81
24	260	4	2.8	447	16	19	190	72	37
25	271	5	3.7	415	9	10	200	67	36
26	305	6	4.9	381	7	7.2	190	73	37
27	305	5	4.1	359	7	6.8	180	74	36
28	287	3	2.3	334	4	3.6	160	74	32
29	276	4	3.0	313	3	2.5	130	105	37
30	277	3	2.2	320	6	5.2	120	110	36
31	312	5	4.2	--	--	--	140	65	25
TOTAL	7571	--	202.7	9135	--	182.8	7409	--	558.6

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	180	114	55	230	29	18	281	54	41
2	230	107	66	230	24	15	260	20	14
3	300	120	97	240	22	14	242	21	14
4	400	112	121	250	32	22	217	27	16
5	500	85	115	250	22	15	205	19	11
6	520	138	194	250	28	19	203	32	18
7	530	133	190	250	19	13	199	43	23
8	450	44	53	250	33	22	178	26	12
9	400	55	59	260	38	27	170	16	7.3
10	350	66	62	270	32	23	174	11	5.2
11	330	88	78	280	26	20	182	18	8.8
12	320	22	19	280	33	25	195	16	8.4
13	310	20	17	280	41	31	201	20	11
14	300	20	16	270	31	23	205	24	13
15	290	9	7.0	280	32	24	198	36	19
16	280	19	14	300	44	36	198	54	29
17	270	20	15	290	43	34	220	36	21
18	260	11	7.7	280	26	20	277	47	35
19	250	8	5.4	280	25	19	296	32	26
20	240	7	4.5	280	29	22	302	27	22
21	230	6	3.7	280	28	21	321	30	26
22	220	6	3.6	290	28	17	345	40	37
23	210	28	16	307	19	16	368	38	38
24	200	18	9.7	308	38	32	363	21	21
25	200	15	8.1	309	38	32	360	16	16
26	210	11	6.2	307	50	41	373	20	20
27	220	8	4.8	279	32	24	432	51	59
28	220	10	5.9	308	32	27	605	161	263
29	220	15	8.9	--	--	--	763	186	383
30	230	17	11	--	--	--	929	213	534
31	230	23	14	--	--	--	1290	394	1370
TOTAL	9100	--	1287.5	7688	--	652	10552	--	3121.7

12302055 FISHER RIVER NEAR LIBBY, MONT.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	1840	549	2730	2060	86	478	1460	76	300
2	1960	357	1890	1850	71	355	1290	46	160
3	2080	331	1860	1680	59	268	1250	37	125
4	2130	315	1810	1550	55	230	1240	37	124
5	2130	256	1470	1470	65	258	1180	36	115
6	2480	571	3820	1510	55	224	1100	32	95
7	3010	817	6640	1730	78	364	1060	26	74
8	3030	481	3940	1980	94	503	973	23	60
9	2950	358	2850	2090	93	525	931	20	50
10	2910	299	2350	2400	168	1090	868	9	21
11	2880	199	1550	2760	213	1590	788	12	26
12	2750	192	1430	2800	217	1640	840	34	77
13	2790	195	1470	2720	169	1240	827	26	58
14	2820	142	1080	2600	106	744	733	13	26
15	2640	127	905	2470	111	740	673	13	24
16	2530	118	806	2120	82	469	633	19	32
17	2570	112	777	1840	60	298	606	13	21
18	2820	117	890	1710	47	217	578	9	14
19	3030	116	949	1650	41	183	573	10	15
20	2860	139	1070	1620	40	175	545	10	15
21	2490	121	813	1460	34	134	515	9	13
22	2330	110	692	1350	33	120	515	8	11
23	2810	188	1430	1370	31	115	520	8	11
24	4230	876	10000	1460	44	173	578	22	34
25	4130	562	6270	1470	39	155	703	26	49
26	3220	268	2330	1460	31	122	745	21	42
27	2670	190	1370	1420	26	100	854	44	101
28	2360	139	886	1260	27	92	938	47	119
29	2380	128	823	1120	26	79	882	31	74
30	2350	114	723	1790	299	S 1710	889	23	55
31	--	--	--	1950	222	1170	--	--	--
TOTAL	81180	--	65624	56720	--	15561	25287	--	1941

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	814	18	40	207	6	3.4	126	4	1.4
2	763	6	12	201	4	2.2	124	3	1.0
3	751	11	22	198	5	2.7	122	4	1.3
4	763	9	19	192	4	2.1	124	4	1.3
5	697	10	19	189	4	2.0	128	4	1.4
6	655	9	16	189	3	1.5	128	2	.69
7	595	9	14	186	6	3.0	126	4	1.4
8	551	8	12	180	5	2.4	126	4	1.4
9	515	9	13	175	5	2.4	124	4	1.3
10	490	7	9.3	170	5	2.3	122	3	.99
11	460	7	8.7	168	2	.91	118	4	1.3
12	436	7	8.2	165	4	1.8	118	3	.96
13	405	4	4.4	165	5	2.2	116	2	.63
14	382	4	4.1	163	4	1.8	116	3	.94
15	364	5	4.9	160	4	1.7	116	5	1.6
16	347	4	3.7	155	3	1.3	120	3	.97
17	335	5	4.5	150	3	1.2	120	2	.65
18	323	6	5.2	153	3	1.2	120	11	3.6
19	311	6	5.0	150	3	1.2	126	3	1.0
20	299	9	7.3	148	4	1.6	135	4	1.5
21	291	5	3.9	143	4	1.5	150	6	2.4
22	279	4	3.0	140	9	3.4	145	22	8.6
23	268	3	2.2	138	3	1.1	148	6	2.4
24	261	6	4.2	138	3	1.1	163	5	2.2
25	254	6	4.1	133	2	.72	155	6	2.5
26	244	5	3.3	130	4	1.4	148	3	1.2
27	237	5	3.2	130	3	1.1	143	4	1.5
28	231	5	3.1	128	4	1.4	140	3	1.1
29	225	4	2.4	130	2	.70	135	2	.73
30	216	8	4.7	130	5	1.8	145	2	.78
31	213	14	8.1	128	4	1.4	--	--	--
TOTAL	12975	--	274.5	4932	--	54.53	3927	--	48.74

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 236476
TOTAL LOAD FOR YEAR (TONS) 89509.07
S COMPUTED BY SUBDIVIDING DAY.

12304500 YAAK RIVER NEAR TROY, MONT.

LOCATION.--Lat 48°33'43", long 115°58'09", in NE¼SE¼SE¼ sec.5, T.32 N., R.34 W., Lincoln County, Kootenai National Forest, temperature recorder at gaging station on right bank, 500 ft upstream from bridge on U.S. Highway 2, 0.2 mile upstream from mouth, and 7.7 miles northwest of Troy.

DRAINAGE AREA.--766 sq mi.

PERIOD OF RECORD.--Water temperatures: May 1963 to September 1969 (seasonal records only).

EXTREMES.--1968-89:
Water temperatures: Maximum, 23.0°C Aug. 24.

Period of record:
Water temperatures: Maximum, 24.0°C Aug. 9, 1965, Aug. 3, 1966.

REMARKS.--Recorder removed Nov. 5 to Mar. 25. Records furnished by Corps of Engineers, U.S. Army.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	12	12	9	9	8	9	9	9	8	9	9	9	9	8	8	8	7	7	7	8	8	8	8	8	8	8	7	6	7	8	8	8
MINIMUM	10	6	7	7	7	7	7	7	7	7	7	7	7	7	7	6	5	5	6	6	6	6	6	6	6	6	5	4	5	6	6	6
NOVEMBER																																
MAXIMUM	7	6	6	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	4	4	4	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DECEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JANUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MARCH																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	7	7	7	7	7	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	3	3	3	3	4	--
APRIL																																
MAXIMUM	6	6	6	6	7	7	7	6	7	7	7	7	7	7	8	8	8	7	7	7	8	9	9	8	7	7	8	8	8	7	--	7
MINIMUM	3	3	3	3	4	4	4	4	3	4	4	4	5	4	4	4	6	5	5	4	4	5	6	5	5	4	5	6	6	6	--	4
MAY																																
MAXIMUM	7	8	8	9	10	10	10	9	9	9	9	10	10	10	9	9	10	11	11	11	11	11	12	11	11	11	11	11	11	10	11	10
MINIMUM	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	9	8	8	8	8	8	7
JUNE																																
MAXIMUM	12	13	14	14	14	14	14	13	14	14	14	14	13	14	14	16	17	18	17	18	18	16	15	14	13	12	12	11	11	13	--	14
MINIMUM	8	9	10	11	11	11	11	10	11	11	11	11	9	9	11	11	12	13	14	14	14	13	13	12	11	11	10	9	10	10	--	11
JULY																																
MAXIMUM	14	14	13	12	13	14	14	16	17	17	17	17	17	17	17	17	18	18	19	19	19	20	21	21	21	19	20	21	21	20	20	18
MINIMUM	10	11	11	11	10	11	11	12	13	13	14	13	13	12	12	13	13	14	14	15	16	16	17	17	17	14	16	17	16	16	16	14
AUGUST																																
MAXIMUM	21	21	21	20	19	18	19	20	20	20	20	19	19	21	21	20	19	18	19	21	21	22	22	23	21	21	20	17	18	18	19	20
MINIMUM	17	17	17	17	16	14	15	16	17	17	17	15	14	16	18	16	14	16	16	16	17	17	18	19	17	16	16	14	13	13	13	16
SEPTEMBER																																
MAXIMUM	19	19	17	14	14	16	17	18	18	20	19	20	18	16	15	14	16	14	14	14	14	13	13	13	13	13	14	14	14	14	--	16
MINIMUM	14	14	13	12	11	11	12	13	14	16	16	16	14	12	11	11	12	13	13	12	12	12	12	11	11	11	12	13	13	12	--	13

12305000 KOOTENAI RIVER AT LEONIA, IDAHO

LOCATION.--Lat 48°37'04", long 116°03'47", in NW¼NW¼ sec.20, T.33 N., R.34 W (Principal Meridian), Lincoln County, Mont., temperature recorder at gaging station at Leonia, 450 ft east of Montana-Idaho State line, 0.5 mile upstream from Boulder Creek, and at mile 171.6.

DRAINAGE AREA.--11,740 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: July 1962 to May 1963, April 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 17.5°C Aug. 15.

Period of record:
Water temperatures: Maximum, 20.0°C Aug. 4, 1966; minimum (1962-63), freezing point on many days during winter periods.

REMARKS.--No record Oct. 13 to Mar. 28, Aug. 16 to Sept. 9

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	11.0	--	--	--	--	--	--	--	--	--	--
2	11.0	10.5	--	--	--	--	--	--	--	--	--	--
3	10.5	9.5	--	--	--	--	--	--	--	--	--	--
4	9.5	9.0	--	--	--	--	--	--	--	--	--	--
5	9.5	8.5	--	--	--	--	--	--	--	--	--	--
6	8.5	8.5	--	--	--	--	--	--	--	--	--	--
7	8.5	7.5	--	--	--	--	--	--	--	--	--	--
8	8.5	7.5	--	--	--	--	--	--	--	--	--	--
9	7.5	7.0	--	--	--	--	--	--	--	--	--	--
10	7.5	7.0	--	--	--	--	--	--	--	--	--	--
11	7.5	7.5	--	--	--	--	--	--	--	--	--	--
12	7.5	7.0	--	--	--	--	--	--	--	--	--	--
13	--	--	--	--	--	--	--	--	--	--	--	--
14	--	--	--	--	--	--	--	--	--	--	--	--
15	--	--	--	--	--	--	--	--	--	--	--	--
16	--	--	--	--	--	--	--	--	--	--	--	--
17	--	--	--	--	--	--	--	--	--	--	--	--
18	--	--	--	--	--	--	--	--	--	--	--	--
19	--	--	--	--	--	--	--	--	--	--	--	--
20	--	--	--	--	--	--	--	--	--	--	--	--
21	--	--	--	--	--	--	--	--	--	--	--	--
22	--	--	--	--	--	--	--	--	--	--	--	--
23	--	--	--	--	--	--	--	--	--	--	--	--
24	--	--	--	--	--	--	--	--	--	--	--	--
25	--	--	--	--	--	--	--	--	--	--	--	--
26	--	--	--	--	--	--	--	--	--	--	--	--
27	--	--	--	--	--	--	--	--	--	--	--	--
28	--	--	--	--	--	--	--	--	--	--	--	6.5
29	--	--	--	--	--	--	--	--	--	--	6.5	6.0
30	--	--	--	--	--	--	--	--	--	--	6.5	6.0
31	--	--	--	--	--	--	--	--	--	--	6.5	6.0
AVG	--	--	--	--	--	--	--	--	--	--	--	--

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	5.5	6.5	6.5	10.5	9.5	12.0	11.0	17.0	17.0	--	--
2	6.0	5.5	7.0	6.5	11.5	10.5	12.5	12.0	17.0	17.0	--	--
3	6.0	5.5	7.0	6.5	12.5	11.5	12.5	12.0	17.0	17.0	--	--
4	6.0	5.5	8.5	7.0	12.5	12.5	12.0	12.0	17.0	16.5	--	--
5	6.5	6.0	9.5	8.5	12.5	12.5	12.0	12.0	16.5	15.5	--	--
6	7.0	6.5	10.0	9.0	12.5	12.0	12.0	11.5	16.0	15.5	--	--
7	7.0	6.5	10.0	9.5	12.0	11.0	12.5	12.0	16.0	16.0	--	--
8	6.5	6.0	10.0	9.5	11.0	11.0	14.0	12.5	16.5	16.0	--	--
9	6.5	6.0	10.0	9.5	11.5	11.0	14.5	14.0	17.0	16.5	--	--
10	6.5	6.5	10.0	9.5	12.0	11.5	14.5	14.5	17.0	17.0	16.0	15.0
11	7.0	6.5	10.0	9.5	12.5	12.0	14.5	14.0	17.0	16.5	16.0	15.5
12	7.0	6.5	10.0	9.5	12.5	11.5	14.0	13.5	16.5	15.5	16.5	15.5
13	7.0	7.0	10.0	9.5	11.5	11.5	14.0	13.5	16.5	16.0	16.5	16.0
14	6.5	6.0	9.5	9.0	12.0	11.5	14.0	13.5	17.0	16.5	16.0	14.5
15	7.0	6.5	9.0	8.5	12.5	12.0	14.0	13.5	17.5	16.5	14.5	13.5
16	7.5	7.0	8.5	7.5	13.5	12.5	14.5	14.0	--	--	13.5	12.5
17	7.5	7.5	9.0	8.5	14.0	13.5	15.0	14.5	--	--	13.5	12.5
18	7.5	7.0	9.5	9.0	15.0	14.0	15.5	15.0	--	--	13.5	13.5
19	7.5	7.0	10.0	9.0	15.0	15.0	16.0	15.5	--	--	13.5	12.5
20	7.0	6.0	10.0	9.5	15.0	14.5	16.0	16.0	--	--	12.5	12.0
21	7.0	6.0	10.5	9.5	15.0	14.0	16.5	16.0	--	--	12.0	11.5
22	8.5	7.0	11.0	10.0	14.0	12.5	17.0	16.5	--	--	11.5	11.0
23	8.5	8.5	11.0	10.5	12.5	12.5	17.0	17.0	--	--	11.0	10.5
24	8.5	7.0	11.0	10.5	12.5	12.0	17.0	17.0	--	--	11.0	10.5
25	7.0	6.5	11.0	10.5	12.0	11.5	17.0	16.0	--	--	11.0	11.0
26	6.5	6.0	11.0	10.5	11.5	11.0	16.5	16.0	--	--	11.0	10.5
27	7.0	6.5	10.5	10.0	11.0	11.0	17.0	16.5	--	--	11.5	11.0
28	7.5	7.0	10.0	9.5	11.0	10.5	17.0	17.0	--	--	11.5	11.5
29	7.5	7.0	9.5	9.5	10.5	10.5	17.0	16.5	--	--	12.0	11.5
30	7.0	6.5	9.5	9.0	11.0	10.5	17.0	16.5	--	--	12.0	12.0
31	--	--	9.5	9.0	--	--	17.0	17.0	--	--	--	--
AVG	7.0	6.5	9.5	9.0	12.5	12.0	15.0	14.5	--	--	--	--

12318500 KOOTENAI RIVER NEAR COPELAND, IDAHO
(International gaging station)

LOCATION.--Lat 48°54'43", long 116°24'59", in NW¼NW¼SW¼ sec.12, T.64 N., R.1 W., Boundary County, at bridge on county highway, approximately 1 mile upstream from gaging station near Copeland, and at mile 123.2.

DRAINAGE AREA.--13,400 sq mi, approximately (at gaging station).

PERIOD OF RECORD.--Water temperatures: May 1966 to September 1969.
Sediment records: May 1966 to September 1969.

EXTREMES.--1966-69:
Water temperatures: Maximum, 19.0°C on many days during July and August; minimum, freezing point on several days during February, and probably sometime during period of missing record in January and February.
Sediment concentrations: Maximum daily, 580 mg/l Apr. 25; minimum daily, 1 mg/l Oct. 2, Jan. 1, Sept. 20.
Sediment loads: Maximum daily, 130,000 tons May 15, 16; minimum daily, 15 tons Jan. 1.

Period of record:
Water temperatures: Maximum, 21.0°C Aug. 20, 1966; minimum, freezing point on several days during February 1969, and probably sometime during period of missing record during January and February 1969.
Sediment concentrations: Maximum daily, 740 mg/l May 30, 1966; minimum daily, 1 mg/l on many days during 1968 and 1969.
Sediment loads: Maximum daily, 155,000 tons May 30, 1966; minimum daily, 10 tons Jan. 13, 1968.

REMARKS.--This station is maintained by the United States in cooperation with Canada. No temperature record available Oct. 15 to Nov. 11, Dec. 24 to Feb. 3, Feb. 25 to Mar. 3. Sediment loads are estimated for Oct. 14 to Dec. 4, Dec. 17 to Mar. 18, July 16-21, Sept. 19, 21-28.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.5	--	3.5	--	--	--	4.5	8.0	11.0	11.0	19.0	18.0
2	14.0	--	3.5	--	--	--	5.5	8.0	11.0	11.0	19.0	18.0
3	14.0	--	2.0	--	--	--	5.5	8.0	11.0	12.0	19.0	18.0
4	12.0	--	2.0	--	0.0	1.0	5.5	8.0	12.0	12.0	19.0	18.0
5	12.0	--	2.0	--	0.0	1.0	6.5	9.0	13.0	12.0	19.0	17.0
6	11.5	--	2.0	--	0.0	1.0	6.5	10.0	12.0	12.0	19.0	17.0
7	11.0	--	2.0	--	0.0	1.0	6.5	10.0	12.0	12.0	19.0	17.0
8	11.0	--	1.0	--	0.0	1.0	5.0	10.0	11.0	14.0	19.0	18.0
9	11.0	--	1.0	--	0.0	1.0	6.0	12.0	11.0	14.0	19.0	18.0
10	11.0	--	1.0	--	0.0	1.0	6.0	14.0	11.0	14.0	19.0	18.0
11	10.5	--	1.0	--	0.0	1.0	6.0	14.0	11.0	15.0	19.0	18.0
12	10.5	5.0	1.0	--	0.0	1.0	6.0	14.0	11.0	15.0	19.0	18.0
13	10.0	5.0	1.0	--	1.0	1.0	6.0	12.0	11.0	15.0	19.0	18.0
14	10.0	5.0	1.0	--	1.0	1.0	7.0	11.0	12.0	15.0	19.0	18.0
15	--	4.5	1.0	--	1.0	1.0	7.0	10.0	12.0	16.0	19.0	18.0
16	--	4.5	1.0	--	1.0	2.0	8.0	10.0	13.0	16.0	19.0	18.0
17	--	4.5	1.0	--	1.0	2.0	8.0	10.0	14.0	16.0	19.0	18.0
18	--	4.5	1.0	--	0.0	1.0	9.0	10.0	14.0	16.0	19.0	18.0
19	--	4.5	1.0	--	0.0	1.0	9.0	10.0	15.0	16.0	19.0	18.0
20	--	4.5	1.0	--	0.0	1.0	9.0	10.0	15.0	16.0	19.0	18.0
21	--	4.5	1.0	--	0.0	1.0	9.0	10.0	15.0	17.0	19.0	17.0
22	--	4.5	1.0	--	0.0	1.0	9.0	10.0	15.0	17.0	19.0	17.0
23	--	4.5	1.0	--	0.0	1.0	9.0	10.0	14.0	17.0	19.0	16.0
24	--	4.5	--	--	0.0	1.0	9.0	10.0	12.0	18.0	19.0	15.0
25	--	4.0	--	--	--	2.0	9.0	10.0	12.0	18.0	19.0	15.0
26	--	4.5	--	--	--	3.5	6.0	10.0	12.0	18.0	19.0	15.0
27	--	4.5	--	--	--	3.5	6.0	10.0	12.0	18.0	19.0	15.0
28	--	4.5	--	--	--	3.5	7.0	10.0	12.0	18.0	19.0	15.0
29	--	3.5	--	--	--	4.5	9.0	10.0	11.0	19.0	18.0	15.0
30	--	3.5	--	--	--	4.5	9.0	10.0	11.0	19.0	18.0	14.0
31	--	--	--	--	--	5.5	--	10.0	--	19.0	18.0	--
AVG	--	--	1.4	--	--	1.7	7.1	10.2	12.3	15.4	18.9	17.0

PARTICLE-SIZE DISTRIBUTION OF SUSPNEDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
JUN 8, 1969	1100	12.0	82300	496	110000	6	16	28	43	57	72	91	99	100	--	--	VPWC
JUN 5, 1970	1150	14.0	59500	179	28800	16	18	29	45	60	80	96	100	--	--	--	VPWC

12318500 KOOTENAI RIVER NEAR COPELAND, IDAHO--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	9990	2	54	9350	4	100	7520	2	41
2	9890	1	27	9550	4	100	7300	2	39
3	9530	2	51	9450	3	77	6880	2	37
4	9030	4	98	9350	3	76	7800	6	130
5	8870	2	48	9190	3	74	8130	9	198
6	8680	2	47	8860	3	72	7820	2	42
7	8580	2	46	8530	3	69	7030	5	95
8	8580	4	93	8240	3	67	6590	2	36
9	8460	4	91	7940	3	64	6700	8	145
10	8170	5	110	7950	3	64	7000	4	76
11	7890	2	43	7620	3	62	7970	2	43
12	8270	6	134	8450	5	110	8650	6	140
13	8990	3	73	9550	9	230	8560	12	280
14	9320	4	100	9660	6	160	8040	14	300
15	9420	4	100	9060	4	98	7180	12	230
16	9280	3	75	8690	3	70	7260	2	39
17	9230	3	75	8400	3	68	7380	3	60
18	8760	3	71	8080	2	44	7030	2	38
19	8600	3	70	7730	2	42	7000	2	38
20	8270	3	67	7600	2	41	7030	2	38
21	8440	4	91	7160	2	39	6490	2	35
22	8240	3	67	7560	3	61	6310	2	34
23	8110	2	44	8970	10	240	6250	2	34
24	7940	2	43	9640	9	230	5940	2	32
25	7840	2	42	9340	4	100	6120	4	66
26	8060	3	65	8790	3	71	6190	4	67
27	8650	5	120	8300	3	67	5850	3	47
28	8750	4	94	8040	3	65	5960	3	48
29	8920	4	96	7720	2	42	4880	3	40
30	8810	3	71	7450	2	40	4220	3	34
31	9250	5	120	--	--	--	3150	2	17
TOTAL	270820	--	2326	256220	--	2643	210230	--	2499

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	2770	1	15	4100	2	22	4600	4	50
2	3200	5	43	4300	3	35	4700	4	51
3	3700	6	60	4500	3	36	4800	4	52
4	4100	5	55	4700	4	51	4900	4	53
5	4800	5	65	4800	4	52	5000	4	54
6	5400	5	73	4900	4	53	5000	4	54
7	6000	5	81	5000	4	54	5000	4	54
8	6300	5	85	5000	4	54	5000	4	54
9	6500	5	88	5000	4	54	5000	4	54
10	6700	5	90	5000	4	54	4900	4	53
11	6700	5	90	4900	4	53	4900	4	53
12	6700	4	72	4900	4	53	4900	4	53
13	6600	3	53	4800	4	52	4900	4	53
14	6600	3	53	4800	4	52	4900	4	53
15	6400	3	52	4800	4	52	4900	4	53
16	6300	3	51	4800	4	52	5000	5	68
17	6100	3	49	4900	4	53	5100	7	96
18	6000	3	49	4900	4	53	5180	8	110
19	5700	3	46	4900	4	53	6000	19	308
20	5300	3	43	4900	4	53	7000	20	378
21	4900	3	40	4800	4	52	7300	21	414
22	4600	2	25	4800	4	52	7300	18	355
23	4300	2	23	4700	4	51	7200	16	311
24	4190	2	23	4700	4	51	7200	13	253
25	4100	2	22	4700	4	51	7200	12	233
26	4000	2	22	4600	4	50	7270	10	196
27	4000	2	22	4600	4	50	7360	12	238
28	4000	2	22	4600	4	50	8360	6	135
29	4000	2	22	--	--	--	9690	4	105
30	4000	2	22	--	--	--	10800	6	175
31	4000	2	22	--	--	--	12400	14	469
TOTAL	157960	--	1478	133400	--	1398	193760	--	4638

12318500 KOOTENAI RIVER NEAR COPELAND, IDAHO--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	15800	30	1280	39600	60	6420	74100	130	26000
2	17400	28	1320	37400	44	4440	67500	150	27300
3	17900	22	1060	34900	46	4330	64600	138	24100
4	18200	14	688	33300	37	3330	68600	161	29800
5	18000	14	680	32300	35	3050	74800	173	34900
6	19400	24	1260	33200	29	2600	80400	250	54300
7	22100	34	2030	36800	40	3970	85500	345	79600
8	24300	84	5510	41600	52	5840	86500	364	85000
9	24300	82	5380	46300	70	8750	81000	360	78700
10	24700	66	4400	52800	78	11100	71900	221	42900
11	25700	74	5130	62100	170	29000	64700	204	35600
12	26600	84	6030	71500	250	48000	62800	156	26500
13	26900	82	5960	79700	350	75000	61400	176	29200
14	27500	91	6760	85400	400	92000	57200	136	21000
15	28100	75	5690	88300	530	130000	50100	140	18900
16	27900	52	3920	88000	530	130000	44400	93	11100
17	28200	30	2280	80800	530	120000	41000	85	9410
18	29600	78	6230	71100	295	56600	39500	76	8110
19	32300	90	7850	64800	150	26200	39400	75	7980
20	32800	88	7790	61300	162	26800	40800	82	9030
21	31900	90	7750	58100	174	27300	44500	75	9010
22	32000	85	7340	56000	130	19700	51100	120	17000
23	32300	110	9600	56400	88	13400	54600	140	21000
24	39800	300	32000	60900	130	21400	52600	180	25600
25	52800	580	83000	66900	161	29100	52100	122	17200
26	52300	340	48000	74500	268	53900	54000	125	18200
27	46600	200	25200	81700	247	54500	60200	137	22300
28	41300	112	12500	83600	301	67900	63300	200	34000
29	40500	72	7870	78000	280	59000	63200	150	25600
30	41000	79	8750	77100	268	55800	62100	182	30500
31	--	--	--	79100	157	33500	--	--	--
TOTAL	898200	--	323258	1913500	--	1222930	1813900	--	879840

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	58600	122	19300	16500	22	980	7950	8	172
2	53500	92	13300	15400	18	748	7620	6	123
3	51000	90	12400	14800	22	879	7140	8	154
4	49400	90	12000	14400	16	622	7070	10	191
5	49400	84	11200	13800	14	522	6920	8	149
6	48300	96	12500	13400	10	362	6990	6	113
7	45700	78	9620	13000	13	456	6990	7	132
8	43000	58	6730	12600	10	340	7010	8	151
9	40200	69	7490	12600	10	340	6620	14	250
10	37600	82	8320	11900	9	289	6540	21	371
11	35900	62	6010	11500	13	404	6200	22	368
12	35000	36	3400	10900	12	353	6200	18	301
13	34300	28	2590	10800	12	350	5920	12	192
14	33200	21	1880	10900	12	353	6140	10	166
15	30500	21	1730	10700	12	347	6330	8	137
16	28300	20	1500	10000	12	324	6390	7	121
17	26400	20	1400	10000	8	216	6770	7	128
18	24800	19	1300	9830	11	292	6790	2	37
19	23500	20	1300	9980	12	323	6720	2	36
20	22500	20	1200	9520	10	257	6650	1	18
21	21800	20	1200	9030	12	293	6830	3	55
22	21300	22	1270	9030	8	195	7220	5	97
23	21200	22	1260	8840	10	239	7310	5	99
24	20600	24	1330	8760	8	189	7830	6	130
25	19800	20	1070	8760	8	189	8040	6	130
26	19400	13	681	8550	7	162	7990	6	130
27	19600	17	900	8760	8	189	8250	8	180
28	19600	13	688	8760	10	237	8150	8	180
29	18500	14	699	8940	12	290	7900	8	171
30	17400	14	658	8520	6	138	7900	10	213
31	17000	22	1010	8340	6	135	--	--	--
TOTAL	987300	--	145936	338820	--	11013	212380	--	4695

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 7386490
TOTAL LOAD FOR YEAR (TONS) 2602654

12322000 KOOTENAI RIVER AT PORTHILL, IDAHO

LOCATION.--Lat 49°00'00", long 116°30'10", in SW¼ sec.8, T.65 N., R.1 W., Boundary County, temperature recorder at gaging station on right bank, 300 ft upstream from international boundary at Porthill, and at mile 105.63.

DRAINAGE AREA.--13,700 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: January 1949 to September 1950.
Water temperatures: January 1949 to September 1950, May 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Minimum, freezing point on many days during winter months.

Period of record:
Water temperatures: Maximum (1949-50, 1963-68), 21.0°C on several days during August 1949, Aug. 3-5, 1965; minimum (1949-50, 1963-65, 1966-69), freezing point on many days during winter periods.

REMARKS.--No record available Mar. 11 to Sept. 30.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.5	11.5	7.0	7.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
2	11.5	11.0	7.0	7.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
3	11.0	11.0	7.0	7.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
4	11.0	11.0	7.0	7.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
5	11.0	11.0	7.0	7.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
6	11.0	11.0	7.0	6.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
7	11.0	11.0	6.5	6.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
8	11.0	10.5	6.0	6.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
9	10.5	10.5	6.0	6.0	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0
10	10.5	10.0	6.0	6.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
11	10.0	10.0	6.0	6.0	1.0	1.0	0.0	0.0	0.0	0.0	--	--
12	10.0	10.0	6.0	5.0	1.0	1.0	0.0	0.0	0.0	0.0	--	--
13	10.0	10.0	5.0	5.0	1.0	1.0	0.0	0.0	0.0	0.0	--	--
14	10.0	9.5	5.0	4.5	1.0	1.0	0.0	0.0	0.0	0.0	--	--
15	9.5	9.5	4.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	--	--
16	9.5	9.5	4.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	--	--
17	9.5	9.5	4.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	--	--
18	9.5	9.5	4.5	4.0	1.0	1.0	0.0	0.0	0.0	0.0	--	--
19	9.5	9.0	4.0	4.0	1.0	1.0	0.0	0.0	0.0	0.0	--	--
20	9.0	9.0	4.0	4.0	1.0	1.0	0.0	0.0	0.0	0.0	--	--
21	9.0	8.5	4.0	3.5	1.0	1.0	0.0	0.0	0.0	0.0	--	--
22	8.5	7.5	3.5	2.5	1.0	1.0	0.0	0.0	0.0	0.0	--	--
23	7.5	7.5	2.5	2.5	1.0	1.0	0.0	0.0	0.0	0.0	--	--
24	7.5	7.5	2.5	2.0	1.0	0.5	0.0	0.0	0.0	0.0	--	--
25	7.5	7.0	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	--	--
26	7.0	7.0	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	--	--
27	7.0	7.0	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	--	--
28	7.0	7.0	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	--	--
29	7.0	7.0	2.0	2.0	0.5	0.0	0.0	0.0	--	--	--	--
30	7.0	7.0	2.0	1.5	0.0	0.0	0.0	0.0	--	--	--	--
31	7.0	7.0	--	--	0.0	0.0	0.0	0.0	--	--	--	--
AVG	9.5	9.0	4.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	--	--

PEND OREILLE RIVER BASIN

12324200 CLARK FORK AT DEER LODGE, MONT.

LOCATION.--Lat 46°23'52", long 112°44'31", in SW¼SW¼ sec.33, T.8 N., R.9 W., Powell County, at county bridge on Milwaukee Avenue at Deer Lodge, at mile 461.2.

DRAINAGE AREA.--1,005 sq mi.

PERIOD OF RECORD.--Chemical analyses: July to September 1969.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	DIS-SOLVED IRON (FE) (UG/L)	PO-TAS-SIUM (K) (MG/L)	CHLO-RIDE (CL) (MG/L)	NITRATE (NO3) (MG/L)	FLUO-RIDE (F) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	COLOR (PLAT-INUM COBALT UNITS)	AMMONIA NITRO-GEN (N) (MG/L)	NITRITE (N) (MG/L)
JULY												
11...	736	20	3.9	1.8	1.0	1.2	30	611	358	8	.28	.01
AUG.												
14...	154	10	7.6	7.0	2.4	1.9	40	1220	781	3	.02	.01
SEPT.												
19...	250	10	6.2	8.2	3.0	2.8	50	1200	627	2	.06	.04

DATE	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TUR-BID-ITY (JTU)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	ALUM-INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	BARIUM (BA) (UG/L)	CAD-MIUM (CD) (UG/L)	CHRO-MIUM (CR) (UG/L)	COBALT (CO) (UG/L)
JULY												
11...	.42	.12	.09	6.5	.1	--	200	4	0	0	0	0
AUG.												
14...	.26	.08	.02	5.0	1.7	8.0	200	0	0	2	0	2
SEPT.												
19...	.27	.13	.08	3.2	.5	6.0	400	10	0	0	0	3

DATE	COPPER (CU) (UG/L)	LEAD (PB) (UG/L)	MAN-GANESE (MN) (UG/L)	MOLY-BDENUM (MO) (UG/L)	NICKEL (NI) (UG/L)	SELE-NIUM (SE) (UG/L)	SILVER (AG) (UG/L)	STRON-TIUM (SR) (UG/L)	VANA-DIUM (V) (UG/L)
JULY									
11...	53	3	255	22	4	8	0	580	0
11...	--	--	--	--	--	--	--	--	--
AUG...									
14...	58	0	487	0	2	6	0	860	0
14...	--	--	--	--	--	--	--	--	--
SEPT									
19...	10	0	228	0	2	3	1	800	0
19...	--	--	--	--	--	--	--	--	--

DATE	ZINC (ZN) (UG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	COLI-FORM (COL-ONIES PER 100 ML)
JULY								
11...	36	--	--	--	--	16	--	--
11...A	--	93	7.6	7.6	870	16	18	100
AUG.								
14...	122	--	--	--	1330	20	--	--
14...A	--	125	8.0	8.0	--	20	34	20
SEPT.								
19...	53	--	--	--	--	11	--	--
19...A	--	162	8.8	7.6	1230	11	18	96

A FIELD DETERMINATION.

12324600 CLARK FORK AT GARRISON, MONT.

LOCATION.--Lat 46°31'11", long 112°48'27", near center of east line of sec.23, T.9 N., R.10 W., Powell County, at county bridge at Garrison, 1 mile downstream from Little Blackfoot River and at mile 444.5.

DRAINAGE AREA.--1,550 sq mi.

PERIOD OF RECORD.--Chemical analyses: July to September 1969.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	DIS-SOLVED IRON (FE) (UG/L)	PO-TAS-SIUM (K) (MG/L)	CHLO-RIDE (CL) (MG/L)	NITRATE (NO3) (MG/L)	FLUO-RIDE (F) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	COLOR (PLATI-NUM-COBALT UNITS)	AMMONIA NITRO-GEN (N) (MG/L)	NITRITE (N) (MG/L)
JULY												
11...	1610	30	3.2	1.4	.7	.8	30	416	291	13	.06	.00
AUG.												
15...	229	120	6.4	5.4	1.5	1.3	50	869	520	2	.01	.01
SEPT.												
19...	299	10	5.8	7.6	2.1	2.0	60	946	447	3	.00	.01

DATE	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TUR-BID-ITY (JTU)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	ALUM-INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	BARIUM (BA) (UG/L)	CAD-MIUM (CD) (UG/L)	CHRO-MIUM (CR) (UG/L)	COBALT (CO) (UG/L)
JULY												
11...	.32	.18	.11	8.7	2.1	--	200	0	0	0	0	0
AUG.												
15...	.30	.11	.03	5.0	1.9	6.0	300	13	0	0	0	0
SEPT.												
19...	.27	.16	.07	5.0	.8	8.0	200	4	0	0	0	3

DATE	COPPER (CU) (UG/L)	LEAD (PB) (UG/L)	MAN-GANESE (MN) (UG/L)	MOLY-BDENUM (MO) (UG/L)	NICKEL (NI) (UG/L)	SELE-NIUM (SE) (UG/L)	SILVER (AG) (UG/L)	STRON-TIUM (SR) (UG/L)	VANA-DIUM (V) (UG/L)
JULY									
11...	42	3	125	2	1	5	0	400	0
11...	--	--	--	--	--	--	--	--	--
AUG.									
15...	117	0	197	0	0	0	0	656	0
15...	--	--	--	--	--	--	--	--	--
SEPT.									
19...	9	0	93	0	1	4	0	686	0
19...	--	--	--	--	--	--	--	--	--

DATE	ZINC (ZN) (UG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	AIR TEMPER-ATURE (DEG C)	COLI-FORM (COL-ONIES PER 100 ML)
JULY								
11...	20	--	--	--	--	16	--	--
11...A	--	97	8.6	6.4	640	16	24	42
AUG.								
15...	69	--	--	--	1020	15	--	--
15...A	--	157	7.8	7.7	--	15	16	75
SEPT.								
19...	33	--	--	--	--	13	--	--
19...A	--	224	9.9	8.4	1040	13	16	130

A FIELD DETERMINATIONS.

12334600 BLACKFOOT RIVER NEAR LINCOLN, MONT.

LOCATION.--Lat 47°02'37", long 112°24'14", in SE¼NE¼ sec.19, T.15 N., R.6 W., Lewis and Clark County, at gaging station 100 ft downstream from Surveyors Gulch and 14.5 miles northeast of Lincoln.
DRAINAGE AREA.--15.1 sq mi.
PERIOD OF RECORD.--Chemical analyses: October 1968 to September 1969.
Water temperatures: October 1968 to September 1969.
Sediment records: October 1968 to September 1969 (partial records).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)
OCT.												
10...	5.3	12	20	21	11	5.6	.8	58	0	48	.4	.2
NOV.												
04...	4.1	13	--	20	10	2.8	1.2	53	0	55	.6	.1
07...	3.1	13	10	20	10	2.2	.8	58	0	56	.6	.2
30...	2.7	13	--	26	11	2.2	1.2	64	0	60	.7	.1
DEC.												
04...	3.7	--	--	--	--	--	--	--	--	--	--	--
23...	3.4	14	--	21	11	2.1	1.2	49	0	64	.5	.0
28...	2.8	14	--	31	11	2.3	1.4	77	0	66	.5	.0
JAN.												
08...	5.4	--	--	--	--	--	--	--	--	--	--	--
18...	4.2	14	--	21	11	3.7	1.2	51	0	65	.5	.1
FEB.												
06...	2.6	--	--	--	--	--	--	--	--	--	--	--
24...	1.8	15	--	22	11	2.3	1.1	47	0	70	.6	.2
MAR.												
10...	2.0	15	--	24	11	2.2	1.4	43	0	70	.5	.2
11...	2.2	--	--	--	--	--	--	--	--	--	--	--
APR.												
01...	19	9.9	--	19	9.4	2.1	.9	46	0	53	.8	.1
07...	47	--	--	--	--	--	--	--	--	--	--	--
23...	106	10	--	9.8	4.5	1.9	.7	36	0	17	1.0	.1
MAY												
08...	47	9.6	--	13	6.0	1.8	.5	42	0	25	.4	.1
JUNE												
02...	22	9.5	--	17	7.6	1.3	.5	68	0	25	.6	.1
23...	11	9.7	--	21	9.8	1.6	.7	72	0	38	1.0	.1
JULY												
01...	84	9.4	--	14	6.5	.7	.6	48	0	25	.1	.0
26...	12	12	--	21	9.8	.8	.9	69	0	38	.0	.0
AUG.												
07...	9.6	12	--	21	10	1.9	.8	73	0	41	.2	.1
05...	8.1	12	10	20	11	1.8	.8	72	0	42	.7	.2
18...	4.5	12	--	28	11	1.9	.9	90	0	46	.3	.2
22...	5.3	13	20	20	11	.9	1.2	65	0	47	.2	.0
SEPT.												
09...	4.8	12	--	22	12	2.3	1.1	74	0	46	.6	.1
10...	3.5	13	80	25	12	2.9	1.1	72	0	61	1.0	.1
27...	3.5	13	--	26	12	1.9	1.3	70	0	49	.8	.1

SPECTROGRAPHIC ANALYSES

DATE	ALUM-INUM (AL) (UG/L)	BARIUM (BA) (UG/L)	BERYL-LIUM (BE) (UG/L)	BISMUTH (BI) (UG/L)	CAD-MIUM (CD) (UG/L)	CHRO-MIUM (CR) (UG/L)	COBALT (CO) (UG/L)	COPPER (CU) (UG/L)	GER-MANIUM (GE) (UG/L)	LEAD (PB) (UG/L)	LITHIUM (LI) (UG/L)
OCT.											
10...	17	120	1	6	11	4	6	9	6	3	1
NOV.											
07...	19	100	1	3	52	2	3	7	5	2	1
MAR.											
11...	--	--	--	--	--	--	--	--	--	--	--
AUG.											
22...	23	170	2	6	55	5	6	6	6	3	2

12334600 BLACKFOOT RIVER NEAR LINCOLN, MONT.--Continued

EXTREMES.--1968-69:
Specific conductance: Maximum daily, 251 micromhos Dec. 31; minimum daily, 101 micromhos Apr. 23.
Water temperatures: Maximum, 17.0°C July 25, 28, Aug. 24; minimum, freezing point on many days during winter period.

REMARKS.--Thermograph record unreliable Apr. 2 to July 21; once-daily measurements published for this period.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM COBALT UNITS)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
OCT.												
10...	.1	7	127	.17	1.82	96	48	.2	209	7.6	--	--
NOV.												
04...	.0	10	144	.20	1.59	92	48	.1	211	7.3	1	--
07...	.0	20	153	.21	1.28	92	44	.1	214	7.7	1	--
30...	.0	0	165	.22	1.20	108	56	.1	235	7.2	1	--
DEC.												
04...	--	--	--	--	--	--	--	--	--	--	--	.10
23...	.0	0	146	.20	1.34	98	59	.1	227	7.4	1	--
28...	.1	0	173	.24	1.31	122	59	.1	262	7.2	1	--
JAN.												
08...	--	--	--	--	--	--	--	--	--	--	--	.42
18...	.1	10	156	.21	1.77	96	54	.2	226	7.7	1	--
FEB.												
06...	--	--	--	--	--	--	--	--	--	--	--	.05
24...	.0	0	151	.21	.73	100	61	.1	234	7.6	4	--
MAR.												
10...	.0	70	176	.24	.95	106	71	.1	230	7.6	1	--
11...	--	--	--	--	--	--	--	--	--	--	--	--
APR.												
01...	.1	0	135	.18	6.93	86	49	.1	199	7.4	1	--
07...	--	--	--	--	--	--	--	--	--	--	--	--
23...	.2	0	71	.10	20.3	43	13	.1	104	7.5	5	--
MAY												
08...	.3	20	82	.11	10.4	56	21	.1	131	7.5	2	--
JUNE												
02...	.0	0	92	.13	5.46	73	18	.1	161	7.9	2	--
23...	.0	0	117	.16	3.47	93	34	.1	186	7.3	2	--
JULY												
01...	.0	3	79	.11	17.9	61	21	.0	135	7.5	3	--
26...	.0	4	116	.16	3.76	93	36	.0	186	7.6	1	--
AUG.												
02...	.0	0	127	.17	3.29	95	36	.1	210	7.5	4	--
05...	.0	0	140	.19	3.06	94	35	.1	199	7.6	2	--
18...	.1	0	148	.20	1.80	116	41	.1	238	7.6	3	--
22...	.0	1	133	.18	1.90	96	42	.0	218	7.7	4	--
SEPT.												
05...	.0	0	163	.22	2.11	104	43	.1	227	7.8	5	--
10...	.0	0	155	.21	1.46	110	51	.1	239	7.8	3	--
27...	.0	0	169	.23	1.60	115	58	.1	226	7.7	5	--

SPECTROGRAPHIC ANALYSES

DATE	MAN-GANESE (MN) (UG/L)	MOLY-BDENUM (MO) (UG/L)	NICKEL (NI) (UG/L)	RUBI-DIUM (RB) (UG/L)	SILVER (AG) (UG/L)	STRON-TIUM (SR) (UG/L)	TIN (SN) (UG/L)	TI-TANIUM (TI) (UG/L)	VANA-DIUM (V) (UG/L)	ZINC (ZN) (UG/L)
OCT.										
10...	200	1	3	1	0	60	6	4	4	500
NOV.										
07...	260	2	5	1	0	67	3	1	2	550
MAR.										
11...	450	--	--	--	--	--	--	--	--	--
AUG.										
22...	140	1	4	0	0	75	6	3	3	450

12334600 BLACKFOOT RIVER NEAR LINCOLN, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

(FIELD DETERMINATIONS)

DATE	DIS-CHARGE (CFS)	DIS-SOLVED OXYGEN (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
OCT					
10...	5.3	--	205	--	5
NOV					
07...	3.1	11.0	220	7.5	2
DEC					
04...	3.7	11.6	218	7.4	0
JAN					
08...	5.4	10.4	215	7.0	0
FEB					
06...	2.6	10.4	225	7.4	0
MAR					
11...	2.2	10.6	180	7.4	0
APR					
07...	47	10.8	160	7.4	1.0
MAY					
06...	39	10.2	140	7.7	4
JUNE					
05...	21	8.4	160	8.0	10
JULY					
02...	72	9.0	157	7.0	7
AUG					
05...	8.6	8.1	195	7.8	13.5
SEPT					
10...	3.5	8.2	215	8.2	12.5

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198	--	--	--	221	230	199	134	--	132	209	--
2	--	208	217	228	--	--	189	134	158	134	205	219
3	175	--	217	221	221	230	186	139	160	140	--	219
4	--	201	219	218	221	230	177	--	161	--	211	219
5	174	203	218	--	224	230	186	138	162	148	213	218
6	--	203	217	209	218	230	--	133	162	--	214	219
7	--	205	216	210	221	230	154	124	167	146	206	--
8	--	206	--	209	221	228	--	123	--	152	205	219
9	199	203	224	209	--	--	165	124	162	154	--	219
10	202	203	219	209	221	226	165	126	169	155	209	219
11	203	204	219	210	219	230	--	--	169	160	212	219
12	--	203	217	--	219	231	195	132	170	163	209	219
13	203	228	216	215	218	231	--	133	169	--	215	219
14	--	205	217	218	221	230	111	132	171	164	232	--
15	203	209	--	215	224	230	142	129	--	166	213	219
16	203	206	217	223	--	--	143	134	173	167	215	219
17	--	206	217	221	219	220	137	133	177	172	--	219
18	--	--	216	221	219	220	131	--	178	173	226	219
19	--	213	219	--	219	228	131	138	181	175	215	219
20	201	203	219	223	223	221	--	134	181	--	215	219
21	201	204	--	221	223	218	143	138	181	177	214	--
22	--	201	--	224	--	221	151	141	183	182	216	219
23	201	201	207	228	--	--	101	145	184	185	216	219
24	--	--	218	226	231	221	110	145	178	188	--	219
25	--	209	--	228	229	223	120	--	159	190	219	219
26	207	221	219	--	231	220	126	139	128	196	215	219
27	--	213	218	228	229	216	--	142	118	--	216	219
28	--	--	205	228	229	216	137	144	119	196	215	219
29	206	216	--	228	--	218	141	145	--	196	218	219
30	203	224	--	224	--	215	139	--	128	196	217	219
31	203	--	251	228	--	213	--	146	--	196	--	--
AVG	--	207	--	220	--	224	149	135	163	169	214	218

12334600 BLACKFOOT RIVER NEAR LINCOLN, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

THERMOGRAPH RECORD

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
OCTOBER																																
MAXIMUM	8	8	7	6	6	6	6	6	5	5	6	6	6	6	5	4	4	4	4	4	4	4	4	5	5	4	4	4	4	4	4	5
MINIMUM	8	7	5	5	6	6	6	5	4	4	5	6	6	5	4	4	4	3	4	4	4	4	4	4	4	4	3	3	3	4	3	5
NOVEMBER																																
MAXIMUM	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	--	2
MINIMUM	3	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	--	2
DECEMBER																																
MAXIMUM	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0
MINIMUM	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
JANUARY																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FEBRUARY																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0
MARCH																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APRIL																																
MAXIMUM	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JUNE																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JULY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	16	16	17	15	16	17	16	16	16	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12	12	13	14	12	12	13	13	12	12	--
AUGUST																																
MAXIMUM	15	16	16	16	15	13	14	14	15	16	16	14	14	15	16	16	14	14	15	16	16	16	16	17	16	16	15	14	14	13	12	15
MINIMUM	12	12	13	13	12	10	10	12	12	12	13	12	11	11	13	13	11	12	12	12	13	13	13	14	14	12	13	12	12	11	10	12
SEPTEMBER																																
MAXIMUM	13	14	13	11	10	10	11	12	12	13	13	12	13	12	9	8	9	9	9	9	8	8	8	8	8	8	8	9	9	9	--	10
MINIMUM	10	11	11	10	9	8	9	9	11	11	11	11	12	9	7	7	7	8	8	8	8	7	8	8	7	7	7	8	8	8	--	9

ONCE-DAILY MEASUREMENTS

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
APRIL....	--	2	3	3	3	--	2	3	1	2	2	2	--	3	1	2	1	1	4	--	8	9	8	7	6	3	--	3	5	6	--	4
MAY.....	5	6	7	--	9	11	9	11	11	11	--	12	10	12	12	9	10	--	9	--	11	11	12	12	--	14	13	11	12	--	10	10
JUNE.....	--	12	13	14	15	12	11	--	13	10	13	6	10	12	--	13	13	14	12	12	9	11	13	10	8	6	9	8	--	11	--	11
JULY.....	12	9	12	--	11	--	10	13	15	15	15	15	12	--	14	14	15	15	16	14	--	--	--	--	--	--	--	--	--	--	--	--

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	DATE	TIME	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)
JUN 5, 1969	1120	22	1	.06	JUL 2.....	1035	73	5	.99
JUN 26.....	1320	133	16	5.7	AUG 5.....	1205	8.4	3	.07
JUN 28.....	1030	206	13	7.2	SEP 10.....	1330	3.5	2	.02

12340500 CLARK FORK ABOVE MISSOULA, MONT.

LOCATION.--Lat 46°52'01", long 113°58'57", in NE¼SW¼SE¼ sec.22, T.13 N., R.19 W., Missoula County, at abandoned Van Buren Street Bridge in Missoula, 0.1 mile upstream from Rattlesnake Creek, 3.4 miles downstream from gaging station, and at mile 358.3.

DRAINAGE AREA.--5,999 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July to September 1969.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	DIS-SOLVED IRON (FE) (UG/L)	PO-TAS-SIUM (K) (MG/L)	CHLO-RIDE (CL) (MG/L)	NITRATE (NO3) (MG/L)	FLUO-RIDE (F) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	COLOR (PLAT-INUM COBALT UNITS)	AMMONIA NITRO-GEN (N) (MG/L)	NITRITE (N) (MG/L)
JULY												
10...	7750	40	1.9	1.0	.2	.3	10	202	146	16	.14	.00
AUG.												
14...	1140	20	2.4	1.4	.1	.3	10	258	184	2	.00	.00
SEPT.												
18...	1690	20	2.8	3.2	.1	.7	20	321	241	2	.06	.01

DATE	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TUR-BID-ITY (JTU)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	ALUM-INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	BARIUM (BA) (UG/L)	CAD-MIUM (CD) (UG/L)	CHRO-MIUM (CR) (UG/L)	COBALT (CO) (UG/L)
JULY												
10...	.34	.21	.12	18	.1	--	100	4	0	0	0	0
AUG.												
14...	.14	.02	.01	3.0	1.8	10	100	6	0	0	0	1
SEPT.												
18...	.16	.33	.02	7.6	1.6	6.0	200	2	0	0	0	1

DATE	COPPER (CU) (UG/L)	LEAD (PB) (UG/L)	MAN-GANESE (MN) (UG/L)	MOLY-BDENUM (MO) (UG/L)	NICKEL (NI) (UG/L)	SELE-NIUM (SE) (UG/L)	SILVER (AG) (UG/L)	STRON-TIUM (SR) (UG/L)	VANA-DIUM (V) (UG/L)
JULY									
10...	0	5	40	9	3	7	0	270	0
10...	--	--	--	--	--	--	--	--	--
AUG.									
14...	2	0	39	0	0	1	0	320	0
14...	--	--	--	--	--	--	--	--	--
SEPT.									
18...	1	0	--	0	0	4	0	364	0
18...	--	--	--	--	--	--	--	--	--

DATE	ZINC (ZN) (UG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI-FIC CONDUCTANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	AIR TEMPER-ATURE (DEG C)	COLI-FORM (COL-ONIES PER 100 ML)
JULY								
10...	20	--	--	--	--	17	--	--
10... A	--	112	9.0	8.0	325	17	29	34
AUG.								
14...	0	--	--	--	--	18	--	--
14... A	0	141	8.6	8.3	340	18	25	4
SEPT.								
18...	0	--	--	--	--	13	--	--
18... A	--	194	9.2	8.3	425	13	16	49

A FIELD DETERMINATIONS.

12353300 CLARK FORK NEAR ALBERTON, MONT.

LOCATION.--Lat 46°59'33", long 114°26'45", in S½SE¼ sec.1, T.14 N., R.23 W., Missoula County, at bridge 0.1 mile upstream from Petty Creek, 0.2 mile downstream from former gaging station, 1.7 miles east of Alberton, and at mile 319.8.

DRAINAGE AREA.--9,272 sq mi.

PERIOD OF RECORD.--Chemical analyses: July to September 1969.

REMARKS.--Water discharge estimated from records for station 12354500 Clark Fork at St. Regis.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	DIS-SOLVED IRON (FE) (UG/L)	PO-TAS-SIUM (K) (MG/L)	CHLO-RIDE (CL) (MG/L)	NITRATE (NO3) (MG/L)	FLUO-RIDE (F) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	COLOR (PLAT-INUM COBALT UNITS)	AMMONIA NITRO-GEN (N) (MG/L)	NITRITE (N) (MG/L)
JULY												
10...	12200	40	1.9	.8	.2	.3	20	175	121	14	.14	.00
AUG.												
14...	2600	10	2.4	2.0	.2	.3	30	209	156	3	.02	.00
SEPT.												
18...	2300	30	2.4	3.0	.2	.5	20	223	178	2	.04	.00

DATE	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TUR-BID-ITY (JTU)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	ALUM-INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	BARIUM (BA) (UG/L)	CAD-MIUM (CD) (UG/L)	CHRO-MIUM (CR) (UG/L)	COBALT (CO) (UG/L)
JULY												
10...	.26	.20	.10	15	1.4	--	0	0	0	0	0	0
AUG.												
14...	17	.04	.00	3.0	4.8	--	100	2	0	0	0	0
SEPT.												
18...	.20	.04	.02	6.4	1.3	7.0	100	1	0	0	0	1

DATE	COPPER (CU) (UG/L)	LEAD (PB) (UG/L)	MAN-GANESE (MN) (UG/L)	MOLY-BDENUM (MO) (UG/L)	NICKEL (NI) (UG/L)	SELE-NIUM (SE) (UG/L)	SILVER (AG) (UG/L)	STRON-TIUM (SR) (UG/L)	VANA-DIUM (V) (UG/L)
JULY									
10...	25	3	20	1	2	6	0	220	0
10...	--	--	--	--	--	--	--	--	--
AUG.									
14...	3	0	20	0	0	5	0	268	1
14...	--	--	--	--	--	--	--	--	--
SEPT.									
18...	3	0	--	0	0	2	0	290	0
18...	--	--	--	--	--	--	--	--	--

DATE	ZINC (ZN) (UG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	AIR TEMPER-ATURE (DEG C)	COLI-FORM (COL-ONIES PER 100 ML)
JULY								
10...	15	--	--	--	--	16	--	--
10...A	--	92	8.0	6.9	280	16	28	800
AUG.								
14...	12	--	--	--	324	17	--	--
14...A	--	125	7.6	7.9	295	17	19	50
SEPT.								
18...	12	--	--	--	--	13	--	--
18...A	--	159	8.9	7.8	342	13	12	75

A FIELD DETERMINATIONS.

12359800 SOUTH FORK FLATHEAD RIVER ABOVE TWIN CREEK, NEAR HUNGRY HORSE, MONT.

LOCATION.--Lat 47°58'45", long 113°33'36", in NE¼NW¼NE¼ sec.36, T.26 N., R.16 W., Flathead County, Flathead National Forest, temperature recorder at gaging station on left bank, 0.1 mile downstream from Tin Creek, 0.4 mile upstream from Twin Creek, 36.3 miles southeast of Hungry Horse, and at mile 46.7.

DRAINAGE AREA.--1,160 sq mi.

PERIOD OF RECORD.--Water temperatures: May 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C Aug. 22-25; minimum, freezing point on many days during winter period.

Period of record:
Water temperatures: Maximum, 19.0°C Aug. 17-19, 1967; minimum, freezing point on many days during winter periods.

REMARKS.--Recorder stopped Oct. 4-14, May 30 to June 19; range in temperature, 6.0°C to 8.0°C, 6.0°C to 11.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	9	8	8	--	--	--	--	--	--	--	--	--	--	--	6	6	6	5	6	6	6	6	6	6	6	6	4	4	4	5	4	--
MINIMUM	8	7	6	--	--	--	--	--	--	--	--	--	--	--	6	6	5	4	5	6	6	5	5	5	4	4	3	3	3	4	4	--
NOVEMBER																																
MAXIMUM	4	2	3	3	3	3	3	2	2	3	2	2	2	2	1	1	1	0	1	2	2	1	1	1	1	1	1	1	0	1	--	2
MINIMUM	2	2	2	3	3	3	2	1	1	2	1	2	1	1	0	0	0	0	0	1	1	1	1	1	0	1	1	0	0	0	--	1
DECEMBER																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JANUARY																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FEBRUARY																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0
MARCH																																
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	5	5	4	1
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	3	0
APRIL																																
MAXIMUM	4	5	4	5	5	4	3	5	5	5	5	5	5	6	6	6	6	5	5	5	6	7	7	6	5	5	6	7	7	6	--	5
MINIMUM	3	2	3	3	4	3	3	3	4	4	4	4	4	4	5	4	5	5	5	4	4	5	5	5	4	5	4	5	6	3	--	4
MAY																																
MAXIMUM	3	4	5	6	7	7	7	7	7	7	7	7	7	7	7	7	7	8	7	6	7	8	8	8	7	8	7	8	8	--	--	7
MINIMUM	2	3	3	4	5	5	5	5	5	5	5	5	5	5	6	5	6	6	6	5	4	6	6	6	6	6	6	6	6	--	--	5
JUNE																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12	12	11	10	10	10	8	9	9	8	10	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10	10	10	10	10	8	8	8	8	8	8	--	--
JULY																																
MAXIMUM	11	12	12	10	10	11	11	12	13	14	14	13	12	13	13	14	14	15	16	16	16	16	16	16	16	15	16	17	16	16	16	14
MINIMUM	8	8	10	9	9	10	10	10	10	12	12	12	10	11	11	11	12	13	13	14	14	14	14	14	13	12	12	14	14	13	13	12
AUGUST																																
MAXIMUM	16	17	17	17	15	15	15	16	16	16	16	15	16	16	17	16	16	15	16	17	17	18	18	18	18	16	16	15	15	14	14	16
MINIMUM	13	13	14	14	13	11	11	12	12	13	13	13	12	12	13	14	12	12	12	12	13	14	14	15	15	13	12	12	12	11	10	13
SEPTEMBER																																
MAXIMUM	14	15	14	12	12	12	14	14	15	16	16	16	15	13	11	11	12	11	12	11	10	10	10	11	10	12	11	12	12	12	--	13
MINIMUM	10	11	11	10	10	9	9	10	12	12	12	13	13	11	9	8	9	9	10	9	9	9	9	9	9	9	9	10	10	11	--	10

12363500 FLATHEAD RIVER NEAR KALISPELL, MONT.

LOCATION.--Lat 48°12'38", long 114°15'23", in NE¼NE¼NW¼ sec.10, T.28 N., R.21 W., Flathead County, at bridge on county road, 2.5 miles northeast of Kalispell and at mile 128.0.

DRAINAGE AREA.--4,500 sq mi.

PERIOD OF RECORD.--Water temperatures: January 1949 to September 1950, August 1963 to September 1967 (at gaging station 12363000, 15 miles upstream), October 1967 to September 1969 (discontinued).
Sediment records: July 1965 to September 1969 (discontinued).
Prior to October 1967, published as 12363000 Flathead River at Columbia Falls.

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C July 23, 24; minimum, freezing point Dec. 27, 28, Jan. 18, 19.
Sediment concentrations: Maximum daily, 324 mg/l Apr. 24; minimum daily, 1 mg/l on many days during November, January, March, and July to September.
Sediment loads: Maximum daily, 30,600 tons Apr. 24; minimum daily, 5.6 tons Sept. 29.

Period of record:
Water temperatures: Maximum, 21.0°C Aug. 8, 1968; minimum, freezing point on several days during winter periods.
Sediment concentrations: Maximum daily, 980 mg/l May 21, 1967; minimum daily, 1 mg/l on several days most years.
Sediment loads: Maximum daily, 140,000 tons May 23, 1967; minimum daily, 4 tons Mar. 4-6, 1967.

REMARKS.--Flow affected by ice Dec. 27, 28, Jan. 18, 19. Records of discharge are given for Flathead River at Columbia Falls (station 12363000). No appreciable inflow or outflow occurs between the two points.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	10	9	8	8	9	7	7	7	8	8	7	7	6	8	6	7	7	5	5	6	6	7	6	8	7	8	5	6	7	7	5	7
NOVEMBER.	5	5	7	5	5	3	4	3	4	4	4	5	3	3	2	4	4	2	3	5	4	4	5	3	3	4	4	4	2	3	--	4
DECEMBER.	3	2	3	3	3	4	2	4	5	3	3	3	2	1	1	2	2	3	3	2	2	2	2	2	1	2	0	0	1	1	2	2
JANUARY..	2	2	2	1	2	2	1	3	2	1	2	3	3	1	1	1	1	0	0	1	1	1	1	2	3	--	2	2	2	2	1	2
FEBRUARY.	2	1	2	1	1	1	2	2	4	3	3	4	3	3	3	3	3	3	3	3	3	2	2	4	3	4	4	4	--	--	--	3
MARCH....	4	4	4	4	4	4	4	3	4	4	4	4	4	4	3	5	5	5	5	5	5	4	5	5	5	6	7	7	7	7	6	5
APRIL....	6	7	7	7	7	6	6	7	7	6	5	7	5	6	6	6	6	5	5	5	6	5	6	5	6	5	6	7	6	5	--	6
MAY.....	5	6	6	7	7	7	7	8	9	9	9	8	8	8	7	8	8	8	9	8	--	--	10	9	11	10	10	9	9	8	8	8
JUNE.....	9	11	12	11	11	12	11	12	12	12	12	10	11	10	13	13	14	14	13	13	13	12	13	11	11	10	12	9	9	11	--	12
JULY.....	12	13	12	11	12	12	14	15	15	15	13	12	12	14	14	14	14	16	15	17	16	15	19	19	17	14	12	18	16	17	17	15
AUGUST...	13	10	11	13	11	11	12	13	11	12	11	10	7	--	15	10	11	10	11	9	12	12	11	12	11	10	11	10	10	10	11	11
SEPTEMBER	14	9	7	7	7	8	7	7	11	11	11	11	9	8	8	8	8	7	7	6	7	6	6	6	7	10	--	11	10	11	--	8

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER MEAN DISCHARGE (CFS)	OCTOBER MEAN CONCENTRATION (MG/L)	OCTOBER LOAD (TONS)	NOVEMBER MEAN DISCHARGE (CFS)	NOVEMBER MEAN CONCENTRATION (MG/L)	NOVEMBER LOAD (TONS)	DECEMBER MEAN DISCHARGE (CFS)	DECEMBER MEAN CONCENTRATION (MG/L)	DECEMBER LOAD (TONS)
1	9590	6	155	10300	9	250	4960	3	40
2	8510	5	115	7150	4	77	4800	2	26
3	10500	8	227	5530	3	45	6570	4	71
4	5400	4	58	6750	8	146	11900	7	225
5	7360	7	139	6670	3	54	11400	5	154
6	7150	4	77	6250	2	34	11400	4	123
7	7000	4	76	6010	2	32	8100	4	87
8	5510	4	60	5780	5	78	6650	2	36
9	5240	4	57	5920	3	48	8540	2	46
10	7150	3	58	6620	3	54	6920	2	37
11	7620	3	62	6470	3	52	5510	3	45
12	10100	9	245	6950	7	131	3160	12	102
13	14700	10	397	5830	3	47	2900	8	63
14	11900	7	225	5970	4	64	2650	6	43
15	6010	5	81	6620	3	54	4670	4	50
16	5530	11	164	8850	3	72	8570	4	93
17	5110	5	69	9680	5	131	11300	6	183
18	4840	5	65	5810	3	47	11300	4	122
19	4960	3	40	4120	4	44	11200	4	121
20	6060	4	65	3870	2	21	11100	4	120
21	7780	4	84	3820	3	31	10900	6	177
22	8050	7	152	3870	4	42	10800	4	117
23	6330	3	51	4180	7	79	10900	3	88
24	6520	3	53	4020	4	43	10300	3	83
25	7000	4	76	3840	3	31	3030	3	25
26	6400	4	69	4630	5	63	3970	3	32
27	8290	6	134	5350	1	14	5760	9	140
28	7890	5	107	5240	2	28	7330	11	218
29	7440	3	60	5050	4	55	8540	4	92
30	8130	4	88	5070	3	41	10100	3	82
31	9330	6	151	--	--	--	10100	11	300
TOTAL	233400	--	3460	176220	--	1908	245330	--	3141

12363500 FLATHEAD RIVER NEAR KALISPELL, MONT.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	10100	7	191	5010	8	108	11100	2	60
2	9880	4	107	2740	5	37	11200	3	91
3	10700	4	116	2570	3	21	11100	2	60
4	4020	4	43	2890	4	31	11200	3	91
5	3930	3	32	6230	4	67	11200	3	91
6	2930	3	24	6990	3	57	11200	4	121
7	7150	2	39	10900	7	201	11200	2	60
8	6250	3	51	10900	5	147	11100	2	60
9	3450	3	28	10900	6	177	11100	2	60
10	3280	1	8.9	10900	12	353	11100	2	60
11	8710	11	259	10900	6	177	11200	3	91
12	9360	3	76	11000	7	208	11300	2	61
13	9050	5	122	11000	9	267	11400	3	92
14	2660	6	43	11000	6	178	9590	2	52
15	3090	3	25	11000	5	148	2040	3	17
16	4190	3	34	11000	5	148	2270	1	6.1
17	2500	1	6.8	11000	5	148	6420	10	173
18	2540	1	6.9	11000	4	119	7970	5	108
19	2950	3	24	10900	4	118	4920	4	53
20	10700	7	202	10800	6	175	3480	5	47
21	10800	7	204	10800	5	146	4960	4	54
22	9590	10	259	10900	4	118	6950	7	131
23	10700	7	202	10900	4	118	4490	2	24
24	10700	5	144	11000	4	119	4000	2	22
25	10800	4	117	11100	12	360	3990	2	22
26	10700	4	116	8850	4	96	3450	5	47
27	10700	6	173	11100	4	120	5110	6	83
28	10800	13	379	11100	4	120	4900	6	79
29	10800	6	175	--	--	--	2180	2	12
30	10600	4	114	--	--	--	2300	5	31
31	8770	2	47	--	--	--	2540	3	21
TOTAL	232400	--	3368.6	265380	--	4082	226960	--	1980.1

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	7520	20	406	22100	23	1370	24600	90	5980
2	7280	17	334	17900	23	1110	22000	45	2670
3	8370	19	429	16800	16	725	22800	46	2830
4	14000	16	605	12700	12	411	24900	58	3900
5	14400	14	544	13500	12	437	26400	73	5200
6	15600	24	1010	13400	11	398	26100	70	4930
7	17600	39	1850	14800	26	1040	28700	90	6970
8	18500	35	1750	17300	42	1960	25900	76	5310
9	19300	34	1770	18800	51	2590	22600	46	2810
10	20700	44	2460	21400	83	4800	20800	38	2130
11	22200	59	3540	25400	161	11000	19300	29	1510
12	22500	51	3100	33300	270	24300	17700	26	1240
13	23100	45	2810	34700	241	22600	15600	23	969
14	22700	36	2210	34100	202	18600	13400	19	687
15	22100	28	1670	33600	196	17800	12100	16	523
16	22100	25	1490	29300	157	12400	11300	13	397
17	22700	29	1780	24300	97	6360	11000	13	386
18	24200	38	2480	22200	77	4620	10900	10	294
19	25200	47	3200	21700	64	3750	11200	8	242
20	24200	35	2290	20500	52	2880	11500	8	248
21	22600	24	1460	18700	52	2630	11200	7	212
22	22200	21	1260	17400	52	2440	11800	7	223
23	24900	45	3030	19800	53	2830	12100	6	196
24	35500	324	S 30600	22600	82	5000	11200	6	181
25	37500	285	28900	25300	114	7790	11600	8	251
26	32400	98	8570	31100	220	18500	13500	14	510
27	28500	41	3150	29600	169	13500	17900	46	2220
28	26500	30	2150	25200	82	5580	19500	65	3420
29	26400	29	2070	21600	50	2920	19500	47	2470
30	22600	22	1340	24000	69	4470	20200	47	2560
31	--	--	--	29400	126	10000	--	--	--
TOTAL	653370	--	118258	712500	--	214811	527300	--	61469

S COMPUTED BY SUBDIVIDING DAY.

12363500 FLATHEAD RIVER NEAR KALISPELL, MONT.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	17900	33	1590	9330	8	202	5670	1	15
2	15700	21	890	10400	4	112	9190	3	74
3	14300	16	618	10300	4	111	10300	4	111
4	13900	12	450	8850	3	72	11000	2	59
5	12900	9	313	7830	3	63	11000	1	30
6	11900	16	514	7750	3	63	11000	1	30
7	10900	10	294	7590	2	41	11000	1	30
8	10300	6	167	8070	2	44	10900	3	88
9	10700	5	144	9680	3	78	10800	9	262
10	10200	7	193	9420	3	76	10800	1	29
11	10800	4	117	8510	3	69	10900	1	29
12	10600	4	114	9570	2	52	11000	1	30
13	10100	3	82	7360	2	40	10900	1	29
14	9540	3	77	5200	2	28	11000	1	30
15	9020	3	73	5330	2	29	11000	2	59
16	9570	4	103	9360	3	76	10900	1	29
17	9360	3	76	9300	7	176	10900	1	29
18	8990	3	73	9300	3	75	10900	1	29
19	8020	3	65	9280	2	50	11000	1	30
20	7570	4	82	9190	2	50	11000	1	30
21	7970	5	108	9160	2	49	11100	1	30
22	7540	3	61	9130	2	49	11100	2	60
23	5290	3	43	7670	2	41	11200	2	60
24	5110	3	41	5990	2	32	8570	3	69
25	6800	3	55	9070	2	49	6400	2	35
26	7280	2	39	8930	2	48	2510	3	20
27	7150	2	39	9050	1	24	2450	2	13
28	6330	3	51	8960	2	48	2140	2	12
29	5920	1	16	9570	3	78	2070	1	5.6
30	5400	3	44	8290	2	45	2170	2	12
31	5690	3	46	7910	1	21	--	--	--
TOTAL	292750	--	6578	265350	--	1991	270870	--	1368.6

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 4101830
TOTAL LOAD FOR YEAR (TONS) 422415.3

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS 8, BOTTOM WITHDRAWAL TUBE C, CHEMICALLY DISPERSED N, IN NATIVE WATER P, PIPET S, SIEVE V, VISUAL ACCUMULATION TUBE W, IN DISTILLED WATER)

DATE	TIME	WATER TEM-PERA-TURE (°C)	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALY-SIS
MAY 27, 1969	0845	11	29500	124	9880	--	25	--	52	--	83	93	99	100	--	--	VPWC

12369000 FLATHEAD RIVER NEAR BIGFORK, MONT.

LOCATION.--Lat 48°05'33", long 114°09'50", in NE¼NE¼ sec.22, T.27 N., R.20 W., Flathead County, at bridge on State Highway 208, 3 miles northwest of Bigfork and at mile 106.5.

DRAINAGE AREA.--o,300 sq mi (approximately).

PERIOD OF RECORD.--Chemical analyses: July to September 1969.

REMARKS.--Discharge records estimated from Flathead River at Columbia Falls (station 12363000).

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	DIS-SOLVED IRON (FE) (UG/L)	PO-TAS-SIUM (K) (MG/L)	CHLO-RIDE (CL) (MG/L)	NITRATE (NO3) (MG/L)	FLUO-RIDE (F) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	COLOR (PLAT-INUM COBALT UNITS)	AMMONIA NITRO-GEN (N) (MG/L)	NITRITE (N) (MG/L)
JULY												
08...	11000	40	.5	.0	.0	.1	10	102	82	1	.24	.00
AUG.												
12...	9500	30	1.0	.0	.2	.1	10	101	88	1	.01	.00
SEPT.												
16...	11000	10	.5	.4	.2	.4	40	84	89	1	.00	.00

DATE	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TUR-BID-ITY (JTU)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	ALUM-INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	BARIUM (BA) (UG/L)	CAD-MIUM (CD) (UG/L)	CHRO-MIUM (CR) (UG/L)	COBALT (CO) (UG/L)
JULY												
08...	.20	.06	.06	30	2.3	--	0	0	0	0	0	0
AUG.												
12...	.00	.04	.00	2.0	.6	7.0	100	2	0	0	0	1
SEPT.												
16...	.02	.01	.00	.8	.8	4.0	100	1	0	0	0	1

DATE	COPPER (CU) (UG/L)	LEAD (PB) (UG/L)	MAN-GANESE (MN) (UG/L)	MOLY-BDENUM (MO) (UG/L)	NICKEL (NI) (UG/L)	SELE-NIUM (SE) (UG/L)	SILVER (AG) (UG/L)	STRON-TIUM (SR) (UG/L)	VANA-DIUM (V) (UG/L)
JULY									
08...	--	0	1	1	1	4	0	152	0
08...	--	--	--	--	--	--	--	--	--
AUG.									
12...	2	0	0	2	0	6	0	134	0
SEPT.									
16...	2	0	--	0	0	2	0	148	1
16...	--	--	--	--	--	--	--	--	--

DATE	ZINC (ZN) (UG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	AIR TEMPER-ATURE (DEG C)	COLI-FORM (COL-ONIES PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
JULY									
08...	10	--	--	--	--	13	--	--	--
08...A	--	92	10.0	7.2	175	13	18	32	--
AUG.									
12...	7	95	9.6	7.8	160	11	19	6	--
SEPT.									
16...	11	--	--	--	--	7	--	--	--
16...A	--	97	10.0	7.6	158	7	4	4	1

A FIELD DETERMINATIONS.

12371550 FLATHEAD LAKE AT POLSON, MONT.

LOCATION.--Lat 47°41'43", long 114°10'00", near center of sec.4, T.22 N., R.20 W., Lake County, at bridge on U.S. Highway 93 at western edge of Polson, 4.5 miles upstream from Kerr Dam and at mile 78.5.

DRAINAGE AREA.--7,086 sq mi.

PERIOD OF RECORD.--Chemical analyses: July to September 1969.

REMARKS.--Discharge records are given for Flathead River near Polson (station 12372000).

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	DIS-SOLVED IRON (FE) (UG/L)	PO-TAS-SIUM (K) (MG/L)	CHLO-RIDE (CL) (MG/L)	NITRATE (NO3) (MG/L)	FLUO-RIDE (F) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	COLOR (PLAT-INUM COBALT UNITS)	AMMONIA NITRO-GEN (N) (MG/L)	NITRITE (N) (MG/L)
JULY												
07...	14400	80	.6	.2	.0	.0	60	102	92	1	.20	.00
AUG.												
11...	11000	10	.8	.4	.1	.1	5	93	86	1	.02	.00
SEPT.												
15...	14400	30	.5	.6	.0	.2	80	87	88	1	.00	.00

DATE	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	TUR-BID-ITY (JTU)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	ALUM-INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	BARIUM (BA) (UG/L)	CAD-MIUM (CD) (UG/L)	CHRO-MIUM (CR) (UG/L)	COBALT (CO) (UG/L)
JULY												
07...	.62	.07	.04	1.5	.1	--	0	0	0	0	1	0
AUG.												
11...	.11	.05	.00	1.0	.5	6.0	100	0	0	0	0	1
SEPT.												
15...	.05	.03	.02	1.1	.7	4.0	100	2	0	0	0	0

DATE	COPPER (CU) (UG/L)	LEAD (PB) (UG/L)	MAN-GANESE (MN) (UG/L)	MOLY-BDENUM (MO) (UG/L)	NICKEL (NI) (UG/L)	SELE-NIUM (SE) (UG/L)	SILVER (AG) (UG/L)	STRON-TIUM (SR) (UG/L)	VANA-DIUM (V) (UG/L)
JULY									
07...	--	--	5	13	2	2	0	156	2
07	--	--	--	--	--	--	--	--	--
AUG.									
11...	4	0	0	0	0	5	0	144	0
11...	--	--	--	--	--	--	--	--	--
SEPT.									
15...	0	0	--	0	0	3	0	170	0
15...	--	--	--	--	--	--	--	--	--

DATE	ZINC (ZN) (UG/L)	ALKA-LINITY AS CACO3 (MG/L)	DISS-OLVED OXYGEN (MG/L)	PH (UNITS)	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	TEMP-ERATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	COLI-FORM (COL-ONIES PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
JULY									
07... A	--	--	--	--	--	16	--	--	--
07...	--	89	9.8	7.2	175	16	18	6	--
AUG.									
11...	18	--	--	--	171	21	--	--	--
11... A	--	89	7.6	8.4	155	21	29	4	--
SEPT.									
15...	14	--	--	--	--	16	--	--	--
15... A	--	97	8.2	8.0	168	16	17	0	0

A FIELD DETERMINATIONS.

12389000 CLARK FORK NEAR PLAINS, MONT.

LOCATION.--Lat 47°27'15", long 114°53'36", in NE¼NW¼ sec.34, T.20 N., R.26 W., at bridge on county road, 1 mile southwest of Plains, 2.7 miles downstream from gaging station, 8.7 miles downstream from Flathead River, and at mile 236.3.

DRAINAGE AREA.--19,958 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July to September 1969.
Water temperatures: November 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C Aug. 24, 25; minimum, freezing point on many days during winter period.

REMARKS.--Temperature recorder at gaging station 2.7 miles upstream from sampling site.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	DIS-SOLVED IRON (FE) (UG/L)	PO-TAS-SIUM (K) (MG/L)	CHLO-RIDE (CL) (MG/L)	NITRATE (NO3) (MG/L)	FLUO-RIDE (F) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	COLOR (PLAT-INUM COBALT UNITS)	AMMONIA NITRO-GEN (N) (MG/L)	NITRITE (N) (MG/L)
JULY												
09...	30600	40	1.0	.8	.0	.2	2	125	96	7	.10	.00
AUG.												
13...	12500	30	1.2	.6	.1	.1	10	124	103	2	.03	.00
SEPT.												
17...	18000	30	.8	1.2	.0	.1	8	99	100	1	.06	.00

DATE	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	TUR-BID-ITY (JTU)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	ALUM-INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	BARIUM (BA) (UG/L)	CAD-MIUM (CD) (UG/L)	CHRO-MIUM (CR) (UG/L)	COBALT (CO) (UG/L)
JULY												
09...	.24	.08	.10	14	.1	--	0	8	0	0	1	0
AUG.												
13...	.10	.00	.00	2.0	.5	6.0	100	4	0	0	0	1
SEPT.												
17...	.05	.01	.00	3.0	.8	5.0	200	0	0	0	0	1

DATE	COPPER (CU) (UG/L)	LEAD (PB) (UG/L)	MAN-GANESE (MN) (UG/L)	MOLY-BDENUM (MO) (UG/L)	NICKEL (NI) (UG/L)	SELE-NIUM (SE) (UG/L)	SILVER (AG) (UG/L)	STRON-TIUM (SR) (UG/L)	VANA-DIUM (V) (UG/L)
JULY									
09...	--	8	0	2	1	10	0	220	0
09...	--	--	--	--	--	--	--	--	--
AUG.									
13...	2	0	0	0	0	6	0	216	0
13...	--	--	--	--	--	6	--	--	--
SEPT.									
17...	3	0	--	0	0	0	0	142	0
17...	--	--	--	--	--	--	--	--	--

DATE	ZINC (ZN) (UG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	AIR TEMPER-ATURE (DEG C)	COLI-FORM (COL-ONIES PER 100 ML)
JULY								
09...	11	--	--	--	--	18	--	--
09... A	--	92	8.8	7.5	220	18	30	8
AUG.								
13...	17	--	--	--	206	20	--	--
13... A	--	105	8.0	8.1	190	20	22	6
SEPT.								
17...	20	--	--	--	--	16	--	--
17... A	--	136	8.9	8.3	195	16	27	28

A FIELD DETERMINATIONS.

12389000 CLARK FORK NEAR PLAINS, MONT.--Continued

TEMPERATURE (°C) OF WATER, NOVEMBER 1968 TO SEPTEMBER 1969

NOVEMBER																															
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	5	5	5	4	4	4	4	4	3	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	4	4	4	4	4	4	4	3	3	--	--
DECEMBER																															
MAXIMUM	3	3	3	3	3	3	2	2	2	3	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	0	1	1	1	2
MINIMUM	3	3	3	3	3	2	2	2	2	2	3	3	2	2	2	1	2	2	2	1	0	0	0	1	1	1	0	0	0	0	2
JANUARY																															
MAXIMUM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
FEBRUARY																															
MAXIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	1	--	--	--	1
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	1	1	--	--	--	0
MARCH																															
MAXIMUM	1	1	1	1	1	2	2	2	1	1	1	1	1	1	2	2	3	3	3	3	3	3	3	3	4	4	4	5	5	5	2
MINIMUM	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	2	2	3	2	2	2	2	2	2	3	3	4	4	4	5	2
APRIL																															
MAXIMUM	5	5	6	6	7	7	6	6	6	6	6	6	6	6	7	7	7	8	7	7	7	7	8	8	8	7	6	7	7	7	7
MINIMUM	5	5	5	6	6	6	6	6	6	6	5	5	6	6	6	6	7	7	6	6	6	6	7	8	7	6	6	6	7	6	6
MAY																															
MAXIMUM	6	6	7	7	8	8	9	9	10	10	10	10	10	9	9	9	10	10	10	11	11	11	12	12	13	13	13	12	13	13	10
MINIMUM	6	6	6	7	7	7	8	9	9	10	10	10	9	9	9	9	9	9	10	10	10	11	11	12	12	13	12	12	12	13	10
JUNE																															
MAXIMUM	13	13	14	14	14	15	15	15	15	16	16	15	14	14	15	16	16	16	17	17	17	17	16	15	15	14	13	13	13	--	15
MINIMUM	12	12	13	14	14	14	15	14	14	15	15	14	13	13	14	15	16	16	16	17	17	16	15	15	14	13	13	13	12	12	14
JULY																															
MAXIMUM	14	15	15	15	15	15	15	16	17	17	18	18	17	17	18	18	18	19	19	19	20	20	21	21	21	20	20	21	21	20	21	18
MINIMUM	13	14	14	14	14	15	15	15	16	17	17	17	16	17	17	17	17	18	19	19	19	19	19	20	20	19	19	20	20	20	17
AUGUST																															
MAXIMUM	21	21	21	21	20	20	20	20	21	21	21	21	19	20	21	20	20	19	19	20	20	21	21	22	22	21	20	20	20	20	20
MINIMUM	20	20	20	20	20	19	19	19	20	20	20	19	19	19	20	20	19	19	18	19	20	20	20	21	20	20	20	20	19	19	20
SEPTEMBER																															
MAXIMUM	20	20	19	18	16	16	17	17	17	18	18	18	18	18	17	16	16	16	16	15	15	14	14	14	14	14	14	14	14	--	16
MINIMUM	19	19	18	16	16	16	16	17	17	17	18	18	18	17	16	16	16	16	15	15	14	14	14	13	13	13	13	14	14	--	16

12391000 CLARK FORK AT THOMPSON FALLS, MONT.

LOCATION.--Lat 47°36'17", long 115°22'30", in NE¼SE¼ sec.1, T.21 N., R.30 W., Sanders County, at bridge on U.S. Highway 10A, 1 mile west of Thompson Falls, 1.3 miles downstream from former gaging station, 6.5 miles downstream from Thompson River, and at mile 206.

DRAINAGE AREA.--21,113 sq mi.

PERIOD OF RECORD.--Chemical analyses: July to September 1969.

REMARKS.--Discharge records furnished by the Montana Power Co.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	DIS-SOLVED IRON (FE) (UG/L)	PO-TAS-SIUM (K) (MG/L)	CHLO-RIDE (CL) (MG/L)	NITRATE (NO3) (MG/L)	FLUO-RIDE (F) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	COLOR (PLAT-INUM COBALT UNITS)	AMMONIA NITRO-GEN (N) (MG/L)	NITRITE (N) (MG/L)
JULY												
09...	32500	20	1.3	.4	.0	.2	0	126	94	5	.12	.00
AUG.												
13...	14600	10	1.6	.2	.0	.1	20	114	98	3	.00	.00
SEPT.												
17...	18700	10	.8	.6	.1	.2	20	114	102	2	.04	.01

DATE	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TUR-BID-ITY (JTU)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	ALUM-INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	BARIUM (BA) (UG/L)	CAD-MIUM (CD) (UG/L)	CHRO-MIUM (CR) (UG/L)	COBALT (CO) (UG/L)
JULY												
09...	.92	.27	.04	7.5	1.3	--	0	0	0	0	1	0
AUG.												
13...	.40	.02	.00	2.0	.9	7.0	100	3	0	0	0	0
SEPT.												
17...	.20	.01	.01	3.2	1.1	7.0	100	2	0	0	0	0

DATE	COPPER (CU) (UG/L)	LEAD (PB) (UG/L)	MAN-GANESE (MN) (UG/L)	MOLY-BDENUM (MO) (UG/L)	NICKEL (NI) (UG/L)	SELE-NIUM (SE) (UG/L)	SILVER (AG) (UG/L)	STRON-TIUM (SR) (UG/L)	VANA-DIUM (V) (UG/L)
JULY									
09...	0	0	8	5	0	6	0	260	0
09...	--	--	--	--	--	--	--	--	--
AUG.									
13...	1	0	0	0	0	4	0	174	0
13...	--	--	--	--	--	--	--	--	--
SEPT.									
17...	0	0	--	0	0	2	0	170	0
17...	--	--	--	--	--	--	--	--	--

DATE	ZINC (ZN) (UG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	AIR TEMPER-ATURE (DEG C)	COLI-FORM (COL-ONIES PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
JULY									
09...	16	--	--	--	--	17	--	--	--
09... A	--	92	9.2	7.4	220	17	27	18	--
AUG.									
13...	0	--	--	--	198	20	--	--	--
13... A	--	102	8.0	8.0	180	20	10	9	--
SEPT.									
17...	19	--	--	--	--	15	--	--	--
17... A	--	112	9.0	7.7	190	15	14	25	3

A FIELD DETERMINATIONS.

12395500 PEND OREILLE RIVER AT NEWPORT, WASH.

LOCATION.--Lat 48°11'10", long 117°02'00", in SE¼SW¼ sec.24, T.56 N., R.6 W., Bonner County, Idaho, at bridge on U.S. Highway 2, 0.2 mile downstream from gaging station at Newport, 1.8 miles downstream from Albeni Falls Dam, and at mile 88.5.

DRAINAGE AREA.--24,200 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No appreciable inflow between sampling point and gaging station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
20...	28600	5.4	21	7.4	2.8	.8	97	0	11	.4	.2	.0
NOV.												
11...	25800	5.4	23	5.8	2.6	.7	94	0	10	.3	.1	.3
DEC.												
15...	24700	6.0	23	5.7	2.7	.9	93	0	10	.2	.1	.1
FEB.												
03...	20500	6.3	24	6.2	2.7	.6	98	0	10	.3	.1	.2
23...	21400	6.0	24	6.4	2.9	.8	100	0	11	.3	.2	.1
MAR.												
23...	27200	7.0	24	6.2	2.5	1.0	99	0	12	.4	.2	.2
APR.												
13...	47900	6.6	24	6.0	2.4	.9	97	0	11	.6	.1	.1
MAY												
18...	82300	6.9	20	5.0	2.2	.7	81	1	9.3	.7	.1	.1
JUNE												
15...	41500	6.0	18	4.6	2.4	.4	71	0	8.2	.7	.1	.1
JULY												
21...	20700	6.0	21	5.3	2.6	.8	85	0	9.6	.4	.1	.0
AUG.												
09...	11700	--	--	--	--	--	--	--	--	--	--	--
SEPT.												
21...	23700	6.[illegible]	24	6.3	2.8	.9	98	0	10	.6	.1	.2

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (MPN)
OCT.												
20...A	97	.13	7490	83	4	.1	171	7.9	0	10	9.6	40
NOV.												
11...	95	.13	6620	82	5	.1	167	7.7	5	7	9.9	36
DEC.												
15...	99	.13	6600	81	5	.1	165	7.8	5	4	11.8	40
FEB.												
03...	106	.14	5870	86	5	.1	176	7.8	5	1	12.5	930
23...	105	.14	6070	87	5	.1	180	8.1	0	1	11.8	36
MAR.												
23...	105	.14	7710	86	5	.1	179	8.1	5	4	12.2	70
APR.												
13...	101	.14	13100	85	5	.1	177	7.8	0	6	11.5	40
MAY												
18...	90	.12	20000	71	3	.1	148	8.3	5	14	11.6	36
JUNE												
15...	81	.11	9080	64	6	.1	134	8.1	0	18	8.6	230
JULY												
21...	87	.12	4860	75	5	.1	155	8.0	0	22	8.4	36
AUG.												
09...	--	--	--	--	--	--	--	--	--	22	8.1	23
SEPT.												
21...	103	.14	6590	86	6	.1	179	7.8	0	17	7.8	430

A SUM OF CONSTITUENTS.

DATE	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	DIS-SOLVED BORON (B) (UG/L)
FEB.			
23...	0	0	0
AUG.			
09...	0	0	--

12399500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY, WASH.
(Irrigation network station)

LOCATION.--Lat 48°55'00", long 117°47'40", in SW¼SW¼ sec.33, T.40 N., R.40 E., Stevens County, at bridge on State Highway 25 at Northport, 10.9 miles downstream from gaging station at international boundary, and at mile 734.1.
DRAINAGE AREA.--59,700 sq mi, approximately (at gaging station).
PERIOD OF RECORD.--Chemical analyses: February 1910 to January 1911, November 1951 to September 1969.
Water temperatures: November 1951 to September 1969.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 113 mg/l Feb. 18 to Mar. 19; minimum, 75 mg/l July 1 to Aug. 16.
Hardness: Maximum, 85 mg/l Feb. 18 to Apr. 5; minimum, 63 mg/l July 1-31.
Specific conductance: Maximum daily, 192 micromhos Mar. 5; minimum daily, 129 micromhos July 14, 21.
Water temperatures: Maximum, 19.5°C Aug. 24; minimum, 1.0°C Jan. 23, 25 to Feb. 2.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
OCT.										
01-31	70200	3.9	22	4.6	2.0	.6	77	0	16	.4
NOV.										
01-30	64200	5.1	22	4.9	2.2	.8	79	0	16	.5
DEC.										
01-31	57200	5.1	23	5.0	2.2	.8	78	0	17	.5
JAN.										
01-18	56800	5.8	23	5.0	2.2	.8	80	0	17	.6
19-31	61600	5.4	24	5.0	2.2	.9	81	0	16	.3
FEB.										
01-17	61600	5.4	24	5.0	2.2	.9	81	0	16	.3
18-28	56100	5.1	25	5.3	2.3	.8	84	0	18	.7
MAR.										
01-19	56100	5.1	25	5.3	2.3	.8	84	0	18	.7
20-31	78700	5.5	25	5.3	2.3	.8	83	0	21	.8
APR.										
01-05	78700	5.5	25	5.3	2.3	.8	83	0	21	.8
06-25	128000	6.2	23	5.0	2.1	.8	80	0	15	.5
26-30	140000	5.3	23	4.9	2.5	.8	78	0	17	.8
MAY										
01-09	140000	5.3	23	4.9	2.5	.8	78	0	17	.8
10-31	242000	5.7	20	4.3	1.8	.7	71	0	13	.7
JUNE										
01-02	242000	5.7	20	4.3	1.8	.7	71	0	13	.7
03-30	247000	5.3	19	4.0	1.7	.9	68	0	12	.6
JULY										
01-31	184000	4.2	19	3.8	1.6	.8	66	0	12	.4
AUG.										
01-16	114000	3.9	19	4.0	1.5	.9	69	0	12	.5
17-31	96700	3.9	20	4.1	1.5	.9	70	0	11	.8
SEPT.										
01-08	96700	3.9	20	4.1	1.5	.9	70	0	11	.8
09-30	68400	3.8	21	4.7	2.0	.9	76	0	13	1.6
WTD. AVG.	--	5.0	21	4.4	1.9	.8	73	0	14	.6
TIME WTD. AVG.	110000	4.9	22	4.6	2.0	.8	76	0	15	.6
TONS PER DAY	--	1480	6250	1320	566	241	21900	0	4180	182

ANALYSES OF ADDITIONAL SAMPLES

FEB.										
23...	56900	4.6	22	4.8	1.8	.7	77	0	16	.5
MAY										
18...	277000	5.5	20	4.2	1.6	.7	71	0	13	.5
AUG.										
09...	120000	12	24	4.9	4.5	1.3	95	0	13	.4

12399500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY, WASH.--Continued

Period of record:
Dissolved solids: Maximum, 158 mg/l Feb. 23, 1963; minimum, 71 mg/l July 8-25, 1964.
Hardness: Maximum, 128 mg/l Feb. 23, 1963; minimum, 62 mg/l July 16-31, Aug. 16-31, 1959, July 1-31, 1961, July 26 to Aug. 15, 1964, July 12 to Aug. 1, 1967.
Specific conductance: Maximum daily, 257 micromhos Feb. 23, 1963; minimum daily, 120 micromhos Aug. 28, 1968.
Water temperatures: Maximum, 21.0°C May 14, 19, 1959; minimum, freezing point on several days during January in 1960, 1962, and 1963.

REMARKS.--Coliform and dissolved oxygen data furnished by Washington State Water Pollution Control Commission.
No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	PHOSPHATE (PO4) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)
OCT.									
01-31	.1	.3	--	--	90	.12	17100	74	11
NOV.									
01-30	.1	.2	--	--	94	.13	16300	75	11
DEC.									
01-31	.2	.4	--	--	101	.14	15600	78	14
JAN.									
01-18	.2	.4	--	--	99	.13	15200	78	13
19-31	.2	.8	--	--	104	.14	17300	81	14
FEB.									
01-17	.2	.8	--	--	104	.14	17300	81	14
18-28	.2	.4	--	--	113	.15	17100	85	16
MAR.									
01-19	.2	.4	--	--	113	.15	17100	85	16
20-31	.2	.7	--	--	106	.14	22500	85	17
APR.									
01-05	.2	.7	--	--	106	.14	22500	85	17
06-25	.2	.5	--	--	97	.13	33500	78	13
26-30	.2	.4	--	--	100	.14	37800	78	14
MAY									
01-09	.2	.4	--	--	100	.14	37800	78	14
10-31	.2	.4	--	--	91	.12	59500	68	10
JUNE									
01-02	.2	.4	--	--	91	.12	59500	68	10
03-30	.1	.8	--	--	78	.11	52000	64	9
JULY									
01-31	.1	.8	--	--	75	.10	37300	63	9
AUG.									
01-16	.1	.4	--	--	75	.10	23100	64	8
17-31	.2	.9	--	--	82	.11	21400	67	10
SEPT.									
01-08	.2	.9	--	--	82	.11	21400	67	10
09-30	.2	1.1	--	--	89	.12	16400	72	10
WTD. AVG. TIME	.2	.6	--	--	89	.12	34600	71	11
WTD. AVG. TONS PER DAY	.2	.6	--	--	93	.13	26400	74	12
	46	178	--	--	--	--	--	--	--

ANALYSES OF ADDITIONAL SAMPLES

FEB.									
23...	.2	.3	--	0	96	.13	14700	75	12
MAY									
18...	.1	.3	.08	--	84	.11	62800	68	10
AUG.									
09...	.1	.2	.00	--	109	.15	35300	80	2

12399500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (MPN)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.									
01-30	.1	156	7.8	5	--	--	--	--	--
NOV.									
01-30	.1	162	7.8	0	--	--	--	--	--
DEC.									
01-31	.1	168	7.8	0	--	--	--	--	--
JAN.									
01-18	.1	172	7.7	0	--	--	--	--	--
19-31	.1	166	7.7	0	--	--	--	--	--
FEB.									
01-17	.1	166	7.7	0	--	--	--	--	--
18-28	.1	177	7.7	0	--	--	--	--	--
MAR.									
01-19	.1	177	7.7	0	--	--	--	--	--
20-31	.1	170	7.7	0	--	--	--	--	--
APR.									
01-05	.1	170	7.7	0	--	--	--	--	--
06-25	.1	161	7.9	0	--	--	--	--	--
26-30	.1	163	7.7	0	--	--	--	--	--
MAY									
01-09	.1	163	7.7	0	--	--	--	--	--
10-31	.1	144	7.8	0	--	--	--	--	--
JUNE									
01-02	.1	144	7.8	0	--	--	--	--	--
03-30	.1	137	7.5	0	--	--	--	--	--
JULY									
01-31	.1	132	7.6	0	--	--	--	--	--
AUG.									
01-16	.1	137	7.6	0	--	--	--	--	--
17-31	.1	143	7.6	0	--	--	--	--	--
SEPT.									
01-08	.1	143	7.6	0	--	--	--	--	--
09-30	.1	156	7.6	0	--	--	--	--	--
TIME WTD. AVG.	.1	156	7.7	--	--	--	--	--	--

ANALYSES OF ADDITIONAL SAMPLES

FEB.									
23...	.1	158	7.8	0	14.0	230	0	0	0
MAY									
18...	.1	142	8.0	5	12.0	70	--	--	--
AUG.									
09...	.2	177	7.9	0	8.5	430	--	--	--

12399500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY, WASH.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	--	173	168	166	172	162	165	143	137	138	141
2	146	--	163	164	167	161	162	166	142	135	137	151
3	151	--	171	168	161	175	160	167	143	136	141	147
4	152	156	173	171	161	170	162	166	140	131	142	150
5	152	156	171	167	160	192	158	168	137	131	134	151
6	154	160	167	167	171	183	140	168	136	130	129	147
7	162	162	167	169	170	182	152	170	138	131	138	146
8	154	161	175	165	166	180	153	151	137	133	140	149
9	153	159	177	162	157	183	150	155	137	133	142	158
10	158	158	170	161	161	180	137	147	138	134	145	--
11	156	163	169	162	160	183	155	154	139	131	132	167
12	156	161	171	169	157	181	147	147	139	131	131	163
13	155	161	166	173	163	181	159	145	138	130	140	161
14	157	161	164	174	165	170	156	148	141	129	141	159
15	160	161	164	176	160	175	158	150	142	134	139	159
16	160	160	164	177	167	170	151	146	143	135	139	164
17	157	161	171	174	159	178	162	150	137	132	144	161
18	159	165	171	177	154	179	160	138	132	133	141	165
19	160	166	169	175	163	181	155	147	132	131	137	161
20	158	163	175	172	160	175	154	146	132	130	139	153
21	159	165	176	170	157	167	164	140	140	129	140	152
22	159	165	175	170	164	168	164	141	136	135	140	152
23	158	167	171	157	157	167	154	140	139	137	140	159
24	159	165	167	171	167	165	154	140	130	140	138	157
25	157	165	--	168	168	169	156	139	134	136	144	157
26	159	166	156	162	167	166	167	145	133	135	153	149
27	159	166	163	171	182	166	166	143	132	135	149	150
28	157	167	165	157	168	169	166	146	135	133	143	154
29	159	167	163	161	--	169	167	144	135	133	145	156
30	160	166	164	161	--	166	184	140	136	135	142	161
31	--	--	167	160	--	163	--	142	--	136	135	--
AVG	156	162	168	167	163	173	157	150	137	133	139	155

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	--	6.5	1.5	1.0	2.5	5.5	6.5	9.5	14.0	17.5	18.5
2	13.5	--	6.0	1.5	1.0	2.5	6.0	6.5	10.0	14.5	17.5	17.5
3	13.5	--	6.0	2.0	1.5	3.5	6.0	6.5	10.5	14.5	17.5	17.5
4	14.0	8.5	5.5	2.0	1.5	3.5	6.0	7.0	12.0	14.5	17.5	17.5
5	13.5	8.5	5.5	2.5	2.0	3.5	6.0	7.5	12.0	14.0	17.0	17.5
6	13.5	9.0	5.0	2.5	1.5	3.5	6.5	7.5	12.5	14.0	17.0	17.5
7	12.5	9.0	5.0	2.5	1.5	3.5	6.5	7.5	12.5	14.5	17.0	17.5
8	12.5	9.0	5.0	2.5	1.5	4.0	6.0	7.5	12.5	14.5	17.5	18.5
9	12.5	8.5	5.0	2.0	2.0	3.5	6.0	7.5	12.5	14.5	17.5	17.5
10	12.0	8.5	5.5	2.5	2.0	3.5	6.0	8.5	12.5	14.5	17.5	18.5
11	12.0	8.5	5.5	2.5	2.0	3.5	6.0	8.5	12.5	14.5	17.5	18.5
12	12.0	8.5	5.5	2.5	2.0	4.0	6.0	8.5	12.5	14.5	17.5	18.5
13	12.0	8.5	5.5	2.5	2.0	4.0	6.0	9.0	12.5	14.5	17.5	18.5
14	11.5	7.0	5.5	2.5	2.0	4.0	6.0	9.0	12.0	14.5	18.5	17.0
15	11.5	7.0	5.5	2.5	2.0	4.0	6.0	9.0	12.5	15.0	18.5	17.0
16	11.5	7.0	5.5	2.5	2.0	4.0	6.5	9.0	12.5	15.5	18.5	17.0
17	11.0	7.0	5.0	2.0	2.0	4.5	6.5	9.0	12.5	15.5	18.5	17.0
18	11.0	7.0	4.5	2.5	2.5	4.5	6.5	9.5	13.5	16.0	18.5	16.5
19	10.5	7.0	4.5	2.5	2.5	4.5	6.5	9.5	14.0	16.0	18.5	16.0
20	10.5	7.0	4.0	1.5	2.5	4.5	6.5	9.5	14.5	16.0	18.5	16.0
21	10.5	7.0	4.5	1.5	2.5	4.5	6.5	9.5	14.5	16.5	19.0	15.5
22	10.0	7.5	4.5	1.5	2.5	4.5	6.5	10.0	14.5	16.5	19.0	15.5
23	10.0	7.0	4.0	1.0	2.5	4.5	6.5	10.5	15.0	17.0	19.0	15.5
24	10.0	7.0	4.0	1.5	2.5	4.5	6.5	10.5	14.5	17.0	19.5	15.5
25	9.5	7.0	--	1.0	2.5	4.5	6.5	10.5	15.0	16.5	19.0	15.5
26	9.5	7.0	4.0	1.0	3.5	4.5	6.5	10.5	14.5	16.5	18.5	15.0
27	9.5	6.5	4.0	1.0	2.5	4.5	6.5	10.5	14.0	16.5	18.5	15.5
28	9.5	6.5	2.5	1.0	2.5	4.5	6.5	10.0	14.0	16.5	17.0	15.0
29	9.0	6.5	2.0	1.0	--	5.0	6.5	9.0	14.0	17.0	17.5	15.0
30	8.5	6.5	1.0	1.0	--	5.5	6.5	9.5	14.0	17.0	17.5	15.0
31	--	--	1.5	1.0	--	5.5	--	9.5	--	17.0	17.5	--
AVG	11.5	7.5	4.5	2.0	2.0	4.0	6.5	9.0	13.0	15.5	18.0	17.0

12404900 KETTLE RIVER NEAR BARSTOW, WASH.

LOCATION (revised).--Lat 48°47'05", long 118°07'30", in SW¼SW¼ sec.16, T.38 N., R.37 E., Ferry County, at bridge on county road, 0.1 mile downstream from Toulou Creek, 1.1 miles east of Barstow, and at mile 10.9.

DRAINAGE AREA.--4,044 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1960 to September 1962 (monthly), October 1968 to September 1969 (quarterly), October 1964 to September 1968 (miscellaneous).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
NOV.												
11...	11	15	2.9	2.8	.7	59	0	7.2	.2	.2	.1	--
FEB.												
23...	13	22	4.8	4.3	1.0	90	0	11	.4	.2	.4	0
MAY												
18...	11	8.8	1.6	1.8	.7	35	0	4.3	.4	.1	.1	--
AUG.												
09...	4.4	19	4.0	1.2	.6	69	0	11	.5	.2	.7	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (MPN)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.												
11...	69	50	1	111	7.6	5	3	12.6	150	--	--	--
FEB.												
23...	104	75	1	166	7.7	0	1	14.2	430	0	0	0
MAY												
18...	54	29	0	65	7.9	20	12	11.1	150	--	--	--
AUG.												
09...	81	64	8	136	7.6	0	22	7.8	23	0	0	0

12409000 COLVILLE RIVER AT KETTLE FALLS, WASH.

LOCATION.--Lat 48°33'35", long 118°05'45", in NW¼NW¼ sec.29, T.36 N., R.38 E., Stevens County, at bridge on county road, 0.2 mile upstream from Washington Water Power Company's plant, 0.3 mile upstream from gaging station, 0.5 mile south of town of Kettle Falls, and at mile 5.3.

DRAINAGE AREA.--1,007 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1960 to September 1963, October 1967 (monthly), October 1968 to September 1969 (quarterly), October 1963 to September 1967 (miscellaneous).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
NOV.									
11...	175	18	42	16	6.4	3.3	199	0	18
FEB.									
23...	251	20	47	17	7.9	2.6	208	0	29
MAY									
18...	1150	18	32	9.0	4.3	1.8	136	2	11
AUG.									
09...	120	18	48	15	7.1	2.3	211	0	18

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	PH (UNITS)
NOV.									
11...	2.2	.2	1.2	--	212	169	6	343	7.8
FEB.									
23...	2.0	.1	3.5	10	--	188	17	384	7.8
MAY									
18...	1.4	.1	.7	--	159	117	2	242	8.3
AUG.									
09...	1.7	.2	.9	--	216	182	6	362	7.7

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (MPN)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.							
11...	10	3	11.6	2400	--	--	--
FEB.							
23...	10	2	12.5	4600	0	0	0
MAY							
18...	20	17	9.1	40	--	--	--
AUG.							
09...	0	17	7.5	930	0	0	0

12413300 SOUTH FORK COEUR D'ALENE RIVER AT SMELTERVILLE, IDAHO

LOCATION.--Lat 47°32'55", long 116°10'25", in SW¼ sec.35, T.49 N., R.2 E., Shoshone County, at gaging station on left bank, 490 ft downstream from county road bridge, 0.2 mile downstream from Government Gulch, 0.6 mile northwest of Smelterville Post Office, and at mile 5.

DRAINAGE AREA.--202 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1968 (miscellaneous), October 1968 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
APR. 10...	1230	12	20	9.2	3.4	1.2	14	0	69	2.0	3.0	1.0

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
APR. 10...	139	.19	462	88	76	.2	8	196	6.3	0	7

DATE	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	NICKEL (NI) (UG/L)	COPPER (CU) (UG/L)	LEAD (PB) (UG/L)	ZINC (ZN) (UG/L)	ARSENIC (AS) (UG/L)
APR. 10...A	200	220	1200	0	60	20	140	8000	10
APR. 10...B	300	6800	1600	1	70	2	>500	7800	20

A SAMPLE FILTERED AND ACIDIFIED IN FIELD.
B SAMPLE ACIDIFIED IN FIELD, BUT NOT FILTERED.

12416000 HAYDEN CREEK BELOW NORTH FORK, NEAR HAYDEN LAKE, IDAHO
(Hydrologic bench-mark station)

LOCATION.—Lat 47°49'22", long 116°39'10", in NW¼SW¼ sec.25, T.52 N., R.3 W., Kootenai County, at gaging station on right bank, 0.3 mile downstream from confluence of East and North Forks and 7.5 miles northeast of Hayden Lake Post Office.

DRAINAGE AREA.—22.0 sq mi.

PERIOD OF RECORD.—Chemical analyses: November 1966 to September 1967 (miscellaneous), October 1967 to September 1969 (monthly).
Sediment records: October 1968 to September 1969 (partial records).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)
OCT.												
29...	11	13	--	8.4	2.7	1.4	.6	40	0	2.6	.5	.1
NOV.												
12...	99	--	--	--	--	--	--	--	--	--	--	--
DEC.												
20...	27	13	--	7.2	2.4	1.2	.5	32	0	2.4	.5	.1
FEB.												
26...	15	13	--	7.6	2.7	1.2	.4	38	0	2.6	1.0	.0
APR.												
03...	187	15	--	4.8	1.6	1.2	.6	24	0	2.6	1.5	.0
28...	113	14	0	4.8	1.6	1.2	1.0	25	0	2.4	.0	.0
JUNE												
23...	15	14	10	7.5	2.5	1.4	.6	38	0	1.8	.0	.0
JULY												
24...	7.3	13	--	10	2.9	1.5	.7	45	0	2.6	.5	.0
SEPT.												
03...	4.0	13	--	10	3.1	1.6	.6	49	0	2.8	.0	.0

DATE	NITRATE (NO3) (MG/L)	PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	DIS-SOL-VED ORGANIC CARBON (C) (MG/L)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
OCT.												
29...	.2	.01	47	1.41	32	0	.1	72	7.6	--	0	4
NOV.												
12...	--	--	--	--	--	--	--	--	--	24	--	5
DEC.												
20...	.1	--	42	3.06	28	2	.1	61	7.2	--	0	0
FEB.												
26...	.2	.01	51	2.07	30	0	.1	66	7.9	--	0	2
APR.												
03...	.1	.04	37	18.7	18	0	.1	44	7.2	--	5	6
28...	.0	.03	40	12.2	18	0	.1	44	7.5	8.0	0	7
JUNE												
23...	.1	.03	47	1.93	29	0	.1	64	7.5	--	10	11
JULY												
24...	.2	.08	50	.99	37	0	.1	74	7.6	--	5	14
SEPT.												
03...	.1	.01	48	.52	38	0	.1	80	7.5	--	0	11

DATE	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	STRON-TIUM (SR) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	NICKEL (NI) (UG/L)	COPPER (CU) (UG/L)	LEAD (PB) (UG/L)
APR.								
03...	100	120	0	--	0	30	0	30
SEPT.								
03...	100	30	10	0	3	0	0	44

DATE	ZINC (ZN) (UG/L)	COBALT (CO) (UG/L)	ARSENIC (AS) (UG/L)	CAD-MIUM (CD) (UG/L)	BARIUM (BA) (UG/L)	VANA-DIUM (V) (UG/L)	SILVER (AG) (UG/L)
APR.							
03...	0	--	0	--	--	--	--
SEPT.							
03...	50	5	1	4	100	2	3

12416000 HAYDEN CREEK BELOW NORTH FORK, NEAR HAYDEN LAKE, IDAHO--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	ALDRIN (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	SILVEX (UG/L)	2,4,5-T (UG/L)
NOV.											
12...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR.											
28...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	ALDRIN IN BOTTOM DE-POSITS (UG/KG)	DDD IN BOTTOM DE-POSITS (UG/KG)	DDE IN BOTTOM DE-POSITS (UG/KG)	DDT IN BOTTOM DE-POSITS (UG/KG)	DI-ELDRIN IN BOTTOM DE-POSITS (UG/KG)	ENDRIN IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR IN BOTTOM DE-POSITS (UG/KG)	LINDANE IN BOTTOM DE-POSITS (UG/KG)
NOV.								
12...	.00	.50	.00	1.0	.00	.00	.00	.00

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-SOLVED NATURAL URANIUM (U) (UG/L)	DIS-SOLVED RADIUM 226 (RA) (PC/L)	DIS-SOLVED ALPHA (UG/L)	DIS-SOLVED BETA (PC/L)	DIS-SOLVED SOLIDS (MG/L)	SUS-PENDED ALPHA (UG/L)	SUS-PENDED BETA (PC/L)	SUS-PENDED SOLIDS (MG/L)
SEPT.								
03...	.02	.1	1.1	2.8	53	<.40	.70	<1

FIELD ANALYSES AND BIOLOGICAL DATA, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FIELD SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	FIELD PH (UNITS)	DIS-SOLVED OXYGEN (MG/L)	DIS-SOLVED OXYGEN (PER-CENT SATUR-ATION)	FIVE-DAY B.O.D. (MG/L)	DIS-SOLVED ORGANIC CARBON (MG/L)	COLI-FORM (MPN)	FECAL COLI-FORM, E.C. BROTH (MPN)	COLI-FORM MEM-BRANE FILTER (COL-ONIES/ 100 ML)
OCT.1968									
29...	65	7.4	10.2	85	.8	--	70	23	--
NOV.									
12...	--	--	--	--	--	24	--	--	--
DEC.									
20...	51	7.3	13.9	103	2.3	--	8	5	--
FEB.1969									
26...	58	7.3	13.9	109	2.3	--	<2	--	12
APR.									
03...	41	7.1	12.0	104	1.5	--	23	--	--
28...	39	7.3	11.9	106	.3	8	26	14	--
JUN.									
23...	59	7.4	10.4	103	.3	--	>240	38	--
JULY									
24...	74	7.4	9.1	95	.3	--	5	--	--
SEPT.									
03...	75	7.5	8.5	83	.2	--	49	--	--

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	WATER TEM-PERA-TURE (C)	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)
NOV 12, 1968	1230	5	99	8	2.1
FEB 26, 1969	0940	2	15	5	.20
APR 3.....	1025	6	187	12	6.1
APR 28.....	1130	7	113	2	.61
JUN 23.....	1120	11	15	2	.08
JUL 24.....	1110	14	7.3	3	.06
SEP 3.....	1035	11	4.0	4	.04

12419500 SPOKANE RIVER ABOVE LIBERTY BRIDGE, NEAR OTIS ORCHARDS, WASH.

LOCATION.--Lat 47°41'55", long 117°02'35", in NW¼NW¼ sec.6, T.25 N., R.46 E., Spokane County, at bridge on U.S. Highway 10 at State line, 2.1 miles upstream from gaging station, 3.3 miles upstream from Liberty Bridge, 3.5 miles east of Otis Orchards, and at mile 96.0.

DRAINAGE AREA.--3,880 sq mi, approximately (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1965 (daily), October 1965 to September 1966 (miscellaneous), October 1966 to September 1969 (monthly).
Water temperatures: December 1963 to September 1965.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No appreciable inflow between sampling point and gaging station except during period of heavy local runoff.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-, BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
20...	4210	7.2	5.9	1.8	1.4	.6	23	0	7.6	.0	.4	.2
NOV.												
11...	3920	7.4	5.8	2.1	1.5	.6	23	0	8.2	.3	.4	.2
DEC.												
15...	9300	7.6	6.3	1.8	1.6	.7	23	0	8.2	.2	.3	.3
FEB.												
03...	3550	8.7	6.6	2.0	1.7	.6	24	0	9.4	.2	.3	.3
23...	4540	8.7	6.6	2.0	1.7	.7	23	0	10	.0	.3	.2
MAR.												
23...	6540	8.9	6.6	2.0	1.4	.8	23	0	10	.1	.4	.5
APR.												
13...	21800	9.5	6.9	2.0	1.8	.8	23	0	11	.1	.1	.6
MAY												
18...	25600	11	5.1	1.4	1.3	.7	21	0	6.6	.3	.1	.1
JUNE												
15...	2060	8.7	5.1	1.4	1.5	.3	20	0	6.0	.2	.2	.2
JULY												
21...	1440	8.0	5.2	1.4	1.4	.7	19	0	6.6	.1	.2	.0
AUG.												
09...	649	7.9	5.3	1.5	1.4	.7	20	0	6.2	.4	.2	1.1
SEPT.												
21...	1430	8.1	5.7	1.6	1.4	.7	21	0	7.0	.2	.1	.6

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC CONDU-CTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (MPN)
OCT.												
20...	36	.05	409	22	3	.1	57	6.9	0	11	11.0	90
NOV.												
11...	42	.06	445	23	4	.1	60	6.9	5	8	9.6	430
DEC.												
15...	41	.06	1030	23	4	.1	59	7.0	0	6	11.0	40
FEB.												
03...	48	.07	460	25	5	.1	65	7.0	5	2	12.0	230
23...	46	.06	564	25	6	.1	64	7.1	5	2	12.4	73
MAR.												
23...	42	.06	742	25	6	.1	64	7.0	0	4	13.5	150
APR.												
13...	52	.07	3060	25	6	.2	66	7.2	5	9	13.5	90
MAY												
18...	34	.05	2350	19	2	.1	50	7.0	5	15	11.0	430
JUNE												
15...	37	.05	206	19	2	.2	47	7.1	0	19	9.2	90
JULY												
21...	37	.05	144	19	4	.1	49	6.9	0	24	8.7	36
AUG.												
09...	42	.06	73.6	19	3	.1	50	7.2	0	23	8.0	230
SEPT.												
21...	40	.05	154	21	4	.1	54	7.1	0	17	8.0	210

DATE	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	DIS-SOLVED BORON (B) (UG/L)
FEB.			
23...A	0	540	0
AUG.			
09...A	0	200	0

A INCLUDES 0 UG/L TOTAL CHROMIUM (CR).

12424500 SPOKANE RIVER AT SEVENMILE BRIDGE, NEAR SPOKANE, WASH.

LOCATION.--Lat 47°44'25", long 117°31'10", in NE¼NE¼ sec.20, T.26 N., R.42 E., Spokane County, at bridge on Sevenmile Road, 7.3 miles northwest of Spokane, 10.5 miles downstream from Hangman Creek, and at mile 61.9.

DRAINAGE AREA.--5,020 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses.--December 1965 to September 1966 (miscellaneous), November 1966 to September 1969 (monthly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
20...	7.0	9.1	3.3	3.5	1.8	36	0	9.0	3.1	.4	.5	--
NOV.												
11...	7.2	11	2.9	2.4	1.0	40	0	10	.4	.4	.9	--
DEC.												
15...	8.3	8.0	2.4	1.9	.8	28	0	9.6	.3	.3	.6	--
FEB.												
02...	8.9	11	3.7	3.3	1.2	43	0	10	1.9	.3	.8	--
23...	11	12	4.1	2.7	1.1	46	0	12	.7	.3	1.1	10
MAR.												
23...	15	11	3.2	3.0	1.8	34	0	11	.7	.3	8.2	--
APR.												
13...	9.7	7.8	2.2	2.2	1.0	27	0	12	.6	.1	.8	--
MAY												
18...	11	5.9	1.8	1.5	.8	24	0	7.0	.4	.1	.3	--
JUNE												
15...	8.9	16	6.0	3.6	1.3	70	0	9.6	.8	.1	1.8	--
JULY												
21...	8.9	18	6.8	5.4	2.8	79	0	12	6.0	.2	1.9	--
AUG.												
09...	11	24	9.2	8.4	3.8	104	0	13	11	.2	4.4	0
SEPT.												
21...	9.6	17	6.2	3.9	1.6	71	0	11	2.5	.1	1.9	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (MPN)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
20...	59	36	7	95	6.9	5	10	9.5	2400	--	--	--
NOV.												
11...	65	40	7	95	6.8	5	8	10.9	46000	--	--	--
DEC.												
15...	53	30	7	75	7.0	10	6	12.0	430	--	--	--
FEB.												
02...	76	43	8	107	7.1	5	2	12.8	2400	--	--	--
23...	74	47	10	107	7.2	5	3	12.9	930	0	0	380
MAR.												
23...	81	41	13	102	7.7	20	3	12.5	430	--	--	--
APR.												
13...	52	28	7	75	6.8	5	8	13.0	2400	--	--	--
MAY												
18...	41	22	3	54	7.0	5	14	11.5	430	--	--	--
JUNE												
15...	114	65	7	147	7.3	5	14	9.0	2400	--	--	--
JULY												
21...	112	73	9	176	7.2	0	18	7.9	2400	--	--	--
AUG.												
09...	146	98	13	239	7.2	5	17	6.6	743	0	0	170
SEPT.												
21...	104	68	10	155	7.0	0	15	8.0	430	--	--	--

12431000 LITTLE SPOKANE RIVER AT DARTFORD, WASH.

LOCATION.--Lat 47°47'05", long 117°24'12", in NE¼NW¼ sec.5, T.26 N., R.43 E., Spokane County, at Mill Road bridge, 50 ft downstream from gaging station, 0.5 mile east of Dartford, 1.7 miles downstream from Deadman Creek, and at mile 11.4.
DRAINAGE AREA.--665 sq mi.
PERIOD OF RECORD.--Chemical analyses: July 1960 to September 1966 (monthly), October 1967 to September 1969 (partial record).
Water temperatures: July 1968 to September 1969.

CHEMICAL ANALYSES IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2)	CAL-CIUM (CA)	MAG-NE-SIUM (MG)	SODIUM (NA)	PO-TAS-SIUM (K)	BICAR-BONATE (HCO3)	CAR-BONATE (CO3)	SULFATE (SO4)
FEB.									
25...	634	20	15	4.0	4.9	4.0	68	0	6.0
MAY									
12...	188	15	26	6.6	5.4	1.8	118	0	5.4
AUG.									
11...	97	16	32	8.9	5.7	2.0	148	0	7.0

DATE	CHLO-RIDE (CL)	FLUO-RIDE (F)	NITRATE (NO3)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C)	HARD-NESS (CA,MG)	NON-CAR-BONATE HARD-NESS	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH	COLOR
FEB.									
25...	2.1	.2	3.4	104	54	0	135	7.5	30
MAY									
12...	1.3	.3	1.3	126	92	0	198	8.1	10
AUG.									
11...	2.1	.2	1.7	153	117	0	248	8.1	0

DATE	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN	COLI-FORM (MPN)	TOTAL CHRO-MIUM (CR)	COPPER (CU)	ZINC (ZN)	BORON (B)
FEB.							
25...	6	10.4	910	.00	.01	.00	.01
MAY							
12...	18	7.7	130	--	--	--	--
AUG.							
11...	21	7.6	150	.00	.00	.00	--

12431000 LITTLE SPOKANE RIVER AT DARTFORD, WASH.--Continued

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C June 4, 6, 7; minimum, freezing point Jan. 2-5.
Period of record:
Water temperatures: Maximum, 22.0°C June 4, 6, 7, 1969; minimum, freezing point Jan. 2-5, 1969.
REMARKS.--Coliform and dissolved oxygen furnished by Washington State Water Pollution Control Commission. Temperature recorder at gaging station 50 ft upstream. Recorder stopped Sept. 29 to Oct. 10, 1968, and Jan. 2-5, 1969; ranges in temperature, 9.0°C to 13.0°C and 0.0°C to 3.0°C, respectively.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
NOV.									
12...	356	19	28	6.7	5.9	3.7	120	0	9.0
FEB.									
24...	268	23	26	6.5	5.6	2.3	104	4	7.4
MAY									
18...	557	20	17	4.1	4.2	1.6	75	0	5.7
AUG.									
10...	138	18	31	7.5	5.6	2.0	137	0	6.2

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
NOV.									
12...	1.6	.2	2.4	--	141	98	0	218	7.8
FEB.									
24...	2.0	.1	2.2	30	123	92	0	201	8.3
MAY									
18...	1.4	.2	.8	--	97	60	0	137	7.5
AUG.									
10...	1.5	.2	1.4	0	150	109	0	232	8.0

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (MPN)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.							
12...	10	6	10.8	2400	--	--	--
FEB.							
24...	10	2	12.0	91	0	0	0
MAY							
18...	10	11	9.4	930	--	--	--
AUG.							
10...	0	20	8.4	150	0	0	0

12431000 LITTLE SPOKANE RIVER AT DARTFORD, WASH.--Continued

TEMPERATURE (°C) OF WATER, JULY TO SEPTEMBER 1968

JULY																																		
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20	21	21	19	19	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18	18	18	17	17	--
AUGUST																																		
MAXIMUM	19	19	20	19	19	19	18	18	17	18	19	18	17	16	15	17	16	16	16	16	16	16	15	17	17	17	17	17	17	17	18	17
MINIMUM	17	17	18	17	17	16	16	16	16	16	17	16	16	15	14	14	15	15	14	15	15	14	14	14	16	16	16	16	14	15	15	16
SEPTEMBER																																		
MAXIMUM	17	17	17	17	17	16	17	17	16	16	16	17	16	14	14	14	14	14	13	13	12	12	13	13	14	14	14	13	--	--	--	15
MINIMUM	16	16	14	14	14	15	15	14	14	14	14	15	14	14	13	13	14	13	12	12	12	11	12	12	12	13	13	12	--	--	--	13

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	8.0	7.0	6.0	6.0	3.0	3.0	3.0	2.0	5.0	4.0
2	--	--	8.0	7.0	6.0	6.0	--	--	3.0	3.0	6.0	4.0
3	--	--	8.0	8.0	7.0	6.0	--	--	3.0	3.0	6.0	4.0
4	--	--	9.0	8.0	7.0	6.0	--	--	3.0	2.0	6.0	5.0
5	--	--	8.0	7.0	6.0	5.0	--	--	3.0	3.0	6.0	4.0
6	--	--	8.0	7.0	5.0	4.0	3.0	3.0	3.0	3.0	5.0	4.0
7	--	--	7.0	7.0	6.0	4.0	3.0	2.0	3.0	3.0	6.0	4.0
8	--	--	7.0	7.0	6.0	6.0	3.0	3.0	4.0	3.0	5.0	3.0
9	--	--	8.0	7.0	6.0	6.0	3.0	3.0	4.0	4.0	4.0	3.0
10	11.0	10.0	7.0	7.0	7.0	6.0	3.0	3.0	4.0	4.0	5.0	3.0
11	11.0	10.0	8.0	7.0	6.0	5.0	3.0	3.0	4.0	4.0	5.0	3.0
12	11.0	10.0	8.0	7.0	5.0	4.0	4.0	3.0	4.0	3.0	5.0	3.0
13	11.0	10.0	7.0	6.0	4.0	3.0	3.0	3.0	4.0	3.0	5.0	3.0
14	11.0	9.0	7.0	6.0	4.0	4.0	4.0	3.0	4.0	2.0	5.0	4.0
15	11.0	10.0	6.0	6.0	5.0	4.0	3.0	2.0	4.0	3.0	6.0	4.0
16	10.0	8.0	6.0	5.0	5.0	4.0	3.0	2.0	4.0	4.0	6.0	4.0
17	9.0	8.0	6.0	5.0	5.0	4.0	3.0	2.0	4.0	4.0	6.0	5.0
18	10.0	9.0	6.0	6.0	4.0	4.0	3.0	2.0	4.0	3.0	5.0	4.0
19	9.0	9.0	7.0	6.0	4.0	4.0	3.0	2.0	4.0	3.0	4.0	3.0
20	10.0	9.0	7.0	7.0	4.0	3.0	3.0	2.0	4.0	3.0	4.0	3.0
21	10.0	9.0	7.0	7.0	3.0	3.0	3.0	3.0	3.0	2.0	4.0	3.0
22	11.0	9.0	8.0	7.0	3.0	2.0	4.0	2.0	4.0	3.0	4.0	3.0
23	11.0	10.0	7.0	7.0	4.0	3.0	3.0	2.0	4.0	3.0	6.0	3.0
24	11.0	9.0	7.0	6.0	4.0	4.0	3.0	2.0	5.0	4.0	6.0	3.0
25	11.0	10.0	7.0	6.0	5.0	4.0	3.0	2.0	5.0	4.0	6.0	4.0
26	10.0	9.0	7.0	7.0	4.0	4.0	3.0	2.0	5.0	4.0	7.0	4.0
27	9.0	8.0	7.0	6.0	4.0	3.0	4.0	2.0	6.0	4.0	7.0	5.0
28	8.0	8.0	6.0	6.0	3.0	2.0	3.0	2.0	6.0	4.0	7.0	4.0
29	8.0	7.0	6.0	6.0	3.0	3.0	3.0	2.0	--	--	7.0	5.0
30	9.0	8.0	6.0	6.0	3.0	3.0	3.0	2.0	--	--	8.0	6.0
31	9.0	8.0	--	--	3.0	3.0	3.0	2.0	--	--	8.0	6.0
AVG	--	--	7.1	6.6	4.7	4.0	3.1	2.3	3.9	3.2	5.6	3.8

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	6.0	10.0	8.0	18.0	17.0	17.0	14.0	19.0	17.0	16.0	14.0
2	8.0	6.0	10.0	9.0	19.0	17.0	18.0	16.0	19.0	16.0	16.0	14.0
3	8.0	7.0	12.0	9.0	21.0	18.0	18.0	16.0	19.0	16.0	16.0	14.0
4	8.0	7.0	13.0	9.0	22.0	18.0	16.0	15.0	18.0	16.0	14.0	13.0
5	9.0	7.0	14.0	11.0	21.0	19.0	17.0	15.0	17.0	15.0	14.0	13.0
6	9.0	8.0	16.0	12.0	22.0	19.0	18.0	16.0	17.0	14.0	14.0	12.0
7	9.0	7.0	16.0	13.0	22.0	19.0	19.0	16.0	17.0	14.0	15.0	13.0
8	10.0	8.0	17.0	13.0	21.0	19.0	19.0	17.0	18.0	16.0	16.0	13.0
9	11.0	8.0	17.0	14.0	21.0	18.0	20.0	17.0	18.0	16.0	16.0	15.0
10	11.0	8.0	18.0	15.0	20.0	19.0	20.0	18.0	18.0	16.0	16.0	14.0
11	10.0	8.0	17.0	15.0	20.0	17.0	20.0	18.0	18.0	16.0	16.0	14.0
12	11.0	8.0	17.0	14.0	21.0	18.0	19.0	17.0	17.0	16.0	16.0	14.0
13	11.0	9.0	17.0	15.0	19.0	16.0	18.0	16.0	17.0	14.0	16.0	14.0
14	10.0	8.0	16.0	14.0	19.0	16.0	18.0	16.0	18.0	16.0	14.0	12.0
15	11.0	8.0	16.0	14.0	19.0	16.0	18.0	16.0	19.0	17.0	13.0	11.0
16	12.0	9.0	16.0	14.0	20.0	17.0	18.0	16.0	18.0	16.0	13.0	11.0
17	12.0	11.0	17.0	14.0	20.0	17.0	18.0	16.0	17.0	14.0	13.0	12.0
18	11.0	10.0	17.0	14.0	21.0	18.0	19.0	16.0	17.0	16.0	13.0	13.0
19	11.0	9.0	17.0	15.0	21.0	18.0	20.0	17.0	17.0	15.0	14.0	13.0
20	11.0	8.0	16.0	14.0	21.0	18.0	21.0	18.0	18.0	15.0	14.0	13.0
21	12.0	9.0	17.0	14.0	20.0	18.0	20.0	17.0	18.0	16.0	13.0	12.0
22	14.0	11.0	18.0	16.0	18.0	17.0	20.0	17.0	18.0	16.0	13.0	12.0
23	14.0	12.0	19.0	16.0	17.0	17.0	21.0	18.0	19.0	17.0	13.0	13.0
24	12.0	10.0	18.0	17.0	17.0	16.0	21.0	18.0	19.0	17.0	13.0	12.0
25	11.0	8.0	18.0	16.0	16.0	14.0	21.0	18.0	18.0	16.0	13.0	12.0
26	12.0	9.0	18.0	17.0	16.0	14.0	19.0	16.0	17.0	14.0	13.0	12.0
27	13.0	10.0	17.0	16.0	15.0	14.0	19.0	17.0	17.0	15.0	13.0	12.0
28	13.0	11.0	17.0	14.0	16.0	14.0	20.0	17.0	16.0	14.0	13.0	13.0
29	11.0	9.0	16.0	16.0	17.0	14.0	19.0	17.0	16.0	13.0	13.0	12.0
30	9.0	8.0	17.0	15.0	16.0	14.0	19.0	16.0	16.0	14.0	13.0	12.0
31	--	--	19.0	16.0	--	--	19.0	17.0	16.0	14.0	--	--
AVG	10.7	8.5	16.2	13.8	19.2	16.8	19.0	16.5	17.6	15.3	14.1	12.8

12433000 SPOKANE RIVER AT LONG LAKE, WASH.

LOCATION.--Lat 47°50'20", long 117°51'05", in NW¼SE¼ sec.14, T.27 N., R.39 E., Lincoln County, at bridge on Spring Creek Road (State Highway 231), 0.6 mile downstream from gaging station at Long Lake powerhouse, 0.6 mile upstream from Chamokane Creek, 12 miles north of Reardon, and at mile 33.3.

DRAINAGE AREA.--6,020 sq mi, approximately (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1969.
Water temperatures: July 1959 to September 1962, October 1966 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C July 10, 24; minimum, 1.0°C Feb. 8-15.

Period of record:
Water temperatures: Maximum, 24.5°C Aug. 18, 1959; minimum, freezing point Jan. 21, Feb. 26, 1960.

REMARKS.--Coliform and dissolved oxygen data furnished by Washington State Water Pollution Control Commission.
No inflow between sampling point and gaging station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
20...	4910	7.0	16	8.3	4.2	1.9	79	0	11
NOV.									
11...	5110	7.2	15	5.5	3.6	1.6	63	0	10
DEC.									
15...	10900	8.6	11	3.5	2.8	1.3	42	0	10
FEB.									
02...	6460	9.1	9.7	3.2	2.7	1.0	39	0	9.8
23...	6310	11	12	4.2	3.4	1.3	49	0	11
MAR.									
23...	11400	13	14	4.9	3.7	1.8	58	0	11
APR.									
13...	24700	10	8.1	2.4	2.5	1.2	30	0	9.3
MAY									
18...	27900	12	7.0	2.1	1.9	1.0	28	0	7.8
JUNE									
15...	4950	9.4	8.1	2.6	2.3	.7	33	0	7.2
JULY									
21...	2820	9.5	15	5.3	3.4	1.7	66	0	9.0
AUG.									
09...	1140	9.6	18	6.6	4.8	2.2	79	0	9.6
SEPT.									
21...	2290	9.6	20	7.7	5.2	2.1	93	0	10

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
20...	2.8	.3	1.9	--	97	74	10	167	7.2
NOV.									
11...	2.1	.4	1.7	--	86	60	9	133	7.1
DEC.									
15...	.7	.3	1.3	--	72	42	8	100	7.1
FEB.									
02...	1.1	.2	1.0	--	68	37	5	95	7.1
23...	1.8	.1	1.6	20	72	48	8	116	7.5
MAR.									
23...	2.0	.3	3.5	--	90	55	8	133	7.8
APR.									
13...	.9	.1	1.0	--	64	30	6	79	6.9
MAY									
18...	.4	.1	.3	--	48	26	3	66	7.5
JUNE									
15...	1.2	.2	.6	--	54	31	4	75	7.1
JULY									
21...	2.4	.1	1.5	--	88	60	6	137	7.2
AUG.									
09...	4.2	.2	2.6	0	102	72	8	167	7.3
SEPT.									
21...	3.6	.2	2.6	--	109	82	6	188	7.5

12433000 SPOKANE RIVER AT LONG LAKE, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	*COLIFORM (MPN)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
20...	0	12	6.5	230	--	--	--
NOV.							
11...	5	9	7.8	930	--	--	--
DEC.							
15...	5	6	12.3	230	--	--	--
FEB.							
02...	5	2	12.6	230	--	--	--
23...	5	3	12.3	430	0	0	370
MAR.							
23...	10	5	12.1	230	--	--	--
APR.							
13...	5	7	13.6	930	--	--	--
MAY							
18...	5	15	12.0	430	--	--	--
JUNE							
15...	0	18	8.9	110	--	--	--
JULY							
21...	5	19	5.9	40	--	--	--
AUG.							
09...	0	19	4.2	90	0	0	50
SEPT.							
21...	0	17	4.5	2400	--	--	--

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	11.0	6.0	3.0	2.0	3.0	5.0	7.0	15.0	18.0	19.0	19.0
2	16.0	11.0	6.0	3.0	2.0	3.0	6.0	7.0	15.0	19.0	19.0	18.0
3	16.0	11.0	6.0	3.0	2.0	3.0	6.0	7.0	15.0	18.0	19.0	18.0
4	15.0	11.0	6.0	3.0	2.0	3.0	6.0	7.0	15.0	16.0	19.0	17.0
5	15.0	11.0	6.0	3.0	2.0	3.0	6.0	7.0	15.0	16.0	18.0	17.0
6	15.0	10.0	6.0	3.0	2.0	3.0	6.0	7.0	16.0	16.0	18.0	18.0
7	14.0	10.0	6.0	2.0	2.0	3.0	6.0	8.0	17.0	16.0	19.0	18.0
8	14.0	10.0	6.0	3.0	1.0	3.0	6.0	9.0	18.0	18.0	19.0	17.0
9	14.0	10.0	6.0	3.0	1.0	3.0	6.0	10.0	18.0	19.0	19.0	18.0
10	14.0	10.0	6.0	3.0	1.0	3.0	6.0	10.0	18.0	21.0	19.0	18.0
11	14.0	10.0	6.0	3.0	1.0	3.0	6.0	10.0	18.0	17.0	19.0	17.0
12	14.0	10.0	6.0	3.0	1.0	3.0	6.0	11.0	17.0	16.0	18.0	18.0
13	14.0	9.0	6.0	3.0	1.0	3.0	6.0	11.0	18.0	17.0	18.0	19.0
14	14.0	9.0	6.0	2.0	1.0	3.0	6.0	12.0	17.0	18.0	18.0	16.0
15	13.0	9.0	6.0	2.0	1.0	4.0	6.0	12.0	17.0	17.0	19.0	17.0
16	13.0	9.0	6.0	2.0	2.0	4.0	6.0	13.0	17.0	18.0	18.0	17.0
17	13.0	9.0	5.0	2.0	2.0	4.0	6.0	12.0	16.0	19.0	18.0	18.0
18	13.0	--	5.0	3.0	2.0	4.0	6.0	12.0	16.0	18.0	19.0	17.0
19	12.0	9.0	5.0	3.0	2.0	4.0	6.0	12.0	16.0	20.0	19.0	17.0
20	12.0	8.0	--	3.0	2.0	4.0	6.0	13.0	16.0	20.0	18.0	17.0
21	12.0	8.0	5.0	3.0	2.0	4.0	6.0	13.0	19.0	18.0	19.0	16.0
22	12.0	8.0	5.0	2.0	2.0	4.0	6.0	13.0	17.0	20.0	19.0	16.0
23	12.0	8.0	5.0	2.0	3.0	4.0	6.0	13.0	17.0	20.0	18.0	16.0
24	12.0	8.0	5.0	2.0	4.0	4.0	6.0	14.0	18.0	21.0	20.0	16.0
25	12.0	8.0	5.0	3.0	4.0	4.0	6.0	14.0	17.0	20.0	19.0	16.0
26	11.0	7.0	5.0	2.0	4.0	4.0	7.0	14.0	18.0	17.0	19.0	16.0
27	11.0	7.0	5.0	2.0	4.0	4.0	7.0	14.0	17.0	18.0	19.0	16.0
28	11.0	7.0	4.0	2.0	4.0	4.0	7.0	14.0	17.0	19.0	19.0	16.0
29	11.0	7.0	4.0	2.0	--	5.0	7.0	14.0	17.0	18.0	19.0	16.0
30	11.0	7.0	3.0	2.0	--	5.0	7.0	14.0	17.0	18.0	18.0	16.0
31	11.0	--	3.0	2.0	--	5.0	--	15.0	--	19.0	19.0	--
A 7	13.1	9.0	5.3	2.5	2.1	3.6	6.1	11.2	16.8	18.2	18.7	17.0

12434500 SANPOIL RIVER NEAR KELLER, WASH.

LOCATION.--Lat 48°06'28", long 118°41'51", south line SE¼ sec.7, T.30 N., R.33 E., Ferry County, temperature recorder at former gaging station 0.3 mile upstream from Brush Creek, 2.2 miles north of Keller, and at mile 14.1.

DRAINAGE AREA.--880 sq mi.

PERIOD OF RECORD.--Water temperatures: July 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 24.0°C July 22-24; minimum, freezing point on many days during November to February.

Period of record:
Water temperatures: Maximum, 26.0°C July 27-29, Aug. 3, 4, 1968; minimum, freezing point on many days during November 1968 to February 1969.

TEMPERATURE (°C) OF WATER, JULY TO SEPTEMBER 1968

JULY																															
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	25	26	26	26	24	24	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	17	18	18	18	17	17	--
AUGUST																															
MAXIMUM	25	24	26	26	24	23	23	23	24	22	24	24	18	17	18	19	19	18	17	17	19	18	17	16	16	18	18	19	20	21	21	20
MINIMUM	17	18	19	19	17	16	16	16	17	17	17	17	16	16	15	14	14	14	14	13	13	14	14	14	14	14	15	14	14	14	15	15
SEPTEMBER																															
MAXIMUM	21	20	19	19	21	19	19	19	19	19	19	19	16	17	16	14	16	16	13	11	13	11	14	14	15	16	16	16	15	15	--	17
MINIMUM	17	16	13	14	14	16	14	14	14	14	15	15	14	13	13	12	12	13	9	9	9	8	8	9	10	11	11	11	10	10	--	12

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.0	10.0	6.0	3.0	3.0	1.0	1.0	0.0	1.0	0.0	5.0	3.0
2	12.0	7.0	4.0	3.0	2.0	2.0	0.0	0.0	1.0	0.0	6.0	3.0
3	11.0	6.0	6.0	4.0	4.0	2.0	0.0	0.0	0.0	0.0	6.0	3.0
4	12.0	7.0	6.0	4.0	4.0	2.0	0.0	0.0	1.0	0.0	5.0	3.0
5	9.0	7.0	6.0	3.0	3.0	1.0	0.0	0.0	1.0	0.0	4.0	2.0
6	10.0	8.0	4.0	3.0	1.0	0.0	1.0	0.0	1.0	0.0	4.0	3.0
7	9.0	6.0	4.0	3.0	1.0	0.0	1.0	0.0	1.0	1.0	6.0	3.0
8	9.0	6.0	4.0	3.0	2.0	1.0	1.0	0.0	1.0	1.0	6.0	3.0
9	8.0	6.0	6.0	3.0	3.0	2.0	1.0	0.0	1.0	1.0	5.0	1.0
10	10.0	7.0	4.0	3.0	3.0	3.0	1.0	1.0	1.0	1.0	5.0	1.0
11	8.0	7.0	5.0	4.0	3.0	3.0	1.0	0.0	1.0	1.0	4.0	1.0
12	9.0	7.0	6.0	4.0	3.0	1.0	1.0	0.0	1.0	1.0	5.0	1.0
13	9.0	7.0	4.0	3.0	1.0	0.0	1.0	0.0	1.0	1.0	5.0	2.0
14	8.0	6.0	3.0	2.0	1.0	1.0	1.0	0.0	1.0	1.0	5.0	2.0
15	9.0	7.0	2.0	1.0	2.0	1.0	1.0	0.0	1.0	1.0	6.0	4.0
16	8.0	5.0	1.0	0.0	2.0	2.0	1.0	0.0	1.0	1.0	6.0	4.0
17	8.0	5.0	2.0	0.0	2.0	1.0	1.0	0.0	1.0	0.0	7.0	5.0
18	9.0	7.0	3.0	2.0	2.0	1.0	1.0	0.0	1.0	0.0	6.0	4.0
19	8.0	7.0	4.0	3.0	2.0	1.0	1.0	0.0	1.0	0.0	5.0	3.0
20	9.0	7.0	5.0	4.0	1.0	0.0	1.0	0.0	1.0	1.0	6.0	3.0
21	7.0	6.0	5.0	4.0	0.0	0.0	1.0	0.0	1.0	0.0	4.0	3.0
22	8.0	6.0	6.0	4.0	1.0	0.0	1.0	0.0	1.0	1.0	4.0	3.0
23	8.0	6.0	4.0	3.0	1.0	0.0	1.0	0.0	1.0	1.0	5.0	3.0
24	9.0	6.0	3.0	2.0	1.0	0.0	1.0	0.0	1.0	0.0	5.0	3.0
25	8.0	7.0	3.0	2.0	1.0	0.0	1.0	0.0	1.0	1.0	6.0	3.0
26	8.0	5.0	3.0	2.0	1.0	0.0	1.0	0.0	4.0	1.0	6.0	4.0
27	7.0	4.0	3.0	2.0	1.0	0.0	1.0	0.0	5.0	2.0	6.0	4.0
28	6.0	4.0	2.0	1.0	0.0	0.0	1.0	0.0	5.0	3.0	6.0	4.0
29	6.0	4.0	2.0	2.0	0.0	0.0	1.0	0.0	--	--	6.0	4.0
30	6.0	4.0	2.0	1.0	0.0	0.0	1.0	0.0	--	--	6.0	4.0
31	7.0	3.0	--	--	1.0	0.0	1.0	0.0	--	--	6.0	4.0
AVG	8.6	6.1	3.9	2.6	1.6	0.8	0.8	0.0	1.3	0.7	5.3	3.0

SANPOIL RIVER BASIN

12434500 SANPOIL RIVER NEAR KELLER, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969--Continued

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	4.0	8.0	7.0	16.0	13.0	19.0	13.0	23.0	17.0	21.0	13.0
2	6.0	4.0	8.0	7.0	17.0	14.0	19.0	16.0	23.0	16.0	19.0	14.0
3	6.0	4.0	8.0	7.0	18.0	16.0	18.0	15.0	23.0	16.0	16.0	13.0
4	6.0	5.0	9.0	7.0	19.0	16.0	18.0	15.0	21.0	16.0	16.0	13.0
5	7.0	5.0	11.0	9.0	19.0	17.0	18.0	14.0	20.0	14.0	16.0	11.0
6	7.0	6.0	12.0	10.0	19.0	17.0	19.0	14.0	21.0	14.0	18.0	11.0
7	7.0	5.0	13.0	11.0	19.0	17.0	20.0	15.0	22.0	14.0	19.0	12.0
8	7.0	6.0	13.0	11.0	19.0	16.0	21.0	16.0	22.0	16.0	20.0	13.0
9	8.0	6.0	14.0	12.0	20.0	17.0	22.0	16.0	22.0	16.0	17.0	16.0
10	7.0	6.0	14.0	12.0	19.0	17.0	20.0	17.0	23.0	16.0	19.0	14.0
11	8.0	6.0	14.0	12.0	20.0	17.0	21.0	16.0	22.0	16.0	22.0	16.0
12	8.0	7.0	14.0	12.0	19.0	17.0	20.0	16.0	21.0	16.0	21.0	16.0
13	8.0	7.0	14.0	12.0	19.0	15.0	20.0	14.0	22.0	16.0	18.0	14.0
14	7.0	6.0	14.0	12.0	19.0	16.0	19.0	16.0	23.0	16.0	16.0	12.0
15	8.0	6.0	13.0	12.0	19.0	15.0	19.0	14.0	23.0	17.0	16.0	10.0
16	8.0	7.0	13.0	11.0	20.0	16.0	20.0	14.0	22.0	16.0	16.0	11.0
17	8.0	7.0	14.0	12.0	21.0	16.0	20.0	15.0	21.0	14.0	14.0	12.0
18	8.0	7.0	14.0	12.0	21.0	17.0	22.0	15.0	21.0	16.0	16.0	13.0
19	8.0	7.0	14.0	12.0	21.0	17.0	23.0	16.0	20.0	15.0	16.0	13.0
20	8.0	6.0	15.0	13.0	21.0	17.0	23.0	17.0	22.0	16.0	16.0	14.0
21	9.0	6.0	15.0	13.0	19.0	17.0	23.0	17.0	23.0	16.0	16.0	12.0
22	10.0	8.0	15.0	13.0	19.0	16.0	24.0	17.0	23.0	16.0	14.0	12.0
23	10.0	9.0	16.0	14.0	17.0	16.0	24.0	18.0	23.0	16.0	16.0	13.0
24	9.0	8.0	16.0	14.0	17.0	15.0	24.0	19.0	23.0	17.0	14.0	11.0
25	9.0	7.0	16.0	14.0	17.0	14.0	22.0	18.0	22.0	15.0	16.0	13.0
26	9.0	7.0	15.0	14.0	16.0	14.0	22.0	16.0	21.0	14.0	15.0	11.0
27	9.0	7.0	14.0	13.0	16.0	13.0	23.0	16.0	19.0	14.0	14.0	11.0
28	9.0	8.0	13.0	12.0	16.0	13.0	23.0	17.0	19.0	13.0	14.0	12.0
29	8.0	7.0	13.0	12.0	16.0	12.0	23.0	17.0	19.0	12.0	14.0	12.0
30	7.0	6.0	14.0	12.0	17.0	13.0	23.0	17.0	21.0	14.0	13.0	12.0
31	--	--	15.0	12.0	--	--	23.0	17.0	21.0	13.0	--	--
AVG	7.8	6.3	13.2	11.4	18.5	15.5	21.1	15.9	21.6	15.2	16.6	12.6

12439500 OKANOGAN RIVER AT OROVILLE, WASH.

LOCATION.--Lat 48°55'51", long 119°25'09", in SE¼SW¼ sec.27, T.40 N., R.27 E., Okanogan County, at gaging station at Cherry Street Bridge in Oroville, 0.5 mile downstream from Tonasket Creek and at mile 77.3.

DRAINAGE AREA.--3,210 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: July 1959 to October 1960 (daily), October 1963 to September 1968 (miscellaneous), October 1968 to September 1969 (monthly).
Water temperatures: July 1959 to September 1960.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
NOV.									
20...	649	2.0	32	10	11	2.5	139	0	28
FEB.									
12...	758	6.9	35	10	11	2.6	145	0	33
MAY									
14...	1960	3.6	33	9.2	10	2.4	135	0	29
AUG.									
13...	414	9.4	34	10	9.8	2.3	142	0	31

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
NOV.									
20...	1.1	.3	.8	--	163	123	9	279	7.9
FEB.									
12...	1.0	.3	1.0	70	176	129	10	292	8.0
MAY									
14...	1.6	.2	.3	--	160	121	10	271	8.1
AUG.									
13...	1.8	.2	.4	--	177	126	10	296	7.7

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.							
20...	0	6	10.4	60	--	--	--
FEB.							
12...	5	0	12.8	--	0	0	0
MAY							
14...	0	18	10.4	43	--	--	--
AUG.							
13...	5	22	8.6	1600	0	0	0

12442500 SIMILKAMEEN RIVER NEAR NIGHTHAWK, WASH.

LOCATION.--Lat 48°56'05", long 119°26'25", in NE¼SW¼ sec.28, T.40 N., R.27 E., Okanogan County, at 12th Avenue bridge at Oroville, 10.0 miles east of Nighthawk, 10.8 miles downstream from gaging station, and at mile 5.0.

DRAINAGE AREA.--3,550 sq mi, approximately (at gaging station).

PERIOD OF RECORD.--Chemical analyses: January 1949 to September 1950 (daily), October 1963 to September 1966 (miscellaneous), October 1966 to September 1969 (quarterly).
Water temperatures: January 1949 to September 1950, October 1966 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 26.5°C Aug. 14; minimum, freezing point on many days November to March.

Period of record:
Water temperatures: Maximum, 26.5°C Aug. 14, 1969; minimum, freezing point on many days during winter periods.

REMARKS.--Coliform and dissolved oxygen data furnished by Washington State Water Pollution Control Commission. Daily chemical analyses and water temperatures for period January 1949 to September 1950 published as Similkameen River at Oroville. Temperature records obtained at county bridge at Nighthawk, 1.7 miles upstream from gaging station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
NOV.												
20...	693	11	26	5.3	4.2	1.0	99	0	15	.3	.2	.1
MAY												
14...	13700	9.1	9.8	1.7	1.6	.6	37	0	4.4	.3	.1	.3
AUG.												
13...	484	12	27	4.5	4.4	1.2	100	0	15	.5	.1	.3

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.												
20...	116	87	4	189	7.7	0	4	11.8	100	--	--	--
MAY												
14...	56	32	1	69	7.4	20	10	10.3	210	--	--	--
AUG.												
13...	120	86	4	193	7.8	0	17	8.9	170	0	0	0

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	4.0	--	--	--	0.5	9.5	8.5	8.5	19.5	19.0	--
2	9.0	4.5	0.0	--	--	--	7.0	7.0	11.5	16.5	17.5	22.0
3	--	--	1.0	--	--	1.0	8.5	5.5	14.5	19.5	--	11.0
4	10.0	2.5	0.5	--	0.5	--	6.5	--	14.5	--	17.0	17.0
5	9.0	6.0	3.5	--	0.0	1.5	6.0	9.5	14.5	12.5	20.0	7.0
6	--	0.5	0.5	--	--	4.5	--	14.0	12.5	--	11.0	11.0
7	14.0	6.0	0.0	2.0	0.0	1.5	6.0	10.5	12.5	11.0	22.0	--
8	11.0	4.5	--	--	--	0.0	12.0	10.5	--	20.0	15.5	13.5
9	12.0	4.0	2.0	2.0	--	--	7.0	9.5	12.5	16.5	16.5	22.0
10	10.5	--	2.0	--	--	0.0	13.5	10.5	17.5	16.5	--	15.5
11	8.5	4.5	2.5	--	--	5.5	9.5	--	14.5	15.5	17.0	17.5
12	7.0	5.5	2.5	--	--	0.0	6.0	5.5	17.5	12.5	21.5	17.5
13	--	2.0	1.0	--	--	6.0	--	10.0	15.0	--	14.5	16.5
14	6.5	5.0	0.5	--	--	6.0	7.5	7.0	14.5	12.0	26.5	--
15	10.0	3.5	--	--	--	6.0	13.5	9.0	--	26.0	17.5	8.5
16	5.5	4.0	1.5	--	--	--	7.0	4.5	15.0	14.0	15.5	17.5
17	9.0	--	--	--	--	5.0	--	6.5	20.0	20.5	--	10.5
18	7.0	2.0	1.0	--	0.0	5.5	8.5	--	17.0	17.0	16.5	16.5
19	9.0	4.5	2.0	--	0.0	4.5	7.0	9.5	20.0	17.0	23.5	11.5
20	--	5.0	0.0	--	--	6.0	--	11.5	17.5	--	14.0	11.5
21	6.0	6.0	--	--	--	1.0	9.0	10.0	20.0	20.5	21.0	--
22	7.5	5.0	--	--	0.5	3.5	14.5	12.0	--	21.0	14.0	14.0
23	6.0	5.0	--	--	--	--	12.0	9.0	16.5	19.5	14.0	19.5
24	11.0	--	2.0	--	1.0	2.5	9.0	9.5	16.5	24.5	--	11.0
25	9.0	2.0	--	--	0.0	8.5	5.0	--	12.0	19.5	14.0	16.0
26	7.5	4.5	1.5	--	0.0	2.5	6.0	9.0	15.0	14.5	22.5	7.0
27	--	0.0	--	--	4.0	11.0	--	11.5	14.5	--	16.0	9.5
28	8.5	--	--	--	0.5	7.5	9.0	9.0	12.5	17.5	20.0	--
29	7.5	2.5	--	--	--	7.5	6.5	12.0	--	22.0	11.5	12.5
30	7.0	0.5	--	--	--	--	5.5	11.0	12.5	15.0	15.5	--
31	7.5	--	--	--	--	6.5	--	--	--	24.5	--	--
AVG	9.0	3.5	--	--	--	4.0	8.5	9.5	15.0	18.0	17.5	14.0

12447200 OKANOGAN RIVER AT MALOTT, WASH.

LOCATION.--Lat 48°16'55", long 119°42'15", in NW¼NW¼ sec.16, T.32 N., R.25 E., Okanogan County, at bridge in Malott, 75 ft downstream from gaging station, 0.1 mile upstream from Loup Loup Creek, and at mile 17.0.

DRAINAGE AREA.--8,100 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1963 (monthly), October 1963 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly). Prior to October 1963 published as "near Brewster".

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
NOV.												
20...	1350	5.8	33	9.5	9.4	2.1	135	0	34	1.0	.2	.5
MAY												
14...	14400	8.4	14	3.0	3.0	.9	53	0	8.6	.7	.1	.4
AUG.												
13...	814	6.2	31	8.7	9.6	2.4	130	0	26	1.8	.3	.5

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.												
20...	163	122	11	270	7.8	5	5	11.6	860	0	0	--
MAY												
14...	74	48	4	105	7.2	20	13	10.4	610	--	--	--
AUG.												
13...	156	114	7	265	7.9	5	21	8.3	700	0	0	0

12449950 METHOW RIVER NEAR PATEROS, WASH.

LOCATION.--Lat 48°04'36", long 119°58'03", in NW¼NW¼ sec.28, T.30 N., R.23 E., Okanogan County, at bridge on State Highway 16, 1.0 miles downstream from gaging station, 2.4 miles downstream from Black Canyon Creek, 3.5 miles west of Pateros, and at mile 5.7.

DRAINAGE AREA.--1,772 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1959 to October 1962 (monthly), October 1963 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).
Water temperatures: October 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C on several days during July; minimum, freezing point on many days during December to February.

REMARKS.--Coliform and dissolved oxygen data furnished by Washington State Water Pollution Control Commission. Temperature recorder at gaging station on right bank 1.0 mile upstream from sampling site. Prior to October 1963, published as "at Pateros".

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
NOV.									
20...	377	12	25	5.9	4.1	.6	105	0	8.8
FEB.									
13...	350	--	--	--	--	--	--	--	--
MAY									
14...	11100	8.5	9.6	1.4	1.6	.6	38	0	3.5
AUG.									
13...	461	13	28	5.0	4.6	1.0	109	0	9.6

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
NOV.									
20...	.3	.2	.8	--	110	87	1	181	7.9
FEB.									
13...	--	--	--	10	--	--	--	--	--
MAY									
14...	.4	.1	.2	--	50	30	0	68	7.7
AUG.									
13...	.7	.2	1.4	--	118	91	1	197	7.8

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.							
20...	5	5	11.8	89	--	--	--
FEB.							
13...	--	1	11.7	11	0	0	0
MAY							
14...	10	10	11.0	260	--	--	--
AUG.							
13...	0	18	9.9	320	--	--	--

12449950 METHOW RIVER NEAR PATEROS, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	6.0	4.0	3.0	2.0	0.0	0.0	0.0	0.0	6.0	3.0
2	--	--	6.0	5.0	2.0	1.0	0.0	0.0	0.0	0.0	6.0	4.0
3	--	--	7.0	5.0	3.0	2.0	0.0	0.0	0.0	0.0	7.0	4.0
4	--	--	7.0	5.0	3.0	2.0	0.0	0.0	1.0	0.0	6.0	4.0
5	--	--	6.0	4.0	3.0	1.0	0.0	0.0	1.0	1.0	6.0	4.0
6	--	--	6.0	4.0	1.0	0.0	0.0	0.0	1.0	0.0	6.0	4.0
7	--	--	6.0	5.0	1.0	0.0	0.0	0.0	1.0	0.0	7.0	5.0
8	--	--	6.0	5.0	2.0	1.0	0.0	0.0	0.0	0.0	6.0	3.0
9	--	--	6.0	5.0	3.0	1.0	0.0	0.0	1.0	0.0	6.0	2.0
10	--	--	6.0	4.0	2.0	2.0	0.0	0.0	1.0	0.0	5.0	2.0
11	--	--	5.0	4.0	3.0	2.0	1.0	0.0	1.0	0.0	5.0	2.0
12	--	--	6.0	4.0	2.0	0.0	0.0	0.0	1.0	0.0	4.0	1.0
13	--	--	5.0	3.0	0.0	0.0	0.0	0.0	1.0	0.0	5.0	2.0
14	--	--	4.0	3.0	1.0	0.0	0.0	0.0	1.0	0.0	4.0	2.0
15	--	--	4.0	2.0	2.0	1.0	0.0	0.0	1.0	0.0	7.0	3.0
16	--	--	2.0	1.0	2.0	1.0	0.0	0.0	1.0	1.0	8.0	5.0
17	--	--	3.0	2.0	1.0	0.0	0.0	0.0	1.0	1.0	9.0	6.0
18	--	--	4.0	3.0	1.0	0.0	0.0	0.0	1.0	1.0	9.0	6.0
19	--	--	5.0	3.0	2.0	1.0	0.0	0.0	1.0	1.0	9.0	6.0
20	--	--	6.0	4.0	1.0	0.0	0.0	0.0	1.0	0.0	9.0	6.0
21	--	--	6.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	6.0
22	--	--	6.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	6.0
23	--	--	5.0	4.0	0.0	0.0	0.0	0.0	1.0	0.0	9.0	5.0
24	--	--	4.0	3.0	0.0	0.0	0.0	0.0	1.0	0.0	9.0	5.0
25	--	--	3.0	3.0	0.0	0.0	0.0	0.0	3.0	1.0	9.0	6.0
26	--	--	4.0	3.0	0.0	0.0	0.0	0.0	4.0	3.0	10.0	6.0
27	--	--	3.0	2.0	0.0	0.0	0.0	0.0	5.0	3.0	11.0	7.0
28	--	--	3.0	2.0	0.0	0.0	0.0	0.0	5.0	3.0	11.0	7.0
29	--	--	4.0	3.0	0.0	0.0	0.0	0.0	--	--	10.0	7.0
30	7.0	--	3.0	2.0	0.0	0.0	0.0	0.0	--	--	11.0	7.0
31	7.0	4.0	--	--	0.0	0.0	0.0	0.0	--	--	10.0	8.0
AVG	--	--	4.9	3.5	1.2	0.5	0.0	0.0	1.2	0.5	7.6	4.6

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	7.0	9.0	8.0	12.0	10.0	17.0	13.0	21.0	17.0	19.0	15.0
2	8.0	7.0	9.0	7.0	12.0	11.0	17.0	15.0	21.0	17.0	19.0	16.0
3	8.0	6.0	10.0	7.0	12.0	10.0	17.0	13.0	21.0	17.0	20.0	14.0
4	8.0	7.0	11.0	8.0	12.0	10.0	16.0	14.0	19.0	17.0	16.0	13.0
5	9.0	6.0	12.0	9.0	12.0	10.0	16.0	13.0	18.0	14.0	16.0	11.0
6	9.0	7.0	12.0	10.0	12.0	10.0	17.0	13.0	19.0	14.0	17.0	12.0
7	10.0	7.0	12.0	10.0	11.0	10.0	18.0	14.0	21.0	16.0	18.0	13.0
8	12.0	8.0	11.0	10.0	13.0	10.0	19.0	15.0	20.0	16.0	18.0	14.0
9	11.0	8.0	11.0	9.0	13.0	11.0	20.0	16.0	21.0	16.0	18.0	16.0
10	11.0	9.0	10.0	8.0	--	11.0	19.0	16.0	21.0	17.0	20.0	16.0
11	11.0	9.0	9.0	7.0	--	--	18.0	14.0	21.0	17.0	19.0	17.0
12	11.0	8.0	9.0	7.0	--	--	17.0	14.0	20.0	16.0	20.0	16.0
13	9.0	8.0	9.0	7.0	--	--	17.0	13.0	21.0	16.0	18.0	16.0
14	8.0	7.0	9.0	8.0	13.0	12.0	17.0	13.0	22.0	17.0	16.0	13.0
15	10.0	7.0	9.0	7.0	13.0	12.0	18.0	14.0	21.0	17.0	15.0	11.0
16	9.0	8.0	9.0	7.0	14.0	12.0	18.0	14.0	19.0	16.0	14.0	12.0
17	9.0	7.0	9.0	7.0	15.0	13.0	19.0	15.0	19.0	14.0	14.0	13.0
18	9.0	6.0	10.0	8.0	16.0	13.0	20.0	16.0	19.0	16.0	15.0	13.0
19	11.0	8.0	11.0	9.0	16.0	14.0	21.0	17.0	19.0	16.0	15.0	12.0
20	9.0	7.0	11.0	8.0	16.0	14.0	21.0	17.0	21.0	16.0	16.0	12.0
21	10.0	8.0	10.0	8.0	15.0	14.0	21.0	17.0	21.0	16.0	15.0	12.0
22	11.0	8.0	11.0	8.0	15.0	13.0	22.0	17.0	20.0	16.0	14.0	13.0
23	11.0	9.0	10.0	8.0	14.0	13.0	22.0	18.0	21.0	16.0	15.0	13.0
24	9.0	7.0	10.0	8.0	14.0	12.0	22.0	18.0	21.0	17.0	14.0	12.0
25	9.0	6.0	9.0	7.0	14.0	12.0	20.0	18.0	20.0	16.0	16.0	12.0
26	9.0	7.0	9.0	8.0	13.0	11.0	19.0	16.0	19.0	15.0	14.0	12.0
27	10.0	8.0	9.0	8.0	13.0	11.0	20.0	16.0	18.0	14.0	13.0	11.0
28	9.0	8.0	9.0	8.0	13.0	11.0	21.0	17.0	17.0	14.0	14.0	11.0
29	8.0	6.0	10.0	8.0	13.0	12.0	21.0	17.0	17.0	13.0	13.0	12.0
30	8.0	6.0	11.0	8.0	15.0	12.0	21.0	17.0	19.0	14.0	13.0	11.0
31	--	--	11.0	8.0	--	--	22.0	17.0	19.0	14.0	--	--
AVG	9.5	7.3	10.0	8.0	13.5	11.6	19.1	15.3	19.8	15.7	16.1	13.1

12452500 CHELAN RIVER AT CHELAN, WASH.

LOCATION.--Lat 47°49'54", long 120°00'37", in SE¼SE¼ sec.13, T.27 N., R.22 E., Chelan County, at gaging station in forebay at control dam at outlet to Lake Chelan, 0.4 mile south of Chelan and at mile 4.5.

DRAINAGE AREA.--924 sq mi.

PERIOD OF RECORD.--Chemical analyses: November 1961 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
NOV.									
20...	2170	4.6	6.3	1.0	1.3	.6	24	0	4.2
FEB.									
13...	2120	4.7	6.2	.9	1.5	.7	24	0	3.8
MAY									
14...	2140	4.6	6.5	.9	1.3	.7	25	0	4.4
AUG.									
13...	1470	5.1	6.8	1.0	1.6	.7	25	0	4.4

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
NOV.									
20...	.2	.1	.1	--	30	20	0	51	7.4
FEB.									
13...	.8	.1	.2	0	37	19	0	49	7.4
MAY									
14...	.3	.1	.2	--	28	20	0	49	7.4
AUG.									
13...	.6	.1	.2	--	32	21	1	50	7.2

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.							
20...	0	10	10.4	2	--	--	--
FEB.							
13...	0	1	12.1	140	0	0	0
MAY							
14...	0	19	9.5	150	--	--	--
AUG.							
13...	0	22	9.1	4	0	0	0

12452800 ENTIAT RIVER NEAR ARDENVOIR, WASH.

LOCATION.--Lat 47°48'31", long 120°24'47", in NE¼SW¼ sec.26, T.27 N., R.19 E., Chelan County, temperature recorder at gaging station on left bank, 0.3 mile downstream from Stormy Creek, 6.0 miles northwest of Ardenvoir, and at mile 18.1.

DRAINAGE AREA.--203 sq mi.

PERIOD OF RECORD.--Water temperatures: July 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C Aug. 14; minimum, freezing point on many days during November to March.

Period of record:
Water temperatures: Maximum, 19.0°C Aug. 14, 1969; minimum, freezing point on many days during winter periods.

REMARKS.--Recorder stopped Feb. 5-18, June 29 to July 11; ranges in temperature, 0.0°C to 2.0°C and 7.0°C to 16.0°C, respectively.

TEMPERATURE (°C) OF WATER, AUGUST TO SEPTEMBER 1968

JULY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	16	17	17	17	16	17	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11	11	12	12	12	12	11	--
AUGUST																																
MAXIMUM	17	17	18	18	17	16	16	16	17	16	18	17	14	13	16	14	16	13	12	13	15	13	12	11	11	13	12	14	15	16	16	15
MINIMUM	12	12	13	13	12	11	11	11	11	12	12	11	11	11	11	11	11	11	10	9	9	9	10	10	9	8	9	9	9	10	11	11
SEPTEMBER																																
MAXIMUM	15	15	15	15	16	16	16	14	14	15	14	14	12	13	12	12	11	12	11	9	10	9	11	12	12	12	12	11	11	11	--	13
MINIMUM	12	11	10	10	11	12	11	11	11	11	11	11	11	9	9	8	9	9	7	6	7	7	7	8	8	8	8	7	7	8	--	9

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	8.0	4.0	2.0	1.0	0.0	1.0	0.0	1.0	0.0	2.0	1.0
2	9.0	6.0	4.0	3.0	1.0	0.0	1.0	0.0	1.0	0.0	2.0	1.0
3	8.0	5.0	5.0	3.0	2.0	1.0	1.0	0.0	1.0	0.0	4.0	1.0
4	9.0	6.0	4.0	2.0	2.0	1.0	1.0	0.0	1.0	0.0	3.0	0.0
5	9.0	7.0	3.0	2.0	1.0	0.0	1.0	0.0	--	--	3.0	1.0
6	9.0	6.0	3.0	2.0	1.0	0.0	0.0	0.0	--	--	2.0	1.0
7	7.0	5.0	4.0	2.0	1.0	0.0	1.0	0.0	--	--	3.0	1.0
8	7.0	4.0	3.0	2.0	1.0	0.0	1.0	0.0	--	--	2.0	1.0
9	7.0	4.0	4.0	2.0	2.0	1.0	1.0	0.0	--	--	2.0	0.0
10	8.0	5.0	3.0	2.0	1.0	0.0	1.0	0.0	--	--	2.0	0.0
11	6.0	5.0	2.0	1.0	2.0	0.0	1.0	0.0	--	--	2.0	0.0
12	6.0	4.0	3.0	1.0	1.0	0.0	1.0	1.0	--	--	3.0	0.0
13	7.0	4.0	2.0	1.0	1.0	0.0	1.0	0.0	--	--	3.0	1.0
14	5.0	4.0	2.0	1.0	1.0	1.0	1.0	0.0	--	--	3.0	1.0
15	6.0	4.0	2.0	1.0	1.0	0.0	1.0	0.0	--	--	6.0	2.0
16	6.0	3.0	2.0	0.0	1.0	0.0	1.0	0.0	--	--	4.0	2.0
17	6.0	4.0	2.0	1.0	1.0	0.0	1.0	0.0	--	--	5.0	2.0
18	6.0	4.0	3.0	2.0	1.0	0.0	1.0	0.0	--	--	5.0	2.0
19	7.0	4.0	3.0	2.0	1.0	0.0	1.0	0.0	1.0	0.0	5.0	2.0
20	7.0	4.0	4.0	3.0	1.0	0.0	1.0	0.0	1.0	0.0	6.0	1.0
21	6.0	4.0	3.0	2.0	1.0	0.0	1.0	0.0	1.0	0.0	5.0	1.0
22	6.0	4.0	3.0	3.0	1.0	0.0	1.0	0.0	1.0	0.0	5.0	2.0
23	7.0	4.0	3.0	2.0	1.0	0.0	1.0	0.0	1.0	0.0	6.0	2.0
24	7.0	4.0	3.0	1.0	1.0	0.0	1.0	0.0	2.0	0.0	6.0	1.0
25	6.0	4.0	2.0	1.0	1.0	0.0	1.0	0.0	2.0	0.0	6.0	1.0
26	5.0	3.0	2.0	1.0	1.0	0.0	1.0	0.0	2.0	0.0	6.0	2.0
27	4.0	3.0	3.0	2.0	1.0	0.0	1.0	0.0	2.0	1.0	6.0	2.0
28	4.0	3.0	2.0	1.0	1.0	0.0	1.0	0.0	3.0	0.0	6.0	2.0
29	4.0	3.0	2.0	1.0	--	0.0	1.0	0.0	--	--	6.0	2.0
30	6.0	3.0	1.0	0.0	1.0	0.0	--	0.0	--	--	7.0	2.0
31	4.0	3.0	--	--	1.0	0.0	1.0	0.0	--	--	6.0	2.0
AVG	6.6	4.3	2.9	1.6	1.1	0.1	0.9	0.0	--	--	4.2	1.2

12452800 ENTIAT RIVER NEAR ARDENVOIR, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.0	3.0	7.0	4.0	10.0	5.0	--	--	17.0	11.0	16.0	11.0
2	4.0	3.0	7.0	4.0	10.0	5.0	--	--	17.0	11.0	14.0	11.0
3	7.0	2.0	7.0	4.0	10.0	5.0	--	--	17.0	11.0	13.0	9.0
4	5.0	3.0	9.0	3.0	9.0	5.0	--	--	16.0	11.0	12.0	9.0
5	7.0	3.0	10.0	4.0	8.0	5.0	--	--	14.0	10.0	12.0	8.0
6	7.0	3.0	10.0	4.0	9.0	6.0	--	--	16.0	9.0	13.0	8.0
7	7.0	2.0	10.0	4.0	8.0	6.0	--	--	16.0	11.0	14.0	9.0
8	8.0	3.0	9.0	4.0	10.0	6.0	--	--	17.0	11.0	14.0	10.0
9	8.0	3.0	9.0	3.0	11.0	6.0	--	--	18.0	11.0	14.0	12.0
10	8.0	4.0	9.0	3.0	9.0	6.0	--	--	18.0	11.0	17.0	12.0
11	8.0	3.0	9.0	3.0	10.0	6.0	14.0	--	17.0	11.0	16.0	13.0
12	8.0	4.0	9.0	4.0	11.0	6.0	14.0	9.0	16.0	12.0	17.0	12.0
13	8.0	4.0	8.0	4.0	10.0	7.0	13.0	8.0	18.0	12.0	14.0	12.0
14	7.0	3.0	8.0	4.0	10.0	6.0	13.0	8.0	19.0	12.0	13.0	9.0
15	9.0	3.0	8.0	4.0	10.0	6.0	14.0	8.0	17.0	13.0	12.0	8.0
16	7.0	3.0	8.0	4.0	11.0	7.0	15.0	9.0	16.0	11.0	12.0	9.0
17	6.0	3.0	8.0	4.0	11.0	7.0	16.0	9.0	16.0	10.0	11.0	10.0
18	6.0	3.0	8.0	4.0	12.0	7.0	17.0	10.0	16.0	12.0	13.0	10.0
19	8.0	4.0	9.0	4.0	11.0	8.0	17.0	11.0	16.0	11.0	12.0	9.0
20	7.0	3.0	8.0	4.0	11.0	7.0	17.0	12.0	17.0	12.0	13.0	9.0
21	8.0	4.0	9.0	4.0	11.0	8.0	16.0	11.0	17.0	12.0	12.0	8.0
22	9.0	4.0	9.0	4.0	11.0	8.0	17.0	11.0	17.0	11.0	12.0	9.0
23	7.0	4.0	9.0	4.0	9.0	8.0	18.0	12.0	17.0	12.0	13.0	9.0
24	7.0	3.0	7.0	5.0	11.0	7.0	18.0	12.0	17.0	13.0	11.0	9.0
25	8.0	3.0	7.0	4.0	10.0	7.0	16.0	12.0	17.0	12.0	11.0	9.0
26	8.0	3.0	8.0	4.0	9.0	7.0	16.0	10.0	15.0	11.0	11.0	8.0
27	8.0	4.0	8.0	4.0	9.0	7.0	16.0	11.0	16.0	11.0	11.0	8.0
28	6.0	4.0	7.0	4.0	12.0	7.0	17.0	11.0	15.0	11.0	11.0	9.0
29	5.0	3.0	8.0	5.0	--	7.0	17.0	11.0	14.0	9.0	11.0	9.0
30	6.0	3.0	9.0	4.0	--	--	17.0	11.0	15.0	10.0	11.0	8.0
31	--	--	9.0	4.0	--	--	18.0	12.0	16.0	11.0	--	--
AVG	7.0	3.2	8.3	3.9	10.1	6.4	--	--	16.4	11.1	12.8	9.5

12453000 ENTIAT RIVER NEAR ENTIAT, WASH.

LOCATION.--Lat 47°40'00", long 120°16'55", in NE¼SE¼ sec.14, T.25 N., R.20 E., Chelan County, at bridge on county road, 2.6 miles west of Entiat and at mile 3.1.

DRAINAGE AREA.--419 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1960, October 1962 to September 1963 (monthly), October 1963 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)
NOV. 20...	14	10	2.1	2.6	.8	44	0	4.8	.1	.2	.2	58
MAY 14...	12	4.9	.9	1.3	.7	22	0	2.4	.2	.1	.1	37
AUG. 13...	14	11	2.1	2.4	1.3	46	0	4.8	.5	.0	.6	58

DATE	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV. 20...	34	0	81	7.6	5	5	11.4	90	--	--	--
MAY 14...	16	0	40	7.2	5	9	11.2	3400	--	--	--
AUG. 13...	36	0	85	7.3	0	19	10.4	260	0	0	0

12457800 WENATCHEE RIVER NEAR LEAVENWORTH, WASH.

LOCATION.--Lat 47°40'25", long 120°34'00", T.25 N., R.17 E. (unsurveyed), Chelan County, at bridge on U.S. Highway 2, 0.4 mile upstream from Hatchery Creek, 6 miles northwest of Leavenworth, and at mile 35.6.

DRAINAGE AREA.--672 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1961 (monthly), October 1963 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)
NOV.												
20...	7.1	3.3	1.8	1.2	.9	20	0	1.8	.3	.1	.2	26
FEB.												
13...	9.1	4.4	1.9	1.3	1.2	25	0	2.4	.7	.1	.2	39
MAY												
14...	7.2	3.1	1.0	.7	.8	16	0	2.0	.2	.0	.3	25
AUG.												
13...	7.8	3.9	1.3	1.1	1.0	21	0	2.6	.3	.0	.3	28

DATE	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.											
20...	16	0	37	7.1	5	5	12.2	320	--	--	--
FEB.											
13...	19	0	47	7.3	5	0	13.6	1800	--	--	--
MAY											
14...	12	0	33	7.1	0	10	11.7	1700	--	--	--
AUG.											
13...	15	0	40	7.2	0	19	9.8	4000	0	0	0

12462520 WENATCHEE RIVER AT WENATCHEE, WASH.

LOCATION.--Lat 47°27'30", long 120°20'10", in SE¼NW¼ sec.28, T.23 N., R.20 E., Chelan County, at bridge on U.S. Highway 2, 1.3 miles north of Wenatchee and at mile 1.1.

DRAINAGE AREA.--1,327 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1960 to October 1963, October 1966 to September 1968 (monthly), October 1963 to September 1966 (miscellaneous), October 1968 to September 1969 (quarterly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
NOV.												
20...	7.6	4.6	2.8	1.7	.9	30	0	2.6	.2	.1	.2	--
FEB.												
13...	13	6.4	3.5	2.3	1.1	39	0	4.2	.5	.1	.5	0
MAY												
14...	7.8	3.5	1.6	.9	.9	21	0	2.0	.3	.0	.3	--
AUG.												
13...	9.4	6.4	3.1	2.3	1.1	38	0	3.8	.6	.0	.6	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.												
20...	34	23	0	53	7.5	5	6	12.6	1400	--	--	--
FEB.												
13...	50	31	0	73	7.6	5	0	14.2	20	0	0	0
MAY												
14...	28	15	0	38	7.4	5	11	11.2	300	--	--	--
AUG.												
13...	46	29	0	72	7.5	0	20	10.4	260	0	0	0

12472600 CRAB CREEK NEAR BEVERLY, WASH.

LOCATION.--Lat 46°49'55", long 119°48'55", in NE¼SE¼ sec.33, T.16 N., R.24 E., Grant County, at bridge on Lower Crab Creek Road, 1.5 miles upstream from gaging station, 5.7 miles east of Beverly, and at mile 4.5.

DRAINAGE AREA.--4,842 sq mi, of which 665 sq mi in the vicinity of Soap Lake is noncontributing (at gaging station).

PERIOD OF RECORD.--Chemical analyses: August 1959 to September 1969.
Water temperatures: August 1959 to September 1962, July 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 30.0°C June 4; minimum, freezing point on many days December to February.

Period of record:
Water temperatures: Maximum, 31.0°C July 7, 8, 1960, July 27, 28, 1968; minimum, freezing point on many days during winter periods.

REMARKS.--Coliform and dissolved oxygen data furnished by Washington State Water Pollution Control Commission. Temperature recorder at gaging station 1.5 miles downstream from sampling site. Recorder malfunction Dec. 28-Jan. 3 and Jan. 15-31; no range in temperature available. Recorder stopped Apr. 24-28; range in temperature, 6.0°C to 19.0°C. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DISCHARGE (CFS)	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
23...	222	23	48	33	148	19	374	10	168
NOV.									
14...	219	27	55	36	170	21	406	8	203
DEC.									
09...	174	32	58	36	149	18	390	8	190
JAN.									
21...	140	35	57	37	152	18	413	0	182
FEB.									
19...	270	31	55	34	166	20	413	0	206
MAR.									
12...	198	28	56	36	148	16	381	5	182
APR.									
14...	164	23	47	33	127	16	352	4	150
MAY									
19...	86	24	43	32	138	18	372	0	170
JUNE									
23...	111	22	39	27	100	14	294	0	139
JULY									
22...	106	26	41	28	105	15	307	0	136
AUG.									
18...	118	29	40	31	122	17	345	0	158
SEPT.									
22...	260	27	47	33	177	11	460	0	167

DATE	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
OCT.									
23...	62	.9	2.3	--	703	256	0	1090	8.5
NOV.									
14...	68	1.0	6.6	--	816	285	0	1210	8.4
DEC.									
09...	66	.9	7.7	--	765	293	0	1140	8.3
JAN.									
21...	63	.9	11	--	768	294	0	1170	8.1
FEB.									
19...	62	.9	8.6	30	792	277	0	1210	8.1
MAR.									
12...	74	.9	7.6	--	750	288	0	1160	8.3
APR.									
14...	65	.9	4.1	--	659	253	0	1030	8.3
MAY									
19...	54	.8	4.3	--	668	239	0	1060	7.8
JUNE									
23...	41	.9	4.2	--	521	209	0	839	8.1
JULY									
22...	42	.7	4.4	--	556	218	0	873	8.0
AUG.									
18...	45	1.0	4.5	20	614	228	0	964	7.9
SEPT.									
22...	62	.9	.9	--	781	253	0	1190	8.0

12472600 CRAB CREEK NEAR BEVERLY, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
23...	20	12	11.4	580	--	--	--
NOV.							
14...	10	4	10.2	780	--	--	--
DEC.							
09...	10	4	12.0	1000	--	--	--
JAN.							
21...	5	1	9.3	2200	--	--	--
FEB.							
19...	20	2	12.0	3700	0	0	0
MAR.							
12...	10	7	12.1	100	--	--	--
APR.							
14...	10	14	13.8	1300	--	--	--
MAY							
19...	5	22	8.9	2200	--	--	--
JUNE							
23...	5	19	10.3	580	--	--	--
JULY							
22...	5	18	7.2	1900	--	--	--
AUG.							
18...	5	21	9.7	2300	0	0	0
SEPT.							
22...	20	18	8.9	660	--	--	--

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	16.0	12.5	7.5	5.0	2.5	1.5	--	--	0.0	0.0	7.0	4.0
2	15.5	11.0	7.0	6.5	4.0	1.5	--	--	0.0	0.0	6.5	4.5
3	15.0	10.5	7.0	6.0	6.5	4.0	--	0.0	0.0	0.0	9.0	4.5
4	15.0	11.5	8.5	5.5	6.0	4.5	--	0.0	0.0	0.0	9.5	4.0
5	14.0	10.0	7.0	6.0	4.5	2.5	0.0	0.0	0.0	0.0	10.0	6.0
6	13.5	10.0	6.0	5.5	2.5	1.0	0.0	0.0	0.0	0.0	7.0	5.5
7	12.5	7.5	6.5	5.5	2.5	1.5	0.0	0.0	0.0	0.0	9.0	4.5
8	12.5	9.0	7.0	6.0	2.5	1.5	0.0	0.0	0.0	0.0	7.5	4.0
9	11.0	9.5	7.5	5.5	3.5	2.0	0.0	0.0	0.0	0.0	7.5	4.0
10	12.5	9.5	6.5	5.5	5.0	3.5	0.0	0.0	0.0	0.0	7.5	2.5
11	11.0	9.5	6.5	5.5	5.0	3.5	0.0	0.0	0.0	0.0	8.5	2.5
12	11.5	9.0	7.0	5.5	3.5	1.0	0.0	0.0	0.0	0.0	9.5	4.0
13	12.0	9.0	5.5	4.5	1.5	1.0	0.0	0.0	0.0	0.0	10.5	5.0
14	10.5	9.0	5.0	3.5	2.0	1.0	0.0	0.0	0.0	0.0	9.0	6.0
15	11.0	8.5	4.5	3.5	3.5	2.0	--	0.0	0.0	0.0	10.5	6.0
16	11.0	7.0	3.5	1.5	2.5	1.5	--	--	0.0	0.0	10.5	7.0
17	11.5	8.5	5.0	3.5	1.5	0.5	--	--	2.5	0.0	11.0	8.5
18	11.5	8.5	5.5	4.5	2.0	1.5	--	--	4.0	1.0	10.5	7.0
19	10.5	9.0	6.5	5.0	2.0	1.0	0.0	0.0	4.0	1.0	12.0	6.5
20	12.0	9.5	7.5	6.0	1.0	0.0	0.0	0.0	2.0	1.0	13.5	7.0
21	9.5	7.5	7.0	6.5	0.0	0.0	--	--	1.5	0.0	12.5	8.5
22	11.0	8.5	7.5	6.5	0.0	0.0	--	--	1.5	0.5	11.5	7.5
23	11.0	10.0	7.0	5.5	0.5	0.0	--	--	1.0	0.5	11.5	6.0
24	12.0	9.0	6.0	5.0	1.0	0.0	--	--	2.5	0.0	12.5	6.5
25	11.0	9.5	5.0	3.5	1.0	0.0	--	--	4.5	2.0	13.5	7.5
26	10.5	7.5	5.5	4.5	--	0.0	--	--	5.0	2.5	15.0	9.0
27	10.0	7.5	5.5	4.0	0.0	0.0	--	--	6.0	3.5	13.5	10.5
28	9.0	7.0	5.0	3.5	--	--	--	--	5.5	3.5	15.5	7.5
29	7.5	6.5	4.5	3.5	--	--	--	--	--	--	15.0	10.5
30	9.5	7.0	3.5	1.5	--	--	--	--	--	--	15.5	10.5
31	8.5	5.5	--	--	--	--	--	--	--	--	15.5	11.5
AVG	11.5	9.0	6.0	4.5	2.5	1.5	--	--	1.5	0.5	11.0	6.5

12472600 CRAB CREEK NEAR BEVERLY, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969--Continued

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.5	9.5	14.5	10.0	26.5	19.5	27.5	20.0	27.5	17.0	25.0	19.0
2	12.5	10.5	12.5	9.0	27.5	19.5	25.5	17.5	25.5	17.0	22.0	15.5
3	12.5	6.5	15.0	7.5	29.5	21.5	21.0	15.0	25.5	15.0	17.5	12.5
4	13.5	9.5	19.5	10.5	30.0	23.5	22.0	15.5	21.0	16.0	17.0	12.0
5	14.5	10.0	21.5	12.5	29.0	22.0	24.5	16.0	20.5	13.5	19.5	12.0
6	12.5	10.0	20.5	15.0	29.5	21.0	25.5	17.0	24.5	14.5	21.0	15.0
7	15.0	6.0	23.5	17.0	27.0	19.5	26.5	17.0	25.0	18.5	22.5	16.5
8	16.0	9.5	25.0	17.0	27.0	20.5	27.5	18.5	25.0	15.0	23.5	18.5
9	18.5	11.5	26.0	17.5	26.5	21.5	29.5	21.5	26.5	19.0	23.5	20.5
10	17.0	10.5	26.0	19.0	27.0	21.5	25.5	21.0	25.5	17.0	24.5	19.5
11	16.5	9.0	24.5	15.0	29.0	20.0	23.5	16.5	22.0	16.0	23.5	20.5
12	17.5	12.5	24.0	15.0	27.5	19.5	22.5	15.0	21.0	13.5	24.5	18.5
13	14.0	8.5	22.0	15.0	26.0	19.5	24.5	14.5	26.0	16.5	19.5	14.5
14	14.0	9.5	21.0	14.0	27.0	20.5	25.0	14.5	28.5	19.5	17.5	12.0
15	17.0	9.0	22.0	11.5	27.5	20.0	26.0	15.0	24.5	19.0	18.5	12.5
16	16.5	11.0	21.5	15.0	27.0	21.0	26.0	17.5	22.5	14.5	19.0	15.0
17	15.0	12.5	24.0	14.0	29.0	21.0	27.0	17.0	24.5	16.5	19.0	16.5
18	14.5	10.0	24.0	16.5	29.5	22.0	28.5	19.0	23.5	18.5	19.0	16.0
19	15.0	9.0	22.0	15.0	25.5	19.0	29.5	21.5	24.0	16.0	17.5	15.0
20	15.5	9.0	24.0	14.5	24.0	16.0	27.0	20.0	25.5	18.5	19.0	15.0
21	17.5	12.0	26.0	16.5	22.0	14.5	26.5	17.0	25.5	19.0	19.5	14.5
22	21.0	14.5	27.0	19.5	21.0	15.5	27.5	18.5	26.0	19.0	19.5	16.5
23	20.5	14.0	27.5	20.5	19.0	16.5	29.5	19.5	27.5	21.0	18.5	15.5
24	--	9.0	27.0	21.5	19.0	14.0	27.0	20.0	24.0	17.0	17.5	14.0
25	--	--	24.0	15.5	20.5	12.0	20.5	15.5	23.5	15.5	18.5	14.5
26	--	--	23.5	18.5	19.5	11.5	26.0	15.0	22.5	17.5	16.5	13.5
27	--	--	20.0	14.5	20.0	15.0	28.5	19.5	21.5	14.0	17.5	14.5
28	--	--	20.0	14.0	20.5	14.0	25.5	17.0	21.0	14.5	19.5	15.5
29	11.0	7.5	19.5	17.5	22.5	14.5	26.5	16.0	22.0	14.5	19.5	16.0
30	13.5	6.5	20.0	15.0	26.0	17.5	28.5	20.0	24.0	16.5	17.0	15.0
31	--	--	23.5	14.0	--	--	29.0	20.5	25.0	18.5	--	--
AVG	15.5	10.0	22.0	15.0	25.5	18.5	26.0	17.5	24.0	16.5	20.0	15.5

12479500 YAKIMA RIVER AT CLE ELUM, WASH.

LOCATION.--Lat 47°11'35", long 120°56'55", in SW¼SE¼ sec.27, T.20 N., R.15 E., Kittitas County, at bridge on county road, 300 ft upstream from gaging station at Cle Elum, 0.1 mile downstream from Crystal Creek, 1.3 miles downstream from Tillman Creek, and at mile 183.1.

DRAINAGE AREA.--495 sq mi.

PERIOD OF RECORD.--Chemical analyses: February 1910 to January 1911, December 1952 to September 1956 (daily), July 1959 to July 1960 (monthly), October 1960 to September 1961, October 1963 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).
Water temperatures: December 1952 to September 1956.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
DEC.									
09...	1140	8.2	6.2	1.5	2.3	.2	31	0	1.4
MAR.									
12...	450	7.2	7.0	1.9	2.5	.2	36	0	1.6
JUNE									
23...	2600	5.8	4.7	1.9	1.3	.2	26	0	.2
SEPT.									
20...	1770	6.1	4.9	2.4	1.0	.2	29	0	.0

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
DEC.									
09...	.4	.0	.0	0	38	22	0	52	7.2
MAR.									
12...	.5	.0	.0	--	38	26	0	62	7.6
JUNE									
23...	.4	.0	.0	--	20	20	0	45	7.3
SEPT.									
20...	.4	.0	.1	--	32	22	0	49	7.3

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
DEC.							
09...	5	3	10.5	270	0	0	10
MAR.							
12...	0	6	12.4	1	--	--	--
JUNE							
23...	0	16	9.3	88	0	0	0
SEPT.							
20...	0	14	9.1	80	--	--	--

12484000 WILSON CREEK AT THRALL, WASH.

LOCATION.--Lat 46°55'00", long 120°30'25", in NE¼SW¼ sec.31, T.17 N., R.19 E., Kittitas County, at bridge on U.S. Highway 97, approximately 100 ft upstream from mouth and 1.0 mile south of Thrall.

DRAINAGE AREA.--382 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)
OCT.												
23...	43	33	17	23	4.3	218	0	12	7.1	.4	2.2	255
NOV.												
13...	41	33	15	22	4.7	194	8	11	5.0	.4	2.2	250
DEC.												
09...	34	23	11	11	3.4	140	0	5.0	3.8	.2	1.6	158
JAN.												
21...	40	29	15	21	3.7	188	0	12	7.3	.2	3.1	226
FEB.												
19...	40	31	16	23	5.5	198	0	14	9.3	.4	4.9	248
MAR.												
12...	32	27	14	12	3.7	163	0	7.0	6.7	.1	3.3	187
APR.												
14...	32	18	8.4	10	2.7	110	0	6.8	4.2	.2	.8	138
MAY												
19...	28	23	11	11	4.5	139	0	8.9	4.1	.2	3.1	166
JUNE												
23...	28	24	11	14	4.1	147	0	11	3.8	.3	2.7	190
JULY												
22...	34	30	14	18	4.5	191	0	11	4.6	.2	2.5	223
AUG.												
18...	30	26	12	15	3.8	161	0	10	3.6	.3	2.0	180
SEPT.												
22...	27	19	11	13	3.7	143	0	5.8	3.9	.2	1.5	159

DATE	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.											
23...	153	0	381	7.8	10	11	10.4	9600	--	--	--
NOV.											
13...	146	0	360	8.4	5	6	9.8	6100	--	--	--
DEC.											
09...	103	0	240	7.3	5	5	8.2	16000	--	--	--
JAN.											
21...	134	0	344	7.6	10	3	10.0	75000	--	--	--
FEB.											
19...	144	0	378	7.4	10	2	11.3	94000	--	--	--
MAR.											
12...	125	0	292	7.6	5	6	11.2	7100	--	--	--
APR.											
14...	80	0	199	7.8	10	13	10.0	4600	--	--	--
MAY											
19...	103	0	248	7.4	10	14	9.1	15000	--	--	--
JUNE											
23...	105	0	264	7.5	10	17	9.1	14000	--	--	--
JULY											
22...	133	0	331	7.6	10	15	7.7	8400	--	--	--
AUG.											
18...	11	0	281	7.8	10	18	10.1	30000	0	0	0
SEPT.											
22...	93	0	247	7.7	5	16	9.0	90000	--	--	--

12484900 YAKIMA RIVER AT ROZA DAM, WASH.

LOCATION.--Lat 46°46'50", long 120°27'10", in NW¼NE¼ sec.21, T.15 N., R.19 E., Yakima County, at Roza diversion dam, 8.0 miles downstream from Umtanum Creek, 12.3 miles north of Yakima, and at mile 127.9.
DRAINAGE AREA.--1,802 sq mi.
PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969.
Water temperatures: October 1965 to September 1969.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 117 mg/l Mar. 8-19; minimum, 50 mg/l May 24 to June 9.
Hardness: Maximum, 69 mg/l Mar. 8-19; minimum, 34 mg/l May 24 to June 9.
Specific conductance: Maximum daily, 182 micromhos Mar. 12, 13; minimum daily, 67 micromhos June 7.
Water temperatures: Maximum, 18.5°C July 9-10; minimum, freezing point many days December to February.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)
OCT.									
01-11	14	11	5.0	4.9	1.1	68	0	3.0	1.3
12-18	18	14	5.9	6.4	1.4	83	0	3.4	1.6
19-31	19	15	6.7	7.4	1.4	94	0	4.2	1.7
NOV.									
01-12	19	15	6.7	7.4	1.4	94	0	4.2	1.7
13-22	19	14	6.0	6.2	1.1	83	0	4.0	1.5
23-30	16	12	4.9	5.3	.9	71	0	3.6	1.0
DEC.									
01-04	16	12	4.9	5.3	.9	71	0	3.6	1.0
05-08	14	11	3.7	4.3	.8	57	0	3.2	.7
09-20	15	12	4.7	5.2	1.0	67	0	3.4	1.1
21-31	19	14	6.0	6.9	1.1	82	0	5.0	1.6
JAN.									
01-05	19	14	6.0	6.9	1.1	82	0	5.0	1.6
06-20	15	12	4.7	5.0	.8	66	0	3.6	1.1
21-31	18	13	5.5	6.3	.9	76	0	4.6	2.1
FEB.									
01-10	18	13	5.5	6.3	.9	76	0	4.6	2.1
11-20	15	12	4.8	5.4	1.3	67	0	3.8	2.0
21-28	12	10	3.9	4.3	1.2	55	0	2.8	1.7
MAR.									
01-07	12	10	3.9	4.3	1.2	55	0	2.8	1.7
08-19	18	16	6.9	7.4	2.4	90	0	4.8	3.0
20-26	20	14	5.9	6.2	1.8	81	0	4.2	2.3
27-31	16	13	4.7	4.9	1.1	67	0	3.5	1.7
APR.									
01-05	16	13	4.7	4.9	1.1	67	0	3.5	1.7
06-30	13	11	3.8	3.8	.8	56	0	2.9	1.2
MAY									
01-05	13	11	3.8	3.8	.8	56	0	2.9	1.2
06-23	13	9.8	3.9	3.4	.8	54	0	2.1	1.1
24-31	11	7.9	3.4	2.6	.6	46	0	1.6	1.0
JUNE									
01-09	11	7.9	3.4	2.6	.6	46	0	1.6	1.0
10-17	11	8.0	3.5	3.1	.8	47	0	3.2	1.0
18-20	14	11	4.8	4.5	1.2	64	0	4.2	.5
21-30	11	8.6	3.8	3.4	.8	48	0	3.4	2.2
JULY									
01-20	11	8.6	3.8	3.4	.8	48	0	3.4	2.2
21-31	11	8.1	3.7	3.1	.8	48	0	3.2	.8
AUG.									
01-08	11	8.3	3.7	3.1	.8	48	0	3.2	.8
09-30	12	8.1	3.9	3.7	1.0	52	0	3.2	.8
31...	13	9.9	4.5	4.6	1.2	60	0	2.4	1.2
SEPT.									
01-16	13	9.9	4.5	4.6	1.2	60	0	2.4	1.2
17-30	16	12	5.5	5.4	1.5	73	0	3.2	1.6
TIME WTD. AVG.	15	11	4.7	4.8	1.1	65	0	3.4	1.5
ANALYSES OF ADDITIONAL SAMPLES									
OCT.									
23...	18	14	6.3	6.7	1.2	88	0	4.0	1.5
NOV.									
13...	16	14	4.6	5.3	1.1	73	0	4.0	1.0
DEC.									
09...	14	11	4.0	4.7	.9	62	0	2.8	1.1
JAN.									
21...	16	12	5.1	5.5	.8	71	0	3.6	1.4
FEB.									
19...	14	11	4.7	5.2	1.1	65	0	3.0	1.4
MAR.									
12...	19	16	7.2	7.8	1.9	94	0	4.8	4.0
APR.									
14...	14	9.1	3.9	3.7	.5	53	0	2.2	1.0
MAY									
19...	14	11	4.5	3.6	1.0	61	0	3.7	1.0
JUNE									
24...	10	9.4	4.1	3.6	1.5	54	0	3.8	1.1
JULY									
22...	11	8.3	3.7	2.9	.8	49	0	4.0	.8
AUG.									
18...	11	8.0	3.8	3.3	.8	50	0	1.6	1.0
SEPT.									
22...	15	12	4.4	4.9	1.4	68	0	2.4	1.7

12484900 YAKIMA RIVER AT ROZA DAM, WASH.--Continued

Period of record:
Dissolved solids: Maximum, 138 mg/l Oct. 24 to Nov. 15, 1965; minimum, 50 mg/l May 24 to June 9, 1969.
Hardness: Maximum, 88 mg/l Oct. 24 to Nov. 15, 1965; minimum, 34 mg/l July 27 to Aug. 31, 1966, Mar. 1-24, 1968, May 24 to June 9, 1969.
Specific conductance: Maximum daily, 224 micromhos Nov. 15, 1965; minimum daily, 67 micromhos June 7, 1969.
Water temperatures: Maximum, 19.5°C July 5, 17, 18, 1967; minimum, freezing point on several days during January 1966, Dec. 15, 1967, Jan. 28, 29, 1968, many days during December 1968 to February 1969.
REMARKS.--Coliform and dissolved oxygen data furnished by Washington State Water Pollution Control Commission.
No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	PHOSPHATE (PO4) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SODIUM ADSORPTION RATIO
OCT.									
01-11	.1	.2	--	--	73	.10	48	0	.3
12-18	.2	.3	--	--	92	.13	60	0	.4
19-31	.2	.2	--	--	99	.13	65	0	.4
NOV.									
01-12	.2	.2	--	--	99	.13	65	0	.4
13-22	.1	.6	--	--	92	.13	60	0	.3
23-30	.1	.6	--	--	81	.11	50	0	.3
DEC.									
01-04	.1	.6	--	--	81	.11	50	0	.3
05-08	.0	.6	--	--	66	.09	43	0	.3
09-20	.1	.7	--	--	76	.10	50	0	.3
21-31	.1	1.0	--	--	94	.13	60	0	.4
JAN.									
01-05	.1	1.0	--	--	94	.13	60	0	.4
06-20	.1	.5	--	--	78	.11	50	0	.3
21-31	.1	1.1	--	--	87	.12	55	0	.4
FEB.									
01-10	.1	1.1	--	--	87	.12	55	0	.4
11-20	.1	1.3	--	--	82	.11	50	0	.3
21-28	.1	.8	--	--	74	.10	41	0	.3
MAR.									
01-07	.1	.8	--	--	74	.10	41	0	.3
08-19	.2	1.6	--	--	117	.16	69	0	.4
20-26	.1	1.9	--	--	106	.14	60	0	.4
27-31	.1	1.0	--	--	91	.12	52	0	.3
APR.									
01-05	.1	1.0	--	--	91	.12	52	0	.3
06-30	.1	.5	--	--	72	.10	43	0	.3
MAY									
01-05	.1	.5	--	--	72	.10	43	0	.3
06-23	.1	.5	--	--	72	.10	41	0	.2
24-31	.1	.2	--	--	50	.07	34	0	.2
JUNE									
01-09	.1	.2	--	--	50	.07	34	0	.2
10-17	.0	.4	--	--	57	.08	35	0	--
18-20	.0	.5	--	--	76	.10	47	0	.3
21-30	.0	.3	--	--	59	.08	37	0	.2
JULY									
01-20	.0	.3	--	--	59	.08	37	0	.2
21-31	.0	.4	--	--	58	.08	35	0	--
AUG.									
01-08	.0	.4	--	--	58	.08	35	0	.2
09-30	.1	.6	--	--	58	.08	37	0	.2
31...	.1	.6	--	--	68	.09	43	0	.3
SEPT.									
01-16	.1	.6	--	--	68	.09	43	0	.3
17-30	.1	.6	--	--	84	.11	53	0	.3
TIME WTD. AVG.	.1	.6	--	--	77	.10	48	0	.3
ANALYSES OF ADDITIONAL SAMPLES									
OCT.									
23...	.2	.3	.10	--	92	.13	61	0	.4
NOV.									
13...	.2	.6	.18	--	84	.11	54	0	.3
DEC.									
09...	.1	.3	.24	--	71	.10	44	0	.3
JAN.									
21...	.1	.6	.19	--	80	.11	51	0	.3
FEB.									
19...	.1	.7	.19	130	74	.10	47	0	.3
MAR.									
12...	.1	1.4	.26	--	108	.13	70	0	.4
APR.									
14...	.2	.6	--	--	70	.10	37	0	.3
MAY									
19...	.1	.7	.12	--	72	.10	46	0	.2
JUNE									
24...	.1	.2	.13	--	64	.09	41	0	.2
JULY									
22...	.0	.3	.11	--	63	.09	36	0	.2
AUG.									
18...	.1	.6	.12	0	53	.07	36	0	.2
SEPT.									
22...	.1	.7	.13	--	72	.10	48	0	.3

12484900 YAKIMA RIVER AT ROZA DAM, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.								
01-11	117	7.7	5	--	--	--	--	--
12-18	142	7.8	5	--	--	--	--	--
19-31	160	8.0	5	--	--	--	--	--
NOV.								
01-12	160	8.0	5	--	--	--	--	--
13-22	142	7.8	5	--	--	--	--	--
23-30	124	7.9	5	--	--	--	--	--
DEC.								
01-04	124	7.9	5	--	--	--	--	--
05-08	101	7.4	5	--	--	--	--	--
09-20	120	7.7	5	--	--	--	--	--
21-31	147	7.8	5	--	--	--	--	--
JAN.								
01-05	147	7.8	5	--	--	--	--	--
06-20	121	7.8	5	--	--	--	--	--
21-31	137	7.7	10	--	--	--	--	--
FEB.								
01-10	137	7.7	10	--	--	--	--	--
11-20	120	7.7	0	--	--	--	--	--
21-28	101	7.8	0	--	--	--	--	--
MAR.								
01-07	101	7.8	0	--	--	--	--	--
08-19	163	7.8	10	--	--	--	--	--
20-26	144	7.9	10	--	--	--	--	--
27-31	120	7.7	5	--	--	--	--	--
APR.								
01-05	120	7.7	5	--	--	--	--	--
06-30	99	7.6	5	--	--	--	--	--
MAY								
01-05	99	7.6	5	--	--	--	--	--
06-23	94	7.6	5	--	--	--	--	--
24-31	78	7.5	5	--	--	--	--	--
JUNE								
01-09	78	7.5	5	--	--	--	--	--
10-17	80	7.6	0	--	--	--	--	--
18-20	108	8.0	0	--	--	--	--	--
21-30	87	7.3	0	--	--	--	--	--
JULY								
01-20	87	7.3	0	--	--	--	--	--
21-31	82	7.7	0	--	--	--	--	--
AUG.								
01-08	82	7.7	0	--	--	--	--	--
09-30	98	7.5	0	--	--	--	--	--
31...	116	7.5	0	--	--	--	--	--
SEPT.								
01-16	116	7.5	0	--	--	--	--	--
17-30	140	7.7	0	--	--	--	--	--
TIME WTD. AVG.	116	7.7	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES								
OCT.								
23...	150	7.7	5	9.8	330	--	--	--
NOV.								
13...	130	7.6	5	10.2	820	--	--	--
DEC.								
09...	108	7.4	5	9.3	2900	--	--	--
JAN.								
21...	124	7.7	5	11.8	7900	--	--	--
FEB.								
19...	118	7.6	0	11.4	2800	0	0	0
MAR.								
12...	172	7.6	5	13.5	940	--	--	--
APR.								
14...	96	7.2	5	11.7	630	--	--	--
MAY								
19...	106	7.5	5	9.5	1600	--	--	--
JUNE								
24...	95	7.4	0	8.7	960	--	--	--
JULY								
22...	85	7.7	0	9.2	760	--	--	--
AUG.								
18...	86	7.3	5	10.2	1500	0	0	10
SEPT.								
22...	118	7.5	0	10.5	1000	--	--	--

12484900 YAKIMA RIVER AT ROZA DAM, WASH.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	164	122	163	136	90	119	101	75	92	81	108
2	112	168	122	150	144	94	118	102	74	90	82	110
3	112	168	122	150	131	96	116	107	70	94	80	111
4	116	169	119	135	133	112	113	106	68	98	82	108
5	114	168	95	136	128	107	107	108	69	94	83	109
6	115	168	101	113	132	114	102	103	68	92	85	109
7	119	170	101	113	136	112	101	99	67	87	82	110
8	116	170	101	113	131	154	103	97	70	87	84	115
9	125	152	119	122	136	169	101	89	69	85	94	120
10	125	152	120	118	125	178	100	82	74	80	92	118
11	130	153	120	118	135	179	99	82	75	79	95	119
12	146	151	120	121	135	182	101	82	73	85	92	122
13	147	130	118	120	131	182	95	83	76	86	95	120
14	149	128	117	119	124	178	94	81	81	83	93	118
15	147	133	119	124	117	171	96	83	83	84	93	117
16	121	142	120	123	115	171	95	86	84	83	94	117
17	138	143	121	103	112	167	93	93	89	79	93	123
18	146	143	120	102	118	167	94	98	111	84	94	126
19	152	150	119	122	112	157	95	99	114	83	95	137
20	150	150	122	123	114	139	103	100	104	85	97	133
21	148	151	131	136	100	151	100	96	99	83	98	130
22	157	145	134	134	93	140	92	91	98	82	100	130
23	157	124	138	135	96	144	94	85	90	83	101	130
24	155	123	140	150	99	140	86	79	94	80	99	146
25	158	123	141	137	92	140	85	76	91	79	101	148
26	160	132	147	138	84	142	93	78	92	81	98	151
27	157	128	148	131	99	135	95	77	90	79	98	149
28	158	123	145	144	93	123	91	78	90	83	99	153
29	160	120	155	144	--	124	100	79	94	81	101	148
30	164	121	163	143	--	119	102	82	93	81	103	151
31	165	--	164	144	--	116	--	80	--	82	108	--
AVG	139	145	126	129	117	141	99	89	84	84	93	126

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	7.0	5.5	0.0	0.0	2.0	7.0	7.5	12.0	15.0	14.5	15.0
2	12.0	7.0	5.5	0.0	0.0	2.5	7.0	7.0	13.5	16.0	14.5	15.0
3	11.0	7.0	4.5	0.0	0.0	2.5	7.0	7.0	13.5	16.0	14.5	15.5
4	11.0	--	5.5	0.0	0.0	4.0	7.0	7.5	14.0	15.5	14.5	13.5
5	11.0	7.0	4.5	0.0	0.0	4.0	6.5	8.5	14.5	15.5	14.0	13.5
6	11.0	7.0	2.0	0.5	0.0	4.0	6.5	9.5	14.5	15.5	13.5	13.5
7	10.0	6.5	2.0	0.5	0.0	4.0	6.5	10.5	14.5	16.0	14.0	14.0
8	10.0	7.0	2.5	0.5	0.0	4.5	7.0	10.5	15.0	17.0	12.5	15.0
9	10.0	7.0	2.5	0.5	0.0	4.0	7.0	11.0	15.0	18.5	14.0	16.5
10	10.0	7.0	2.5	0.5	0.0	4.0	7.5	11.0	16.0	18.5	14.5	17.0
11	10.5	6.5	2.0	0.5	0.0	3.5	7.0	10.0	16.0	16.0	15.5	17.0
12	10.0	6.5	2.0	0.0	0.0	3.5	7.0	10.0	16.0	16.0	15.0	17.0
13	9.5	6.5	2.0	0.0	0.0	3.5	7.0	10.5	16.0	16.0	16.0	16.0
14	9.5	6.0	2.0	0.0	0.5	4.5	7.0	10.0	15.5	15.5	17.0	13.5
15	9.0	6.0	3.5	0.0	1.0	4.0	7.5	10.0	15.5	15.5	17.0	12.5
16	10.0	6.0	2.5	0.0	1.5	4.5	9.0	10.0	15.5	15.5	15.5	15.0
17	10.0	5.5	2.5	0.0	1.5	5.0	7.0	10.0	16.5	15.0	15.0	15.5
18	10.0	5.5	4.0	0.0	1.5	5.0	6.5	10.5	17.0	15.0	16.0	14.5
19	10.0	7.0	2.5	0.0	1.5	5.5	7.0	11.0	17.5	15.5	17.0	14.5
20	10.0	7.0	1.5	0.0	1.0	7.0	7.0	10.0	17.5	15.5	16.5	12.5
21	10.0	7.0	1.0	0.0	1.0	7.0	7.0	12.0	16.0	15.5	16.5	12.5
22	10.0	7.0	1.0	0.0	1.0	7.0	8.5	12.5	16.0	15.5	16.5	13.5
23	10.0	7.0	0.5	0.0	1.5	7.0	8.5	12.5	15.5	16.5	17.0	15.0
24	10.0	6.5	1.0	0.0	1.5	7.0	7.0	12.5	17.0	16.0	17.0	14.0
25	10.0	5.5	1.0	0.0	2.0	6.0	6.5	11.5	15.5	15.0	17.0	14.0
26	9.5	7.0	0.5	1.0	2.0	6.5	7.0	12.0	15.0	13.5	15.5	13.5
27	9.5	7.0	0.5	0.0	2.5	--	7.5	11.5	15.0	13.5	15.0	13.5
28	9.5	6.5	0.5	0.0	2.0	--	8.5	12.0	14.5	14.0	15.0	13.5
29	9.5	6.5	0.0	0.0	--	--	7.0	11.5	14.5	14.0	14.5	14.0
30	9.0	5.5	0.0	0.0	--	--	7.0	11.5	14.5	14.5	15.0	14.5
31	7.0	--	0.0	0.0	--	--	--	11.0	--	14.5	15.0	--
AVG	10.0	6.5	2.2	0.1	0.8	4.5	7.5	10.5	15.5	15.5	15.5	14.5

12488500 AMERICAN RIVER NEAR NILE, WASH.

LOCATION.--Lat 46°58'39", long 121°10'05", in NW¼ sec.12, T.17 N., R.13 E., Yakima County, Snoqualmie National Forest, temperature recorder at gaging station on right bank, 300 ft upstream from bridge on Bumping River Road, 4.9 miles downstream from Hall Creek, 16.0 miles northwest of Nile, and at mile 0.5.

DRAINAGE AREA.--78.9 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1962 to September 1964.
Water temperatures: October 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 15.5°C Aug. 14; minimum, freezing point on many days during December to March.

REMARKS.--Prior to October 1968 sampling site 300 ft downstream. Recorder malfunction Dec. 28 to Jan. 5, Jan. 10 to Feb. 3; no range in temperature available. Recorder stopped Aug. 20-29; range in temperature 9.0°C to 11.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	4.0	2.5	2.5	1.0	--	--	--	--	2.5	1.0
2	--	--	5.0	4.0	2.5	1.5	--	--	--	--	2.0	1.0
3	--	--	4.5	3.5	3.5	2.0	--	--	--	--	2.5	1.5
4	--	--	3.5	2.0	2.0	1.5	--	--	0.5	0.0	2.5	1.0
5	--	--	4.5	2.5	1.5	1.0	--	--	0.5	0.0	3.5	1.5
6	--	--	4.0	3.5	1.5	0.5	1.0	0.0	0.0	0.0	2.5	1.5
7	--	--	4.0	3.5	2.0	1.5	0.5	0.0	0.5	0.0	2.5	1.0
8	--	--	4.0	2.5	2.0	1.0	1.0	0.5	1.0	0.0	1.5	0.0
9	--	--	4.0	3.5	2.0	1.5	1.0	0.5	1.0	0.0	1.0	0.0
10	--	--	4.0	2.5	2.0	1.5	--	--	1.0	0.5	0.5	0.0
11	--	--	4.0	2.0	2.5	1.0	--	--	1.5	0.5	1.0	0.0
12	--	--	3.5	2.0	1.5	0.5	--	--	1.5	1.0	1.5	0.0
13	--	--	3.5	2.5	1.0	0.5	--	--	1.5	0.0	1.5	0.0
14	--	--	2.5	1.5	1.5	1.0	--	--	1.0	0.5	2.5	0.0
15	--	--	2.0	1.5	2.0	1.5	--	--	1.5	0.5	4.0	1.5
16	--	--	2.5	1.5	2.0	1.0	--	--	1.5	1.0	3.5	1.5
17	--	--	3.5	2.5	1.5	0.5	--	--	2.0	1.0	3.5	1.0
18	--	--	4.0	2.5	1.5	0.0	--	--	1.5	0.5	4.0	2.0
19	--	--	4.0	3.5	1.0	0.0	--	--	1.5	0.5	4.0	2.0
20	--	--	4.0	3.5	0.5	0.0	--	--	1.0	0.5	4.0	1.5
21	--	--	3.5	2.5	0.0	0.0	--	--	1.0	0.0	4.5	1.5
22	6.0	--	3.5	2.0	0.0	0.0	--	--	1.0	0.0	3.5	2.0
23	7.0	5.5	3.5	2.5	0.0	0.0	--	--	1.0	0.5	3.5	1.5
24	6.0	4.5	3.5	2.5	1.5	0.0	--	--	1.0	0.0	4.0	1.0
25	6.0	4.5	3.5	2.5	1.0	0.0	--	--	1.0	0.0	4.5	1.5
26	5.0	3.5	2.5	2.0	0.5	0.0	--	--	1.5	0.5	4.5	1.5
27	5.0	3.5	3.5	2.0	1.0	0.0	--	--	1.0	0.5	4.5	2.0
28	5.5	3.5	3.5	2.0	--	--	--	--	2.0	1.0	4.5	1.5
29	5.5	4.0	3.5	2.5	--	--	--	--	--	--	4.5	2.0
30	5.5	4.5	2.5	1.5	--	--	--	--	--	--	5.0	2.0
31	4.5	3.5	--	--	--	--	--	--	--	--	4.5	2.5
AVG	--	--	3.5	2.5	1.5	0.5	--	--	1.0	0.5	3.0	1.0

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.0	2.5	4.5	3.5	8.5	4.5	11.5	6.5	14.5	9.5	13.5	9.0
2	4.0	2.5	5.0	2.5	8.5	5.0	10.5	7.5	14.5	9.5	12.0	9.5
3	4.5	1.5	5.0	2.5	9.0	5.0	10.0	7.0	14.0	9.0	11.0	8.5
4	4.0	2.5	7.0	2.0	9.0	5.0	9.5	6.5	11.5	9.0	9.5	8.5
5	4.0	2.5	7.5	3.5	7.0	5.5	10.0	6.5	12.0	8.5	11.0	7.5
6	5.0	2.5	7.5	3.5	7.5	5.0	10.5	7.0	13.5	8.5	11.5	7.0
7	5.5	2.0	7.5	3.5	7.0	5.0	12.0	6.5	12.5	8.5	12.0	8.5
8	5.5	2.0	7.0	3.5	9.0	5.5	12.0	7.5	13.5	8.5	12.0	8.5
9	5.0	2.0	6.5	2.5	9.0	5.5	13.5	8.5	14.0	9.0	12.5	10.0
10	6.0	2.5	6.0	2.0	9.0	5.5	11.5	9.0	14.0	9.0	13.5	10.0
11	6.0	2.0	6.0	2.0	9.0	5.5	12.0	8.5	13.5	9.0	13.5	10.0
12	5.0	2.5	6.5	2.5	9.5	6.0	11.5	7.5	13.5	9.0	12.5	9.5
13	5.0	2.5	6.0	3.5	8.5	5.5	11.5	7.5	14.5	9.0	11.0	9.5
14	5.0	2.0	6.5	3.5	7.5	5.5	11.5	7.0	15.5	10.5	10.0	7.0
15	6.0	2.0	6.5	3.5	9.0	5.5	11.5	6.5	12.5	10.5	9.5	5.5
16	5.0	2.5	6.0	3.5	10.0	6.0	12.5	7.0	12.5	8.5	10.0	7.5
17	4.5	3.5	7.0	3.5	10.0	6.5	12.0	7.5	12.0	8.5	10.5	9.0
18	5.0	2.5	6.0	4.0	10.0	6.5	13.5	7.5	12.5	9.5	10.5	9.0
19	5.0	2.5	5.5	4.0	10.5	7.0	14.5	9.0	12.0	9.0	10.0	9.0
20	5.0	2.0	6.0	3.5	10.5	7.0	14.5	9.0	--	--	9.5	7.5
21	6.0	3.5	7.0	4.0	10.0	6.5	13.5	8.5	--	--	9.5	7.0
22	6.0	3.5	7.5	4.0	8.5	6.5	14.5	9.0	--	--	10.0	8.5
23	5.0	3.5	7.0	4.0	7.5	6.5	15.0	9.5	--	--	10.0	9.0
24	4.5	2.5	6.5	4.5	7.5	5.5	14.5	10.0	--	--	9.5	8.5
25	5.0	2.0	5.5	3.5	7.5°	5.5	13.5	9.5	--	--	9.5	7.0
26	5.5	1.5	5.5	4.5	9.5	5.5	13.5	9.0	--	--	9.5	6.5
27	5.0	2.5	6.0	4.0	7.0	6.0	12.5	9.0	--	--	9.5	7.0
28	4.5	3.5	5.5	4.0	9.0	6.0	14.0	9.0	--	--	10.0	8.5
29	5.0	2.0	6.0	4.5	9.5	6.0	14.0	9.0	11.5	--	10.0	9.0
30	5.5	2.0	6.0	4.0	9.5	6.5	14.5	9.0	12.5	8.5	9.5	8.5
31	--	--	7.0	3.5	--	--	14.5	9.5	12.5	8.5	--	--
AVG	5.0	2.5	6.5	3.5	8.5	6.0	12.5	8.0	--	--	10.5	8.5

12498700 NACHES RIVER NEAR YAKIMA, WASH.

LOCATION.--Lat 46°37'55", long 120°35'10", in SE¼NW¼ sec.9, T.13 N., R.18 E., Yakima County, at bridge on old U.S. Highway 410, 1.8 miles north of Yakima and at mile 3.7.

DRAINAGE AREA.--976 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1960 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
23...	15	9.0	2.4	4.3	.8	46	0	4.0	1.0	.1	.0	--
NOV.												
13...	13	7.1	1.5	3.0	.4	34	0	2.6	.5	.1	.1	--
DEC.												
09...	13	7.4	1.7	3.3	.6	36	0	3.6	.7	.1	.0	--
JAN.												
21...	15	7.9	1.8	3.5	.6	38	0	3.6	.5	.1	.1	--
FEB.												
18...	16	10	2.6	5.0	.7	48	0	3.8	.7	.1	.2	40
MAR.												
12...	18	11	2.8	4.5	1.1	51	0	4.4	1.5	.1	.3	--
APR.												
14...	19	8.4	2.1	4.0	.8	43	0	2.6	.7	.1	.4	--
MAY												
19...	15	6.3	1.3	2.7	.7	31	0	2.5	.2	.0	.1	--
JUNE												
24...	14	7.3	1.7	3.0	.8	34	0	4.0	.9	.D	.2	--
JULY												
22...	17	7.2	2.0	3.3	.9	38	0	4.6	.4	.1	.1	--
AUG.												
18...	16	7.5	2.0	3.5	1.0	39	0	3.0	.9	.1	.3	0
SEPT.												
22...	17	8.3	2.3	3.6	1.1	44	0	3.4	.7	.1	.3	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
23...	65	31	0	84	7.5	0	9	11.7	220	--	--	--
NOV.												
13...	49	24	0	62	7.3	10	5	11.8	140	--	--	--
DEC.												
09...	51	26	0	66	7.4	5	3	11.0	2600	--	--	--
JAN.												
21...	55	27	0	70	7.6	5	0	10.9	360	--	--	--
FEB.												
18...	64	36	0	89	7.7	0	4	12.9	47	0	0	0
MAR.												
12...	72	39	0	98	7.9	5	4	13.9	8	--	--	--
APR.												
14...	69	30	0	77	7.5	10	9	11.6	1000	--	--	--
MAY												
19...	--	21	0	54	7.1	0	12	10.0	840	--	--	--
JUNE												
24...	62	25	0	61	6.2	5	12	10.0	290	--	--	--
JULY												
22...	48	26	0	69	7.4	0	15	10.3	420	--	--	--
AUG.												
18...	54	27	0	72	7.4	0	19	9.5	3000	0	0	0
SEPT.												
22...	63	30	0	79	7.1	0	17	9.0	2900	--	--	--

12505000 YAKIMA RIVER NEAR PARKER, WASH.

LOCATION.--Lat 46°29'50", long 120°26'35", in NW¼SE¼ sec.28, T.12 N., R.19 E., Yakima County, at Sunnyside diversion dam, 700 ft upstream from gaging station, 1.5 miles east of Parker, 3 miles downstream from Ahtanum Creek, and at mile 103.8.
DRAINAGE AREA.--3,660 sq mi.
PERIOD OF RECORD.--Chemical analyses: August 1959 to September 1969.
Water temperatures: August 1959 to September 1969.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 159 mg/l Dec. 31-Jan. 1; minimum, 55 mg/l June 1-19.
Hardness: Maximum, 90 mg/l Dec. 31-Jan. 1; minimum, 30 mg/l June 1-19.
Specific conductance: Maximum daily, 391 micromhos Dec. 1; minimum daily, 68 micromhos June 7.
Water temperatures: Maximum, 21.5°C June 19, July 19; minimum, freezing point on Jan. 2-4, 12, 24.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
OCT.										
01-09	280	17	13	5.4	8.7	1.4	78	0	6.0	2.1
10-31	1400	19	15	6.3	10	1.6	91	0	7.0	3.1
NOV.										
01-04	1400	19	15	6.3	10	1.6	91	0	7.0	3.1
05-11	1580	20	16	6.9	11	1.8	98	0	8.4	2.7
12-18	2840	18	13	5.0	7.6	1.1	75	0	5.4	2.1
19-30	2560	18	13	4.8	7.2	1.3	73	0	5.6	1.7
DEC.										
02-20	2710	17	12	4.4	6.9	1.2	67	0	4.8	1.7
21-30	1540	20	14	5.4	8.9	1.5	81	0	6.4	2.3
31...	920	26	21	9.1	16	2.8	117	0	18	6.1
JAN.										
01...	920	26	21	9.1	16	2.8	117	0	18	6.1
02-05	1800	22	16	6.1	9.6	1.7	89	0	7.4	2.7
06-22	3270	17	11	4.1	6.2	1.2	64	0	4.6	1.6
23-31	1700	20	14	5.2	8.0	1.4	77	0	5.8	2.8
FEB.										
01-21	1700	20	14	5.2	8.0	1.4	77	0	5.8	2.8
22-28	2390	15	12	4.8	7.1	1.4	69	0	5.4	3.0
MAR.										
01-07	2390	15	12	4.8	7.1	1.4	69	0	5.4	3.0
08-21	3200	20	16	6.7	9.0	2.6	91	0	7.4	3.5
22-31	4800	22	13	5.0	6.5	1.7	73	0	4.9	1.8
APR.										
01-30	5360	19	11	3.6	4.8	1.0	57	0	3.7	1.4
MAY										
01-31	7390	15	8.6	2.8	3.7	.9	47	0	3.1	.8
JUNE										
01-19	6760	13	7.7	2.7	3.4	.8	43	0	2.9	.9
20-30	373	14	9.8	3.6	5.8	1.1	57	0	6.2	1.5
JULY										
01-19	373	14	9.8	3.6	5.8	1.1	57	0	6.2	1.5
20-31	377	15	9.9	3.9	6.1	1.2	58	0	6.0	1.3
AUG.										
01-18	377	15	9.9	3.9	6.1	1.2	58	0	6.0	1.3
19-30	354	16	10	4.0	6.5	1.3	60	0	4.8	2.0
31...	329	17	11	4.4	7.4	1.5	67	0	5.2	2.3
SEPT.										
01-18	329	17	11	4.4	7.4	1.5	67	0	5.2	2.3
19-30	464	18	13	5.1	9.0	1.7	76	0	6.0	2.6
WTD. AVG. TIME	--	17	11	4.0	5.7	1.2	61	0	4.4	1.6
WTD. AVG. TONS PER DAY	2650	17	12	4.5	6.8	1.3	67	0	5.4	2.0
	--	122	79	29	41	8.5	438	0	32	12

ANALYSES OF ADDITIONAL SAMPLES

OCT.										
23...	1690	18	15	5.8	9.6	1.4	89	0	6.8	2.4
NOV.										
13...	3750	16	12	3.6	6.2	1.3	63	0	5.0	1.7
DEC.										
09...	2880	16	12	4.0	7.0	1.1	63	0	5.2	2.3
JAN.										
21...	2180	18	13	4.8	7.3	1.2	70	0	5.8	2.0
FEB.										
18...	1780	17	13	5.2	9.1	1.8	78	0	7.0	3.3
MAR.										
12...	1870	20	17	6.9	10	1.9	96	0	7.6	4.1
APR.										
14...	7060	17	10	3.5	4.6	1.0	56	0	3.0	1.4
MAY										
19...	6660	13	8.5	2.8	4.3	.7	47	0	4.7	1.0
JUNE										
24...	1010	14	9.2	3.5	4.9	1.0	53	0	4.8	1.2
JULY										
22...	188	14	9.9	3.8	5.5	1.1	57	0	6.0	1.1
AUG.										
18...	462	15	9.7	3.8	5.8	1.2	56	0	4.2	1.7
SEPT.										
23...	785	18	13	4.9	6.9	1.6	72	0	4.8	2.2

12505000 YAKIMA RIVER NEAR PARKER, WASH.--Continued

Period of record:
Dissolved solids: Maximum, 204 mg/l Nov. 29, 30, 1962; minimum, 44 mg/l Jan. 1-13, 1960.
Hardness: Maximum, 122 mg/l Nov. 29, 30, 1962; minimum, 27 mg/l Jan. 1-13, 1960.
Specific conductance: Maximum daily, 391 micromhos Dec. 1, 1968; minimum daily, 68 micromhos June 7, 1969.
Water temperatures: Maximum, 22.0°C on several days during June to August of most years; minimum, freezing point on many days during winter periods.

REMARKS.--Coliform and dissolved oxygen data furnished by Washington State Water Pollution Control Commission. Approximately 15 percent of yearly flow is diverted at Sunnyside diversion dam. No inflow between sampling point and gaging station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	PHOS-PHATE (PO4) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)
OCT.									
01-09	.2	.4	--	--	97	.06	35.5	55	0
10-31	.2	.6	--	--	110	.15	416	64	0
NOV.									
01-04	.2	.6	--	--	110	.15	416	64	0
05-11	.2	.7	--	--	120	.16	512	69	0
12-18	.2	.4	--	--	90	.12	690	53	0
19-30	.1	.6	--	--	91	.12	629	52	0
DEC.									
02-20	.1	.6	--	--	84	.11	615	48	0
21-30	.1	1.1	--	--	99	.13	412	57	0
31...	.1	1.9	--	--	159	.22	395	90	0
JAN.									
01...	.1	1.9	--	--	159	.22	395	90	0
02-05	.1	1.3	--	--	112	.15	544	65	0
06-22	.1	.7	--	--	82	.11	724	45	0
23-31	.2	1.4	--	--	97	.13	445	57	0
FEB.									
01-21	.2	1.4	--	--	97	.13	445	57	0
22-28	.4	1.0	--	--	78	.11	503	50	0
MAR.									
01-07	.4	1.0	--	--	78	.11	503	50	0
08-21	.1	1.8	--	--	118	.16	1020	68	0
22-31	.1	1.7	--	--	104	.14	1350	53	0
APR.									
01-30	.1	.6	--	--	77	.10	1110	43	0
MAY									
01-31	.1	.4	--	--	63	.09	1260	33	0
JUNE									
01-19	.1	.3	--	--	55	.07	1000	30	0
20-30	.0	.3	--	--	77	.10	77.5	40	0
JULY									
01-19	.0	.3	--	--	77	.10	77.5	40	0
20-31	.1	.4	--	--	78	.11	79.4	42	0
AUG.									
01-18	.1	.4	--	--	78	.11	79.4	42	0
19-30	.1	.8	--	--	73	.10	69.8	42	0
31...	.1	.7	--	--	80	.11	71.1	46	0
SEPT.									
01-18	.1	.7	--	--	80	.11	71.1	46	0
19-30	.1	.6	--	--	91	.12	114	54	0
WTD. AVG. TIME	.1	.7	--	--	79	.11	917	44	0
WTD. AVG. TONS PER DAY	.1	.7	--	--	84	.11	566	48	0
	.9	5.0	--	--	--	--	--	--	--

ANALYSES OF ADDITIONAL SAMPLES

OCT.									
23...	.2	.5	.23	--	101	.14	461	62	0
NOV.									
13...	.2	1.0	.25	--	88	.12	891	45	0
DEC.									
09...	.1	.7	.34	--	80	.11	622	47	0
JAN.									
21...	.1	.8	.28	--	91	.12	536	52	0
FEB.									
18...	.1	1.5	.35	0	94	.13	461	54	0
MAR.									
12...	.1	1.9	.44	--	118	.16	596	71	0
APR.									
14...	.1	.1	.13	--	76	.10	1450	40	0
MAY									
19...	.1	.3	.24	--	62	.08	1120	33	0
JUNE									
24...	.0	.6	.18	--	67	.09	183	38	0
JULY									
22...	.0	.4	.25	--	73	.10	37.1	40	0
AUG.									
18...	.1	.6	.24	--	67	.09	83.7	40	0
SEPT.									
23...	.1	.8	.27	--	86	.12	182	53	0

12505000 YAKIMA RIVER NEAR PARKER, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.									
01-09	.5	144	7.7	5	--	--	--	--	--
10-31	.5	168	7.7	5	--	--	--	--	--
NOV.									
01-04	.5	168	7.7	5	--	--	--	--	--
05-11	.6	184	7.7	5	--	--	--	--	--
12-18	.5	137	7.7	5	--	--	--	--	--
19-30	.4	135	7.7	0	--	--	--	--	--
DEC.									
02-20	.4	124	7.9	0	--	--	--	--	--
21-30	.5	152	7.8	0	--	--	--	--	--
31...	.7	249	7.8	0	--	--	--	--	--
JAN.									
01...	.7	249	7.8	0	--	--	--	--	--
02-05	.5	169	7.8	0	--	--	--	--	--
06-22	.4	120	7.7	0	--	--	--	--	--
23-31	.5	145	7.9	5	--	--	--	--	--
FEB.									
01-21	.5	145	7.9	5	--	--	--	--	--
22-28	.4	132	7.8	5	--	--	--	--	--
MAR.									
01-07	.4	132	7.8	5	--	--	--	--	--
08-21	.5	165	7.8	10	--	--	--	--	--
22-31	.4	132	7.8	10	--	--	--	--	--
APR.									
01-30	.3	104	7.6	10	--	--	--	--	--
MAY									
01-31	.3	84	7.6	5	--	--	--	--	--
JUNE									
01-19	.3	77	7.5	5	--	--	--	--	--
20-30	.4	105	7.6	0	--	--	--	--	--
JULY									
01-19	.4	105	7.6	0	--	--	--	--	--
20-31	.4	109	7.7	0	--	--	--	--	--
AUG.									
01-18	.4	109	7.7	0	--	--	--	--	--
19-30	.4	114	7.6	0	--	--	--	--	--
31...	.5	125	7.6	0	--	--	--	--	--
SEPT.									
01-18	.5	125	7.6	0	--	--	--	--	--
19-30	.5	142	7.8	0	--	--	--	--	--
TIME WTD. AVG.	.4	127	7.7	--	--	--	--	--	--

ANALYSES OF ADDITIONAL SAMPLES

OCT.									
23...	.5	163	7.4	5	10.9	900	--	--	--
NOV.									
13...	.4	117	7.3	5	11.8	1200	--	--	--
DEC.									
09...	.4	119	7.4	10	11.0	2000	--	--	--
JAN.									
21...	.4	131	7.5	5	10.8	2600	--	--	--
FEB.									
18...	.5	154	7.7	5	13.3	1600	0	0	0
MAR.									
12...	.5	183	7.6	5	13.4	1800	--	--	--
APR.									
14...	.3	98	7.5	10	1.1	19000	--	--	--
MAY									
19...	.3	86	7.4	0	8.7	10000	--	--	--
JUNE									
24...	.3	98	7.3	5	10.4	680	--	--	--
JULY									
22...	.4	103	7.5	5	10.1	3300	--	--	--
AUG.									
18...	.4	107	7.5	0	10.1	2700	--	--	--
SEPT.									
23...	.4	135	7.6	0	9.3	--	--	--	--

12505000 YAKIMA RIVER NEAR PARKER, WASH.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	174	391	213	148	124	114	97	74	109	109	123
2	140	174	128	187	148	121	116	99	73	111	108	122
3	145	171	129	178	147	121	118	98	69	104	109	123
4	145	169	123	163	140	131	114	101	69	104	111	124
5	148	181	104	148	137	132	114	102	69	106	109	123
6	142	180	109	111	138	--	111	98	69	107	107	123
7	143	189	114	101	141	135	114	96	68	106	107	121
8	145	193	114	109	137	160	109	89	71	106	110	123
9	147	197	115	108	144	196	107	83	72	106	111	125
10	155	179	126	110	--	224	107	77	72	105	112	129
11	156	167	124	112	131	181	105	75	72	102	111	128
12	162	127	129	115	138	187	102	76	70	101	110	127
13	168	--	131	118	132	186	99	76	74	102	109	128
14	166	--	128	121	--	181	96	75	76	105	110	126
15	172	133	128	123	--	183	97	77	78	104	108	126
16	155	139	127	125	--	174	98	80	82	106	108	128
17	165	143	131	127	--	161	96	82	87	103	109	127
18	174	147	131	131	--	158	98	83	95	106	110	134
19	176	160	132	121	--	164	98	82	93	105	112	142
20	176	154	132	121	138	156	101	84	95	109	114	140
21	175	153	141	128	140	155	100	80	84	108	115	140
22	165	148	144	134	134	146	99	77	100	111	118	138
23	167	129	143	144	131	139	94	74	97	110	119	136
24	169	121	146	153	129	137	92	73	99	107	117	141
25	169	124	145	150	129	141	90	71	104	111	116	144
26	169	128	147	143	122	139	94	73	105	104	--	148
27	165	128	155	141	121	136	93	76	106	104	115	148
28	163	123	157	143	135	126	94	77	105	108	113	146
29	168	123	162	145	--	123	95	80	108	110	116	146
30	167	123	181	152	--	120	95	80	107	110	116	147
31	167	--	283	151	--	117	--	74	--	110	122	--
AVG	159	152	146	136	--	151	102	82	84	106	112	132

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	7.0	3.5	0.5	0.5	2.5	6.5	7.5	12.0	16.0	16.5	16.5
2	11.0	7.0	3.5	0.0	0.5	2.5	6.0	7.0	14.0	20.5	16.0	17.0
3	14.0	7.0	5.0	0.0	0.5	5.5	5.5	10.5	14.5	15.5	15.5	15.5
4	12.5	7.0	5.0	0.0	0.5	4.5	6.5	7.5	15.0	15.5	15.5	14.5
5	11.5	7.0	3.5	0.5	0.5	4.5	7.5	9.5	17.0	17.0	14.0	14.0
6	11.5	6.5	2.0	1.0	0.5	4.5	8.5	14.5	14.5	17.0	14.5	14.5
7	10.0	6.5	2.0	1.0	0.5	4.5	6.0	11.0	15.0	16.5	15.0	15.5
8	12.0	7.0	2.5	1.0	0.5	4.0	9.5	11.0	14.5	16.5	14.5	16.0
9	10.0	6.5	2.5	0.5	0.5	2.5	7.0	11.0	15.0	19.0	15.5	17.5
10	12.0	6.0	4.0	0.5	1.0	2.0	8.5	11.0	15.5	18.5	16.0	15.5
11	10.5	6.5	4.5	0.5	1.5	5.5	7.0	10.5	16.0	16.0	16.5	20.0
12	9.5	5.5	3.5	0.0	1.5	2.5	10.5	11.0	16.0	18.5	15.5	18.5
13	8.5	--	2.5	0.5	1.5	3.5	7.0	10.5	16.5	15.0	16.0	14.5
14	8.5	--	2.5	0.5	--	5.5	7.0	11.0	17.0	16.5	14.5	14.0
15	10.5	5.0	3.5	0.5	--	6.0	6.5	9.5	14.5	14.5	18.5	13.5
16	10.5	4.5	3.5	0.5	--	7.0	8.5	10.5	16.5	15.5	16.0	15.0
17	10.5	4.5	1.5	0.5	--	6.0	7.5	10.5	16.5	15.5	15.5	15.0
18	9.5	5.0	2.5	0.5	--	5.0	8.5	10.5	17.5	16.0	17.0	15.0
19	11.0	6.0	1.5	0.5	--	7.0	9.0	10.5	21.5	21.5	16.0	15.5
20	11.0	6.0	1.5	1.0	1.0	6.5	7.0	9.5	17.5	17.0	17.0	15.0
21	9.5	7.0	0.5	1.0	0.5	6.0	8.5	11.5	19.0	19.5	17.5	14.5
22	9.0	6.5	1.0	1.0	1.5	6.5	9.5	14.5	16.5	16.0	17.0	14.5
23	10.0	6.0	0.5	0.5	1.0	5.5	10.0	14.0	15.5	17.0	18.5	15.5
24	9.5	5.0	1.5	0.0	1.0	5.5	8.5	12.5	14.5	20.0	18.5	14.0
25	9.0	4.5	1.0	0.5	1.0	5.5	7.0	11.5	14.5	16.5	16.5	14.5
26	8.5	5.0	0.5	0.5	1.5	6.5	7.0	11.0	15.0	18.5	16.0	14.0
27	7.5	5.0	0.5	0.5	2.0	7.0	7.0	10.0	14.5	16.0	15.5	15.0
28	7.5	4.0	0.5	0.5	2.5	10.0	9.0	10.0	14.0	16.0	17.5	14.0
29	7.5	3.5	0.5	1.0	--	9.5	9.5	11.0	15.0	15.5	14.5	15.0
30	12.0	3.5	0.5	0.5	--	9.0	6.5	9.0	15.0	16.0	17.0	14.5
31	6.5	--	0.5	0.5	--	7.0	--	11.0	--	17.0	18.5	--
AVG	10.0	5.5	2.0	0.5	1.0	5.5	7.5	10.5	15.5	17.0	16.0	15.0

12510500 YAKIMA RIVER AT KIONA, WASH.
(Irrigation network station)

LOCATION.--Lat 46°15'10", long 119°28'35", in SE¼NE¼ sec.19, T.9 N., R.27 E., Benton County, at highway bridge 0.1 mile downstream from gaging station at Kiona, 3.7 miles downstream from Corral Canyon Creek, 5.1 miles downstream from intake of Kiona Canal, and at mile 29.8.
DRAINAGE AREA.--5,615 sq mi.
PERIOD OF RECORD.--Chemical analyses: December 1952 to September 1969.
Water temperatures: December 1952 to September 1969.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 243 mg/l Oct. 1-13; minimum, 86 mg/l May 11-June 9.
Hardness: Maximum, 135 mg/l July 11-31; minimum, 50 mg/l May 11-June 9.
Specific conductance: Maximum daily, 379 micromhos Oct. 12; minimum daily, 113 micromhos June 5-7.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
OCT.										
01-13	1990	32	32	13	24	4.2	179	2	26	7.6
14-31	2750	30	28	11	21	3.4	159	0	21	5.7
NOV.										
01-09	2750	30	28	11	21	3.4	159	0	21	5.7
10-11	2730	31	29	12	25	4.1	170	0	26	7.6
12-13	3780	30	26	10	19	3.3	146	0	18	6.1
14-30	3610	24	22	8.0	15	2.4	119	0	15	3.6
DEC.										
01-05	3610	24	22	8.0	15	2.4	119	0	15	3.6
06-21	3700	23	20	7.3	13	2.0	109	0	14	3.6
22-31	2120	26	26	9.6	18	2.7	137	0	20	4.7
JAN.										
01-06	2120	26	26	9.6	18	2.7	137	0	20	4.7
07-23	4550	22	18	6.6	12	2.0	96	0	13	3.3
24-31	2470	24	23	8.4	14	2.7	122	0	15	6.0
FEB.										
01-14	2470	24	23	8.4	14	2.7	122	0	15	6.0
15-28	3410	23	23	8.7	16	2.8	124	0	16	6.7
MAR.										
01-16	3410	23	23	8.7	16	2.8	124	0	16	6.7
17-18	6160	25	21	8.2	12	2.6	115	0	13	5.0
19-30	7150	25	17	6.6	10	2.4	94	0	8.9	3.6
31...	8080	22	15	5.4	8.3	1.6	82	0	7.2	2.4
APR.										
01-15	8080	22	15	5.4	8.3	1.6	82	0	7.2	2.4
16-30	7030	21	15	5.1	8.3	1.5	80	0	7.6	2.8
MAY										
01-03	7030	21	15	5.1	8.3	1.5	80	0	7.6	2.8
04-10	5310	22	18	6.1	10	1.8	93	0	10	3.4
11-31	10900	17	13	4.3	6.5	1.4	66	0	5.7	1.7
JUNE										
01-09	10900	17	13	4.3	6.5	1.4	66	0	5.7	1.7
10-19	6720	18	14	4.8	7.8	1.6	75	0	8.2	2.1
20-30	1690	26	29	10	19	3.4	149	2	19	5.8
JULY										
01-10	1690	26	29	10	19	3.4	149	2	19	5.8
11-31	1260	27	34	12	22	4.2	179	0	22	6.6
AUG.										
01-13	1380	26	33	11	22	4.1	176	0	21	6.7
14-31	1610	27	33	11	21	4.0	170	1	21	6.1
SEPT.										
01-12	1610	27	33	11	21	4.0	170	1	21	6.1
13-21	1900	28	33	12	22	4.3	176	0	22	6.7
22-26	2380	26	30	11	19	3.9	158	0	19	5.9
27-30	2000	27	32	11	23	4.0	171	0	21	6.4
WTD. AVG. TIME	--	23	20	7.0	12	2.3	105	0	12	3.8
WTD. AVG. TONS PER DAY	4030	25	24	8.6	16	2.8	128	0	16	4.8
	--	241	213	76	133	25	1140	1	131	41

ANALYSES OF ADDITIONAL SAMPLES

OCT.										
22...	2880	26	30	11	21	3.4	163	0	22	6.4
NOV.										
13...	4370	24	26	8.5	18	3.2	137	0	18	3.8
DEC.										
10...	3880	21	20	6.7	12	2.0	104	0	14	2.8
JAN.										
21...	3450	22	20	7.3	13	2.0	106	0	14	4.1
FEB.										
18...	3170	24	24	9.1	19	3.3	132	0	21	5.2
MAR.										
11...	3290	25	24	9.6	17	3.2	133	0	16	6.8
APR.										
15...	8870	20	14	4.9	7.1	1.4	74	0	6.0	2.2
MAY										
20...	8740	18	15	4.9	7.3	1.5	76	0	8.4	2.0
JUNE										
24...	2040	26	31	10	19	3.4	155	0	23	6.3
JULY										
22...	1220	26	34	12	23	4.1	179	0	24	6.4
AUG.										
19...	1700	25	31	11	20	3.6	168	0	22	6.2
SEPT.										
23...	2450	26	30	10	20	3.9	160	0	19	6.3

12510500 YAKIMA RIVER AT KIONA, WASH.--Continued

EXTREMES.--1968-69:--Continued
Water temperatures: Maximum, 25.0°C July 27; minimum, freezing point on several days during December to February.
Period of record:
Dissolved solids: Maximum, 246 mg/l Oct. 1-16, 1966; minimum, 76 mg/l May 1-23, 1957.
Hardness: Maximum, 148 mg/l Oct. 1-11, 1958; minimum, 42 mg/l May 1-23, 1957, Dec. 16-31, 1959.
Specific conductance: Maximum daily, 410 micromhos Oct. 13, 1966; minimum daily, 99 micromhos Dec. 17, 1959.
Water temperatures: Maximum, 29.0°C July 18, 1960, July 21, 1961; minimum, freezing point on several days during winter periods.
REMARKS.--Coliform and dissolved oxygen data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	PHOSPHATE (PO4) (MG/L)	BORON (B) (UG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)
OCT.									
01-13	.3	3.5	--	--	243	.33	1310	132	0
14-31	.3	3.3	--	--	218	.30	1620	116	0
NOV.									
01-09	.3	3.3	--	--	218	.30	1620	116	0
10-11	.3	3.5	--	--	233	.32	1720	123	0
12-13	.3	3.5	--	--	194	.26	1980	107	0
14-30	.2	2.0	--	--	153	.21	1490	88	0
DEC.									
01-05	.2	2.0	--	--	153	.21	1490	88	0
06-21	.1	1.8	--	--	139	.19	1390	80	0
22-31	.2	3.0	--	--	177	.24	1010	105	0
JAN.									
01-06	.2	3.0	--	--	177	.24	1010	105	0
07-23	.1	2.3	--	--	128	.17	1570	72	0
24-31	.1	3.2	--	--	164	.22	1090	92	0
FEB.									
01-14	.1	3.2	--	--	164	.22	1090	92	0
15-28	.1	2.9	--	--	174	.24	1600	94	0
MAR.									
01-16	.1	2.9	--	--	174	.24	1600	94	0
17-18	.1	3.3	--	--	148	.20	2460	86	0
19-30	.1	2.5	--	--	135	.18	2610	70	0
31...	.1	1.3	--	--	111	.15	2420	60	0
APR.									
01-15	.1	1.3	--	--	111	.15	2420	60	0
16-30	.1	1.2	--	--	98	.13	1860	59	0
MAY									
01-03	.1	1.2	--	--	98	.13	1860	59	0
04-10	.1	1.5	--	--	126	.17	1810	70	0
11-31	.1	1.2	--	--	86	.12	2530	50	0
JUNE									
01-09	.1	1.2	--	--	86	.12	2530	50	0
10-19	.1	1.5	--	--	103	.14	1870	55	0
20-30	.2	3.4	--	--	196	.27	894	114	0
JULY									
01-10	.2	3.4	--	--	196	.27	894	114	0
11-31	.2	3.8	--	--	233	.32	793	135	0
AUG.									
01-13	.2	3.6	--	--	226	.31	842	128	0
SEPT.									
01-12	.3	4.2	--	--	220	.30	956	128	0
13-21	.3	4.5	--	--	227	.31	1170	132	0
22-26	.3	4.1	--	--	204	.28	1310	120	0
27-30	.3	3.8	--	--	213	.29	1150	125	0
WTD. AVG.	.1	2.2	--	--	139	.19	1860	78	0
WTD. AVG. TIME	.2	2.8	--	--	169	.23	1510	96	0
TONS PER DAY	1.5	23	--	--	--	--	--	--	--

ANALYSES OF ADDITIONAL SAMPLES

OCT.									
22...	.3	3.2	.43	--	210	.29	1630	120	0
NOV.									
13...	.3	3.1	.39	--	189	.26	2230	100	0
DEC.									
10...	.1	1.8	.43	--	135	.18	1410	78	0
JAN.									
21...	.1	2.0	.29	--	134	.18	1250	80	0
FEB.									
18...	.2	3.0	.47	60	174	.24	1490	98	0
MAR.									
11...	.2	3.3	.45	--	174	.24	1550	100	0
APR.									
15...	.2	.7	.70	--	100	.14	2400	55	0
MAY									
20...	.1	1.4	.16	--	100	.14	2360	58	0
JUNE									
24...	.3	3.5	.44	--	198	.27	1090	119	0
JULY									
22...	.2	3.6	.50	--	221	.30	728	135	0
AUG.									
19...	.3	3.8	.54	--	197	.27	904	123	0
SEPT.									
23...	.2	3.3	.55	--	200	.27	1320	116	0

12510500 YAKIMA RIVER AT KIONA, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.									
01-13	.9	357	8.3	5	--	--	--	--	--
14-31	.9	314	8.0	5	--	--	--	--	--
NOV.									
01-09	.9	314	8.0	5	--	--	--	--	--
10-11	1.0	345	8.2	5	--	--	--	--	--
12-13	.8	291	7.9	5	--	--	--	--	--
14-30	.7	238	8.1	5	--	--	--	--	--
DEC.									
01-05	.7	238	8.1	5	--	--	--	--	--
06-21	.6	218	7.9	5	--	--	--	--	--
22-31	.8	277	8.2	5	--	--	--	--	--
JAN.									
01-06	.8	277	8.2	5	--	--	--	--	--
07-23	.6	196	7.8	10	--	--	--	--	--
24-31	.6	244	8.1	5	--	--	--	--	--
FEB.									
01-14	.6	244	8.1	5	--	--	--	--	--
15-28	.7	253	8.0	5	--	--	--	--	--
MAR.									
01-16	.7	253	8.0	5	--	--	--	--	--
17-18	.6	230	7.8	5	--	--	--	--	--
19-30	.5	185	7.8	10	--	--	--	--	--
31...	.5	156	7.7	10	--	--	--	--	--
APR.									
01-15	.5	156	7.7	10	--	--	--	--	--
16-30	.5	154	7.9	5	--	--	--	--	--
MAY									
01-03	.5	154	7.9	5	--	--	--	--	--
04-10	.5	182	8.2	5	--	--	--	--	--
11-31	.4	129	7.7	5	--	--	--	--	--
JUNE									
01-09	.4	129	7.7	5	--	--	--	--	--
10-19	.5	143	7.9	0	--	--	--	--	--
20-30	.8	301	8.3	0	--	--	--	--	--
JULY									
01-10	.8	301	8.3	0	--	--	--	--	--
11-31	.8	353	8.1	0	--	--	--	--	--
AUG.									
01-13	.8	347	8.0	0	--	--	--	--	--
14-31	.8	338	8.2	0	--	--	--	--	--
SEPT.									
01-12	.8	338	8.2	0	--	--	--	--	--
13-21	.8	349	8.1	0	--	--	--	--	--
22-26	.8	316	8.0	0	--	--	--	--	--
27-30	.9	342	8.2	0	--	--	--	--	--
TIME WTD. AVG.	.7	254	8.0	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES									
OCT.									
22...	.8	320	7.8	10	11.4	9000	--	--	--
NOV.									
13...	.8	276	7.4	10	10.6	11000	--	--	--
DEC.									
10...	.6	204	7.6	5	10.8	8500	--	--	--
JAN.									
21...	.6	209	7.7	5	11.6	5500	--	--	--
FEB.									
18...	.8	274	7.7	10	12.2	3000	0	0	0
MAR.									
11...	.7	265	7.8	5	12.6	4200	--	--	--
APR.									
15...	.4	143	7.6	5	10.5	5200	--	--	--
MAY									
20...	.4	143	7.5	0	9.3	7000	--	--	--
JUNE									
24...	.8	316	7.8	0	11.0	6900	--	--	--
JULY									
22...	.9	355	7.9	5	10.7	11000	--	--	--
AUG.									
19...	.8	326	8.2	5	8.0	90000	--	--	--
SEPT.									
23...	.8	320	7.7	0	9.0	25000	--	--	--

12510500 YAKIMA RIVER AT KIONA, WASH.--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	ALDRIN (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
NOV.												
25...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DEC.												
10...	--	--	--	--	--	--	--	--	--	--	--	--
16...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
JAN.												
20...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
FEB.												
25...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAR.												
26...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR.												
09...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00
15...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	.00	.01	.01	.04	.00	.00	.00	.00	.00	.24	.00	.00
JUNE												
24...	--	--	--	--	--	--	--	--	--	--	--	--
27...	.00	.00	.01	.04	.01	.00	.00	.00	.00	.21	.00	.00
JULY												
22...	--	--	--	--	--	--	--	--	--	--	--	--
30...	.00	.01	.00	.03	.02	.00	.00	.00	.00	.18	.00	.00
AUG.												
19...	--	--	--	--	--	--	--	--	--	--	--	--
21...	.00	.01	.01	.02	.01	.00	.00	.00	.00	.09	.00	.00
SEPT.												
9...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00

12510500 YAKIMA RIVER AT KIONA, WASH.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	338	303	221	--	258	244	157	156	130	309	344	326
2	338	300	221	--	253	244	150	168	129	279	364	333
3	335	301	225	--	244	232	153	172	126	286	357	344
4	341	304	223	313	242	234	154	181	119	281	366	357
5	358	306	223	299	231	230	161	183	113	309	367	356
6	364	306	193	261	234	235	158	196	113	326	352	356
7	372	326	185	172	237	221	159	201	113	314	340	357
8	367	317	198	136	239	221	161	193	114	326	330	353
9	368	330	200	148	241	232	162	168	117	329	327	342
10	370	352	207	158	255	249	160	145	120	332	334	339
11	369	345	210	168	244	262	161	127	122	341	333	346
12	379	303	207	174	232	271	--	121	123	358	336	356
13	346	285	210	201	242	273	151	121	123	355	336	362
14	323	210	216	203	249	271	145	123	129	338	340	368
15	333	215	223	210	263	275	138	123	144	322	335	369
16	336	229	226	212	271	266	142	127	167	369	333	363
17	312	242	228	214	265	256	148	133	172	373	334	353
18	315	249	228	194	269	204	152	142	186	353	337	349
19	364	258	235	224	274	179	152	147	--	341	330	--
20	311	264	235	219	265	185	152	145	265	366	331	340
21	317	275	236	207	280	191	155	133	301	354	330	326
22	319	271	--	216	278	197	159	135	320	357	338	319
23	317	273	--	225	269	192	166	135	314	355	345	319
24	303	248	256	243	261	184	155	129	306	357	346	317
25	305	215	254	254	252	186	138	119	296	331	348	317
26	319	214	--	--	254	194	134	115	260	377	355	317
27	308	221	--	--	246	196	140	117	268	370	351	326
28	303	225	--	--	239	186	149	123	291	363	352	340
29	300	224	259	--	--	175	160	126	309	344	349	348
30	300	221	263	--	--	164	161	137	317	344	341	355
31	303	--	271	--	--	152	--	136	--	337	333	--
AVG	333	271	225	--	253	219	152	144	193	338	342	343

12510500 YAKIMA RIVER AT KIONA, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	8.5	5.0	--	0.0	5.0	10.0	9.5	15.5	20.0	24.5	20.0
2	16.0	9.0	5.0	--	0.5	5.5	9.5	9.5	15.5	21.0	25.0	20.0
3	14.0	9.0	5.5	--	2.0	9.0	9.5	10.5	17.0	20.5	22.5	19.5
4	14.0	8.5	6.0	0.0	0.5	6.5	9.0	11.5	18.5	20.5	22.0	19.0
5	15.5	8.5	5.5	1.0	1.5	7.0	9.0	10.0	18.5	20.5	20.0	16.5
6	13.5	7.5	4.5	1.0	1.5	7.0	9.0	14.0	18.5	21.0	20.0	16.5
7	12.5	9.5	4.0	1.5	1.0	7.0	9.5	15.5	18.5	21.0	21.0	17.5
8	15.0	8.5	4.5	1.5	1.5	6.0	9.0	16.5	18.5	22.0	20.0	18.5
9	14.5	8.5	4.5	1.5	2.5	6.0	9.5	16.0	18.5	22.5	20.0	19.0
10	15.0	6.5	4.5	2.0	2.5	6.0	10.5	15.0	18.5	24.0	21.0	19.5
11	12.0	7.5	5.0	1.5	3.5	6.0	11.0	14.5	18.5	22.0	21.0	20.0
12	11.5	7.5	5.0	1.0	2.0	6.0	11.0	14.5	21.0	21.5	20.0	20.0
13	11.0	7.5	4.0	1.0	4.5	6.0	11.0	14.5	17.5	21.0	20.0	19.0
14	10.0	9.0	4.0	1.5	4.0	6.5	10.0	14.0	18.5	20.5	21.5	17.5
15	9.5	8.5	4.0	1.5	4.0	7.0	10.5	13.5	18.5	20.0	21.5	16.5
16	9.5	5.5	4.0	1.5	4.5	7.5	10.5	13.5	19.0	21.0	20.0	16.0
17	10.0	5.5	3.5	1.0	4.5	8.5	10.5	13.5	20.0	21.0	20.0	16.0
18	10.0	6.0	3.5	1.0	4.5	7.5	10.5	13.5	21.0	21.0	20.0	16.5
19	10.5	7.0	2.5	1.5	4.0	6.5	10.5	13.5	21.5	22.0	20.5	16.5
20	11.0	7.0	2.0	1.0	3.5	6.5	10.5	12.5	21.5	22.0	20.5	16.5
21	10.5	8.5	1.5	1.0	3.5	7.5	11.0	13.5	21.0	24.0	22.0	16.0
22	11.0	9.0	--	0.0	4.0	7.5	11.5	15.5	21.0	23.5	21.5	16.0
23	12.0	8.5	--	0.0	2.5	8.5	12.5	15.5	18.5	24.0	21.5	16.5
24	10.5	7.5	1.5	0.0	2.5	7.5	11.5	15.5	18.5	24.5	22.0	15.5
25	11.0	6.5	2.0	0.0	2.5	7.5	10.0	15.0	18.5	23.5	20.0	16.0
26	10.0	6.5	2.0	--	4.0	8.5	10.0	15.0	18.5	24.5	20.0	15.5
27	10.0	6.0	2.5	--	4.0	9.0	10.5	14.0	17.5	25.0	19.0	15.0
28	10.0	5.5	1.5	--	4.5	9.5	10.5	13.5	17.0	22.5	18.5	16.0
29	9.5	5.5	0.0	--	--	9.5	10.0	14.0	18.5	22.0	17.0	16.0
30	9.5	5.0	0.5	--	--	9.5	10.0	13.5	19.0	21.5	19.0	15.5
31	8.5	--	0.0	--	--	9.5	--	17.0	--	23.5	19.0	--
AVG	11.5	7.5	3.5	--	3.0	7.5	10.0	13.5	18.5	22.0	20.5	17.5

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OLYMPIC PENINSULA BASINS												
12038500 - W.F. HOQUIAM R NR HOQUIAM (LAT 47 03 05 LONG 123 55 25)												
NOV., 1968												
14...	--	9.4	1.9	1.1	3.3	.2	13	0	.4	3.4	.1	.3
SEP., 1969												
08...	--	18	6.1	3.0	4.9	.3	37	0	.0	5.4	.0	.1
12039000 - HUMPTULIPS R NR HUMPTULIPS (LAT 47 13 45 LONG 123 57 40)												
NOV., 1968												
14...	1540	9.3	5.5	1.5	2.7	.2	25	0	2.2	1.5	.1	.7
SEP., 1969												
08...	144	12	7.2	1.9	3.6	.3	34	0	3.2	2.7	.1	.2
12039500 - QUINAULT R AT QUINAULT LAKE (LAT 47 27 30 LONG 123 53 15)												
NOV., 1968												
14...	3770	4.2	8.3	.9	1.6	.2	26	0	5.4	.5	.1	.1
SEP., 1969												
10...	526	4.7	9.5	.7	1.8	.3	28	0	6.4	.7	.1	.4
12040600 - QUEETS R AT QUEETS (LAT 47 32 30 LONG 124 20 00)												
NOV., 1968												
14...	--	5.1	6.8	1.0	2.6	.3	24	0	5.2	1.6	.1	.2
SEP., 1969												
10...	--	5.1	10	1.1	3.2	.4	31	0	8.0	1.4	.1	.1
12041200 - HOH R AT U.S. HWY 101 BRIDGE NR FORKS (LAT 47 48 25 LONG 124 15 00)												
NOV., 1968												
13...	3140	4.7	9.4	1.7	2.1	.2	32	0	8.0	1.0	.1	.2
SEP., 1969												
10...	929	4.1	12	.9	1.4	.2	31	0	8.4	.5	.1	.1
12042000 - SOLEDUCK R ABV KUGEL CR NR FAIRHOLM (LAT 48 04 00 LONG 124 05 50)												
NOV., 1968												
13...	--	6.6	7.9	1.6	2.8	.3	32	0	4.0	1.4	.1	.6
SEP., 1969												
09...	--	9.5	12	2.1	3.6	.4	46	0	5.2	1.8	.1	.3
12045500 - ELWHA R AT MCDONALD BRIDGE NR PORT ANGELES (LAT 48 03 55 LONG 123 34 35)												
NOV., 1968												
12...	1010	5.5	11	2.2	1.8	.2	40	0	7.2	.5	.1	.0
SEP., 1969												
03...	786	5.6	14	1.1	2.1	.2	42	0	8.4	1.2	.1	.2
12048000 - DUNGENESS R NR SEQUIM (LAT 48 04 35 LONG 123 09 00)												
NOV., 1968												
12...	382	5.3	14	3.2	2.7	.3	56	0	7.2	.6	.2	.1
SEP., 1969												
02...	164	6.6	20	2.8	3.5	.3	71	0	8.4	1.6	.1	.1
12052300 - BIG QUILCENE R NR QUILCENE (LAT 47 48 40 LONG 122 54 35)												
NOV., 1968												
13...	--	8.5	12	2.1	3.3	.1	44	0	2.2	4.6	.1	.2
SEP., 1969												
02...	--	9.4	16	2.5	6.2	.2	51	0	3.2	14	.0	.7
12053500 - DOSEWALLIPS R AT BRINNON (LAT 47 41 25 LONG 122 53 50)												
NOV., 1968												
13...	--	6.5	13	.7	1.8	.2	42	0	5.6	.6	.1	.2
SEP., 1969												
04...	--	6.9	16	1.5	2.2	.2	52	0	7.8	.6	.1	.0

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OLYMPIC PENINSULA BASINS											
12038500 - W.F. HOQUIAM R NR HOQUIAM (LAT 47 03 05 LONG 123 55 25)											
NOV., 1968											
14...	0	32	12	0	36	6.7	5	--	0	0	0
SEP., 1969											
08...	--	58	28	0	78	7.1	5	13	0	0	0
12039000 - HUMPTULIPS R NR HUMPTULIPS (LAT 47 13 45 LONG 123 57 40)											
NOV., 1968											
14...	10	40	20	0	52	7.2	0	--	0	0	0
SEP., 1969											
08...	--	46	26	0	68	7.4	0	17	0	0	0
12039500 - QUINAULT R AT QUINAULT LAKE (LAT 47 27 30 LONG 123 53 15)											
NOV., 1968											
14...	10	31	24	3	57	7.3	5	--	0	0	0
SEP., 1969											
10...	--	39	27	4	65	7.0	0	17	0	0	0
12040600 - QUEETS R AT QUEETS (LAT 47 32 30 LONG 124 20 00)											
NOV., 1968											
14...	20	37	21	2	53	7.3	10	--	0	0	0
SEP., 1969											
10...	--	47	30	4	76	7.1	0	--	0	0	0
12041200 - HOH R AT U.S. HWY 101 BRIDGE NR FORKS (LAT 47 48 25 LONG 124 15 00)											
NOV., 1968											
13...	10	48	31	5	71	7.2	5	--	0	0	0
SEP., 1969											
10...	--	42	34	8	73	7.2	0	--	0	0	0
12042000 - SOLEDUCK R ABV KUGEL CR NR FAIRHOLM (LAT 48 04 00 LONG 124 05 50)											
NOV., 1968											
13...	20	44	26	0	62	7.1	5	--	0	0	0
SEP., 1969											
09...	--	58	39	1	95	7.2	0	--	0	0	0
12045500 - ELWHA R AT MCDONALD BRIDGE NR PORT ANGELES (LAT 48 03 55 LONG 123 34 35)											
NOV., 1968											
12...	20	51	37	4	83	7.5	0	--	0	0	0
SEP., 1969											
03...	--	56	40	5	90	7.3	0	12	0	0	0
12048000 - DUNGENESS R NR SEQUIM (LAT 48 04 35 LONG 123 09 00)											
NOV., 1968											
12...	20	76	48	2	107	7.5	5	--	0	0	0
SEP., 1969											
02...	--	78	62	4	138	7.7	0	--	0	0	0
12052300 - BIG QUILCENE R NR QUILCENE (LAT 47 48 40 LONG 122 54 35)											
NOV., 1968											
13...	20	57	39	3	94	7.5	0	--	0	0	0
SEP., 1969											
02...	--	82	51	9	138	7.2	5	12	0	0	0
12053500 - DOSEWALLIPS R AT BRINNON (LAT 47 41 25 LONG 122 53 50)											
NOV., 1968											
13...	20	50	36	1	81	7.6	0	--	0	0	0
SEP., 1969											
04...	--	64	46	4	105	7.6	0	--	0	0	0

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OLYMPIC PENINSULA BASINS--CONTINUED												
12054100 - DUCKABUSH R AT U.S. HWY 101 BRIDGE BRINNON NR (LAT 47 38 55 LONG 122 56 00)												
NOV., 1968												
13...	--	6.2	9.0	1.1	1.4	.1	32	0	3.0	.2	.1	.0
SEP., 1969												
04...	--	6.5	12	1.3	1.8	.2	42	0	5.2	.7	.2	.2
12055000 - HAMMA HAMMA R AT ELDON (LAT 47 32 50 LONG 123 03 25)												
NOV., 1968												
13...	--	6.0	8.1	1.7	1.2	.1	30	0	2.0	.3	.1	.2
SEP., 1969												
04...	--	18	10	1.5	1.4	.2	37	0	3.0	.7	.1	.2
12061500 - SKOKOMISH R NR POTLATCH (LAT 47 18 35 LONG 123 10 30)												
NOV., 1968												
13...	1930	11	7.4	1.6	2.0	.1	34	0	1.4	.6	.1	.2
SEP., 1969												
03...	196	14	9.3	2.2	2.4	.2	42	0	.6	1.1	.1	.4
GOLDSBOROUGH CREEK BASIN												
12077000 - GOLDSBOROUGH CR AT SHELTON (LAT 47 12 30 LONG 123 06 00)												
NOV., 1968												
13...	--	9.9	5.2	1.9	2.6	.3	25	0	.0	1.9	.1	1.2
SEP., 1969												
03...	--	16	8.5	3.1	3.2	.4	44	0	1.0	1.6	.1	.2
YAKIMA RIVER BASIN												
12479100 - DOMERIE CR NR ROSLYN (LAT 47°14'45", LONG 121°06'20")												
JULY, 1969												
24...	--	13	11	1.4	2.5	.2	45	0	.4	.5	.0	.0
AUG.												
20...	--	13	11	1.4	2.7	.2	45	0	.4	.5	.0	.1

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OLYMPIC PENINSULA BASINS--CONTINUED											
12054100 - DUCKABUSH R AT U.S. HWY 101 BRIDGE BRINNON NR (LAT 47 38 55 LONG 122 56 00)											
NOV., 1968											
13...	20	37	27	1	61	7.3	0	--	0	0	0
SEP., 1969											
04...	--	42	36	1	82	7.4	0	--	0	0	0
12055000 - HAMMA HAMMA R AT ELDON (LAT 47 32 50 LONG 123 03 25)											
NOV., 1968											
13...	20	34	27	3	56	7.6	0	--	0	0	0
SEP., 1969											
04...	--	48	31	1	69	7.1	0	--	0	0	0
12061500 - SKOKOMISH R NR POTLATCH (LAT 47 18 35 LONG 123 10 30)											
NOV., 1968											
13...	10	42	25	0	60	7.4	0	--	0	0	0
SEP., 1969											
03...	--	53	32	0	75	7.1	0	--	0	0	0
GOLDSBOROUGH CREEK BASIN											
12077000 - GOLDSBOROUGH CR AT SHELTON (LAT 47 12 30 LONG 123 06 00)											
NOV., 1968											
13...	30	46	21	1	54	7.0	30	--	0	0	0
SEP., 1969											
03...	--	58	34	0	80	7.4	0	--	0	0	0
YAKIMA RIVER BASIN											
12479100 - DOMERIE CR NR ROSLYN (LAT 47°14'45", LONG 121°06'20")											
JULY, 1969											
24...	--	54	34	0	76	7.8	0	--	--	--	--
AUG.											
20...	--	46	34	0	77	7.6	0	--	--	--	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	CHLO-RIDE (CA) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	COLOR (PLAT-INUM-COBALT UNITS)	AMMONIA NITRO-GEN (N) (MG/L)	NITRITE (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
PEND OREILLE RIVER BASIN										
12367500 - ASHLEY CR NR KALISPELL (LAT 48°09'58" LONG 114°25'45")										
JULY, 1969										
08...	75	.4	.1	157	110	42	.18	.00	.64	.11
08...	75	--	--	--	--	--	--	--	--	--
12367800 - ASHLEY CR BL KALISPELL (LAT 48°08'49" LONG 114°17'08")										
JULY, 1969										
08...	81	2.6	1.3	217	154	35	.68	.04	.86	.89
08...	81	--	--	--	--	--	--	--	--	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-SOLVED PHOS-PHORUS (P) (MG/L)	TURBID-ITY (JTU)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	AIR TEMPER-ATURE (DEG C)	COLI-FORM (COL-ONIES PER 100 ML)
PEND OREILLE RIVER BASIN										
12367500 - ASHLEY CR NR KALISPELL (LAT 48°09'58" LONG 114°25'45")										
JULY, 1969										
08...	.07	3.0	2.1	--	--	--	--	20	--	--
A08...	--	--	--	121	7.0	7.4	230	20	26	20
12367800 ASHLEY CR BL KALISPELL (LAT 48°08'49" LONG 114°17'08")										
JULY, 1969										
08...	.68	15	3.9	--	--	--	--	19	--	--
A08...	--	--	--	189	2.8	7.1	360	19	25	230000

A FIELD DETERMINATIONS.

TRIBUTARIES BETWEEN GAGING STATIONS NEAR MORAN AND ABOVE RESERVOIR NEAR ALPINE, WYO.

13018300 CACHE CREEK NEAR JACKSON, WYO.
(Hydrologic bench-mark station)

LOCATION (revised).--Lat 43°27'08", long 110°42'12", in SW¼SW¼SE¼ sec.1, T.40 N., R.116 W., Teton County, Teton National Forest, at gaging station 1.8 miles upstream from town of Jackson water-supply intakes, 4.5 miles southeast of Jackson, and 5 miles upstream from mouth.

DRAINAGE AREA.--10 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: July 1965 to September 1969.
Sediment records: June 1968 to September 1969 (partial records).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
OCT.												
08...	1200	7.8	4.8	30	44	16	2.4	.3	201	6	5.0	.2
NOV.												
18...	1640	6.2	5.2	50	55	13	2.7	.6	222	0	10	.6
DEC.												
17...	1000	4.7	4.6	20	46	15	2.4	2.6	214	0	5.6	.3
JAN.												
08...	0920	3.4	5.0	40	51	15	2.9	.6	219	0	12	.6
FEB.												
14...	1315	4.4	5.0	10	51	15	2.8	1.0	220	0	11	.8
MAR.												
24...	1030	4.2	5.4	100	51	15	3.2	.3	219	0	13	.6
MAY												
06...	1045	21	5.5	10	58	12	4.6	1.1	228	0	11	.4
JUNE												
02...	1820	48	4.6	50	47	13	3.4	1.0	206	0	10	.3
JULY												
22...	1900	14	5.0	60	43	14	1.9	.6	197	0	5.4	.3
AUG.												
04...	1630	12	4.9	20	42	15	2.2	.8	193	4	8.8	.4
28...	1530	7.4	4.6	--	44	13	1.9	.8	184	6	5.8	.6
SEPT.												
24...	1340	7.0	7.1	10	46	13	2.2	.8	188	8	7.0	.5

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC CONDU-CTANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
OCT.												
08...	.1	.1	0	178	.26	4.00	177	2	.1	318	8.3	0
NOV.												
18...	.1	.1	0	196	.24	2.98	189	7	.1	350	8.1	0
DEC.												
17...	.1	.1	0	181	.25	2.36	176	0	.1	318	7.8	0
JAN.												
08...	.1	.1	0	195	.27	1.84	190	10	.1	342	7.7	0
FEB.												
14...	.1	.0	0	195	.24	2.14	187	7	.1	351	7.8	0
MAR.												
24...	.2	.3	0	197	.25	2.11	189	9	.1	348	8.2	0
MAY												
06...	.1	.0	0	205	.28	11.6	194	7	.1	370	8.2	6
JUNE												
02...	.1	.1	20	191	.24	22.8	171	2	.1	311	8.1	7
JULY												
22...	.1	.1	0	167	.25	6.88	165	3	.1	308	8.1	12
AUG.												
04...	.1	.1	0	173	.23	5.57	168	3	.1	314	8.5	12
28...	.1	.1	0	167	.23	3.40	164	3	.1	300	8.6	10
SEPT.												
24...	.1	.1	0	177	.23	3.21	168	0	.1	297	8.6	7

13018300 CACHE CREEK NEAR JACKSON, WYO.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

(FIELD DETERMINATIONS)

DATE	TIME	DIS-CHARGE (CFS)	SPECI-FIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COLONIES PER 100 ML)	ORTHO PHOS-PHATE (PO4) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	BIO-CHEMICAL OXYGEN DEMAND (MG/L)
OCT.									
08...	1200	7.8	300	8.4	10.6	14	--	--	--
NOV.									
18...	1640	6.2	340	8.4	10.6	2	--	--	.4
DEC.									
17...	1000	4.7	265	8.4	12.1	2	--	--	.3
JAN.									
08...	0920	3.4	235	8.1	10.5	47	--	--	1.4
FEB.									
14...	1315	4.4	310	8.4	11.5	13	--	--	.3
MAR.									
24...	1330	4.2	330	8.3	12.0	13	--	--	1.1
MAY									
06...	1045	21	400	8.0	9.0	16	--	--	.3
JUNE									
02...	1820	48	250	7.2	9.2	10	--	--	.1
JULY									
22...	1900	14	224	8.2	9.7	10	--	--	--
AUG.									
04...	1630	12	319	8.3	11.2	15	.00	.00	.0
28...	--	7.4	315	8.6	9.0	44	--	.02	.2
SEPT.									
24...	1340	7.0	315	8.6	9.6	24	--	.00	.7

CHEMICAL ANALYSES IN MICROGRAMS PER LITER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	DIS-CHARGE (CFS)	ALUM-INUM (AL)	AR-SENIC (AS)	BARIUM (BA)	BERYL-LIUM (BE)	BIS-MUTH (BI)	CAD-MIUM (CD)	CHRO-MIUM (CR)	COBALT (CO)	COPPER (CU)	GALLI-UM (GA)	GERMA-NIUM (GE)
JUNE													
02...	1820	48	20	--	60	<2	<10	<10	<5	<3	.9	--	--

CHEMICAL ANALYSES IN MICROGRAMS PER LITER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	LEAD (PB)	LITH-IUM (LI)	MAN-GANESE (MN)	MOLYB-DENUM (MO)	NICKEL (NI)	RUBID-IUM (RB)	SILVER (AG)	STRON-TIUM (SR)	TIN (SN)	TITAN-IUM (TI)	VANA-DIUM (V)	ZINC (ZN)	ZIRCON-IUM (ZR)
JUNE													
02...	<5	3	4	<2	<6	<2	<.6	75	<10	4	<6	--	--

PESTICIDE ANALYSES IN MICROGRAMS PER LITER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN	DDD	DDE	DDT	DI-ELDRIN	ENDRIN	HEPTA-CHLOR	LIN-DANE	2,4-D	SIL-VEX	2,4,5-T
OCT.													
08...	1200	7.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUNE													
02...	1820	48	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

RADIOCHEMICAL ANALYSES WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

			DISSOLVED				SUSPENDED			
DATE	TIME	DIS-CHARGE (CFS)	URANIUM (µg/l)	RADIUM (pc/l)	GROSS ALPHA (µg U/l)	GROSS BETA (pc/l)	URANIUM (µg/l)	RADIUM (pc/l)	GROSS ALPHA (µg U/l)	GROSS BETA (pc/l)
OCT.										
08...	1200	7.8	.4	.03	.5	.6	--	--	<.4	<.4
JUNE										
02...	1820	48	.4	.06	1.9	1.2	--	--	3.1	2.2

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)
OCT 8, 1968	0845	00.0	8.1	50	1.1
DEC 17.....	1000	00.0	4.7	3	.04
FEB 14, 1969	1200	00.0	4.4	33	.39
MAR 24.....	0915	00.0	4.4	19	.23
MAY 6.....	1045	06.0	21	37	2.1
JUN 2.....	1820	07.0	48	47	6.1
JUL 8.....	0910	08.0	17	56	2.6
AUG 5.....	1600	12.0	12	8	.26
SEP 24.....	1400	07.0	7.0	2	.04

13022500 SNAKE RIVER ABOVE RESERVOIR, NEAR ALPINE, WYO.

LOCATION.--Lat 43°11'47", long 110°53'18", Lincoln County, sampled at bridge at Astoria Springs, Teton County, 3 miles downstream from Hoback River, 13 miles upstream from gaging station, and 15 miles northeast of Alpine.

DRAINAGE AREA.--3,465 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969.
Water temperatures: October 1965 to September 1966.
Sediment records: October 1968 to September 1969 (miscellaneous).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
OCT.												
08...	1230	2130	15	0	45	11	6.6	1.6	146	0	48	3.5
NOV.												
19...	0730	1890	16	60	45	11	7.0	1.8	146	0	49	3.5
DEC.												
17...	1245	1780	12	50	45	13	7.4	1.5	150	0	52	2.6
JAN.												
08...	1615	1610	14	50	46	12	6.1	2.1	144	0	55	3.2
FEB.												
13...	1345	1550	15	190	50	11	9.6	2.4	146	0	60	6.0
MAR.												
24...	1230	1510	11	220	41	13	7.4	2.1	146	0	44	2.7
MAY												
06...	1215	10800	15	70	42	4.6	11	2.3	123	0	42	5.2
JUNE												
02...	0940	9830	11	90	38	8.3	11	2.6	128	0	29	8.9
JULY												
08...	1045	6630	12	50	33	6.6	6.4	1.2	113	0	21	5.3
AUG.												
05...	1000	5170	13	320	33	6.4	7.0	1.5	113	0	19	3.5
SEPT.												
02...	1615	4130	12	60	30	7.8	9.3	1.6	104	0	26	6.5

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
OCT.												
08...	.5	.0	50	203	.27	1160	159	39	.2	345	7.6	6
NOV.												
19...	.5	.1	20	206	.29	1100	158	38	.2	336	7.3	1
DEC.												
17...	.4	.1	20	208	.30	1050	167	44	.3	342	7.8	0
JAN.												
08...	.5	.0	50	210	.29	922	162	44	.2	332	7.2	0
FEB.												
13...	.6	.2	40	227	.32	979	168	48	.3	374	8.0	1
MAR.												
24...	.5	.5	180	195	.29	856	156	36	.3	342	7.9	3
MAY												
06...	.6	.0	100	184	.25	5310	124	23	.4	283	7.3	9
JUNE												
02...	.4	.5	10	173	.25	4830	128	23	.4	311	7.7	10
JULY												
08...	.5	.1	0	142	.20	2650	110	17	.3	241	8.2	11
AUG.												
05...	.6	.1	40	140	.19	1980	109	16	.3	240	7.8	16
SEPT.												
02...	.6	.1	10	145	.21	1720	106	21	.4	246	8.1	16

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	WATER TEM-PERA-TURE (C)	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)
JUN 2, 1969	0940	10.0	9830	31	823

13027500 SALT RIVER ABOVE RESERVOIR, NEAR ETNA, WYO.

LOCATION (revised).--Lat 43°04'47", long 111°02'12", in SW¼NE¼ sec.28, T.36 N., R.119 W., Lincoln County, at gaging station 3.4 miles northwest of Etna and at mile 8.0.

DRAINAGE AREA.--829 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969.
Water temperatures: October 1965 to September 1966.
Sediment records: October 1968 to September 1969 (miscellaneous).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
OCT.												
08...	1330	635	7.0	0	48	21	5.8	1.0	232	0	22	5.7
NOV.												
19...	0845	607	9.0	360	60	21	14	1.0	233	0	40	17
DEC.												
17...	1430	535	8.4	100	61	19	5.7	1.0	241	0	30	11
JAN.												
08...	1700	513	8.9	20	62	18	12	2.1	235	0	41	16
FEB.												
13...	1345	470	9.1	20	62	18	14	1.5	229	0	40	18
MAR.												
24...	1315	412	7.5	160	79	6.7	16	1.2	234	0	36	20
MAY												
06...	1450	1780	8.6	1000	56	9.6	11	1.4	214	0	15	11
JUNE												
03...	1120	829	10	140	54	19	6.6	.8	248	0	7.4	5.3
JULY												
08...	1230	795	6.5	120	63	18	11	.7	241	0	30	17
AUG.												
05...	1200	570	7.4	160	72	9.4	9.0	1.0	232	0	24	11
SEPT.												
02...	1655	521	17	120	61	18	9.3	1.2	243	0	28	12

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
OCT.												
08...	.0	8.5	20	233	.32	408	205	15	.2	416	8.0	9
NOV.												
19...	.2	2.6	30	280	.39	475	236	45	.4	491	7.4	4
DEC.												
17...	.1	3.5	20	259	.37	390	230	32	.2	474	7.3	8
JAN.												
08...	.2	3.7	30	280	.39	393	230	37	.3	484	7.4	2
FEB.												
13...	.3	3.2	10	279	.40	371	231	43	.4	493	8.1	4
MAR.												
24...	.2	3.3	170	285	.41	334	225	33	.5	508	8.1	5
MAY												
06...	.3	.5	70	219	.31	1090	179	3	.4	410	7.3	14
JUNE												
03...	.2	7.1	0	233	.34	560	215	12	.2	447	7.8	12
JULY												
08...	.2	2.3	0	267	.37	584	230	32	.3	484	8.2	14
AUG.												
05...	.2	3.3	10	251	.35	391	218	28	.3	468	7.9	14
SEPT.												
02...	.1	3.5	0	269	.37	380	229	30	.3	469	8.1	14

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	WATER TEM-PERA-TURE (C)	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)
JUN 3, 1969	1120	12.0	829	14	31

13037500 SNAKE RIVER NEAR HEISE, IDAHO
(Irrigation network station)

LOCATION.--Lat 43°37'43", long 111°41'03", in SW¼SW¼ sec.31, T.4 N., R.41 E., Jefferson County, at Eagle Rock canal headgate, 1.2 miles upstream from Heise, 1.6 miles downstream from Anderson canal headgate, 1.8 miles downstream from gaging station, approximately 4.8 miles east of Ririe, approximately 21 miles upstream from Henrys Fork, and at mile 859.8.

DRAINAGE AREA.--5,752 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: January 1953 to September 1969.
Water temperatures: January 1953 to September 1969.

EXTREMES.--1968-69:
Dissolved solids: Maximum, 263 mg/l Feb. 1-4; minimum, 168 mg/l July 1-31.
Hardness: Maximum, 190 mg/l Feb. 5 to Mar. 26; minimum, 139 mg/l July 1-31.
Specific conductance: Maximum daily, 447 micromhos Feb. 12; minimum daily, 290 micromhos Aug. 13.
Water temperatures: Maximum, 18.0°C Aug. 31; minimum, 1.0°C on several days during December and January.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
01-14	5240	--	43	12	12	--	146	4	--	--	--	--
15-23	3840	--	47	14	13	--	158	5	--	--	--	--
24-31	3270	--	49	13	13	--	161	4	--	--	--	--
NOV.												
01-09	3270	--	49	13	13	--	161	4	--	--	--	--
10-30	3410	9.3	50	13	13	2.6	167	2	49	12	.4	.5
DEC.												
01-02	3410	9.3	50	13	13	2.6	167	2	49	12	.4	.5
05-31	3480	--	50	13	13	--	170	0	--	--	--	--
JAN.												
01-03	3480	--	50	13	13	--	170	0	--	--	--	--
04-31	3630	--	50	13	12	--	176	0	--	--	--	--
FEB.												
01-04	3630	--	49	14	12	--	168	0	--	--	--	--
05-26	3440	--	53	14	12	--	173	4	--	--	--	--
27-28	4270	9.1	53	14	13	2.1	174	3	54	13	.3	.9
MAR.												
01-26	4270	9.1	53	14	13	2.1	174	3	54	13	.3	.9
27...	6460	--	--	--	--	--	--	--	--	--	--	--
28-31	7100	--	52	14	12	--	174	0	--	--	--	--
APR.												
01...	7100	--	52	14	12	--	174	0	--	--	--	--
02...	9640	--	--	--	--	--	--	--	--	--	--	--
03-07	10400	--	52	14	11	--	172	0	--	--	--	--
08...	10300	--	--	--	--	--	--	--	--	--	--	--
09-19	11700	--	50	14	11	--	168	0	--	--	--	--
20...	12500	--	--	--	--	--	--	--	--	--	--	--
21-30	12600	--	46	12	11	--	162	0	--	--	--	--
MAY												
01-19	12600	--	46	12	11	--	162	0	--	--	--	--
20-31	15500	--	43	11	9.5	--	155	0	--	--	--	--
JUNE												
01...	15500	--	43	11	9.5	--	155	0	--	--	--	--
02-30	11100	--	42	10	8.5	--	154	0	--	--	--	--
JULY												
01-31	11900	--	40	9.5	7.7	--	147	0	--	--	--	--
AUG.												
01-31	10400	--	41	10	8.6	--	147	0	--	--	--	--
SEPT.												
01-30	7360	--	44	11	10	--	155	0	--	--	--	--
WTD. AVG. TIME	--	--	45	11	10	--	158	1	--	--	--	--
WTD. AVG. TONS PER DAY	7480	--	47	12	11	--	161	1	--	--	--	--
	--	--	906	231	205	--	3180	11	--	--	--	--

13037500 SNAKE RIVER NEAR HEISE, IDAHO--Continued

Period of record:
Dissolved solids: Maximum, 378 mg/l Nov. 11-20, 1956; minimum, 148 mg/l June 11, 1968.
Hardness: Maximum, 276 mg/l Feb. 1-28, 1955; minimum, 110 mg/l June 11, 1966.
Specific conductance: Maximum daily, 791 micromhos Nov. 13, 1956; minimum daily, 240 micromhos June 28, 1954.
Water temperatures: Maximum, 19.5°C July 19, 1955; minimum, freezing point on many days during winter periods most years.

REMARKS.--Approximately 2.5 percent of normal annual streamflow of 5,000,000 acre-feet is diverted by Anderson canal between sampling point and gaging station. This diversion occurs during the months of May to November. Except for leakage through the headgate, no other diversion or appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)
OCT.											
01-14	--	202	.27	2860	157	31	.4	14	358	8.4	--
15-23	--	222	.30	2300	175	37	.4	14	395	8.4	--
24-31	--	231	.31	2040	176	38	.4	14	403	8.3	--
NOV.											
01-09	--	231	.31	2040	176	38	.4	14	403	8.3	--
10-30	40	235	.32	2160	178	38	.4	14	410	8.3	5
DEC.											
01-02	40	235	.32	2160	178	38	.4	14	410	8.3	5
05-31	--	231	.31	2170	178	39	.4	14	411	8.2	--
JAN.											
01-03	--	231	.31	2170	178	39	.4	14	411	8.2	--
04-31	--	251	.34	2460	178	34	.4	13	413	8.1	--
FEB.											
01-04	--	263	.36	2580	178	40	.4	13	401	8.2	--
05-26	--	258	.35	2400	190	41	.4	12	425	8.3	--
27-28	--	252	.34	2910	190	42	.4	13	424	8.3	5
MAR.											
01-26	--	252	.34	2910	190	42	.4	13	424	8.3	5
27...	--	--	--	--	--	--	--	--	351	--	--
28-31	--	244	.33	4680	187	44	.4	12	405	8.2	--
APR.											
01...	--	244	.33	4680	187	44	.4	12	405	8.2	--
02...	--	--	--	--	--	--	--	--	359	--	--
03-07	--	235	.32	6600	187	46	.3	11	406	8.2	--
08...	--	--	--	--	--	--	--	--	311	--	--
09-19	--	235	.32	7420	182	45	.4	12	399	7.9	--
20...	--	--	--	--	--	--	--	--	309	--	--
21-30	--	206	.28	7010	164	32	.4	13	373	8.0	--
MAY											
01-19	--	206	.28	7010	164	32	.4	13	373	8.0	--
20-31	--	185	.25	7740	152	26	.3	12	344	8.1	--
JUNE											
01...	--	185	.25	7740	152	26	.3	12	344	8.1	--
02-30	--	171	.23	5130	146	20	.3	11	321	8.1	--
JULY											
01-31	--	168	.23	5400	139	18	.3	11	304	8.2	--
AUG.											
01-31	--	204	.28	5730	144	23	.3	12	313	8.2	--
SEPT.											
01-30	--	190	.26	3780	155	28	.3	12	344	8.0	--
WTD. AVG. TIME	--	204	--	--	160	29	.3	--	356	8.1	--
WTD. AVG. TONS PER DAY	--	216	.29	--	166	32	.4	13	373	8.2	--
	--	4100	--	--	--	--	--	--	--	--	--

13037500 SNAKE RIVER NEAR HEISE, IDAHO--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	363	402	400	404	397	425	403	370	347	309	293	333
2	358	390	412	405	414	437	359	352	330	304	300	333
3	362	397	--	411	417	439	399	385	330	304	302	336
4	355	412	--	388	380	406	405	376	330	313	299	333
5	362	407	412	417	419	424	414	373	330	307	302	333
6	362	399	404	393	426	420	414	368	324	311	307	333
7	361	422	408	396	414	420	411	375	320	305	305	339
8	364	416	408	406	415	438	311	350	329	305	305	342
9	356	394	403	403	438	--	415	382	323	303	308	339
10	360	410	409	365	379	446	393	374	320	303	309	340
11	356	401	407	399	415	427	414	363	326	305	312	336
12	362	417	423	407	447	425	413	365	320	303	307	340
13	375	424	413	413	429	427	389	374	332	300	290	345
14	364	422	410	399	428	433	372	360	320	303	313	342
15	380	422	411	404	426	427	404	372	326	300	316	345
16	380	409	425	411	359	431	404	367	329	305	320	340
17	392	390	412	422	426	437	386	380	320	300	323	353
18	391	422	422	--	412	435	426	372	314	303	329	346
19	386	410	413	413	412	430	396	369	318	303	316	345
20	402	420	409	415	423	415	309	359	309	303	321	352
21	408	411	405	412	419	406	399	361	324	303	321	352
22	409	405	419	422	418	425	380	351	325	308	321	350
23	406	402	414	343	420	407	354	327	316	305	321	336
24	400	401	400	415	442	412	367	337	325	302	324	356
25	403	411	416	433	424	411	365	340	324	304	308	354
26	395	418	419	441	421	411	372	330	318	299	324	358
27	405	--	403	440	436	351	399	343	314	304	321	371
28	405	406	405	420	436	413	382	330	313	302	327	366
29	405	--	430	310	--	409	386	330	310	302	321	368
30	409	409	422	410	--	404	396	346	313	307	324	372
31	401	--	411	418	--	407	--	346	--	316	327	--
AVG	381	408	411	404	417	419	387	358	322	304	313	346

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1966 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	13	13	13	13	12	12	11	12	12	13	13	12	12	12	12	11	11	10	11	11	11	7	11	11	9	10	11	11	11	9	10	11
NOVEMBER.	10	8	9	8	8	8	8	7	7	8	7	7	7	7	6	6	6	7	7	7	7	7	7	7	6	6	--	6	--	6	--	7
DECEMBER.	6	5	--	--	6	4	4	5	6	5	5	4	4	3	5	4	3	4	3	3	2	3	2	4	6	4	3	2	2	1	1	4
JANUARY..	1	1	2	3	3	4	4	2	1	2	1	2	4	4	3	3	3	--	4	4	7	3	3	1	3	3	2	3	2	1	2	3
FEBRUARY.	1	3	2	3	2	3	3	3	4	5	4	3	3	3	3	3	2	2	3	3	3	4	4	4	3	3	4	4	--	--	--	3
MARCH....	4	5	4	4	4	3	4	3	--	4	4	4	3	4	3	5	4	5	5	4	4	4	4	3	4	3	4	5	5	5	5	4
APRIL....	6	6	6	5	5	4	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	6	6	6	4	4	--	5
MAY.....	6	6	6	6	7	7	6	7	6	6	7	7	6	8	8	8	11	11	10	9	10	11	9	10	10	11	11	11	11	11	11	9
JUNE.....	8	11	12	12	9	12	12	10	10	10	9	11	12	13	12	11	13	13	13	13	13	13	13	12	11	11	12	12	12	13	--	12
JULY.....	15	14	14	14	14	14	13	14	14	15	16	15	15	16	16	12	16	12	16	12	12	15	16	16	14	16	16	16	13	12	16	14
AUGUST...	16	16	16	12	12	14	16	12	16	12	16	12	16	13	16	17	13	13	13	13	13	13	13	13	17	17	--	--	--	17	18	14
SEPTEMBER	--	--	14	13	14	13	--	17	17	16	16	15	15	16	15	13	11	14	15	15	14	13	16	14	13	13	13	16	14	14	--	14

13055000 TETON RIVER NEAR ST. ANTHONY, IDAHO

LOCATION.—Lat 43°55'40", long 111°36'55", in SW¼ sec.15, T.7 N., R.41 E., Fremont County, temperature recorder at gaging station on right bank, 0.5 mile upstream from railroad bridge, 4 miles southeast of St. Anthony, and at mile 22.

DRAINAGE AREA.--890 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969 (miscellaneous).
Water temperatures: April 1964 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C on several days during July and August; minimum, freezing point Dec. 8, 9, Jan. 13.

Period of record:
Water temperatures: Maximum, 22.0°C on several days during July and August 1966-69; minimum, freezing point on many days during winter periods.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
22...	602	14	45	14	4.0	1.2	199	0	8.0	3.0	.3	.6
MAY												
22...	1972	12	26	6.0	2.1	1.2	106	0	5.0	1.0	.1	.5

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
OCT.											
22...	178	.24	289	170	7	.1	5	327	7.9	5	5
MAY											
22...	109	.15	580	90	2	.1	5	173	7.8	5	10

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
OCTOBER																																
MAXIMUM	12	11	11	11	10	10	9	7	7	7	9	9	9	9	9	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	8
MINIMUM	10	10	8	8	8	8	7	6	5	6	7	9	9	9	7	6	5	5	6	6	6	5	6	6	6	6	6	5	5	6	6	7
NOVEMBER																																
MAXIMUM	6	5	6	6	6	5	4	4	4	3	4	4	4	3	2	1	2	2	2	3	3	3	3	3	3	2	1	1	1	1	--	3
MINIMUM	5	4	5	6	5	4	4	4	3	2	3	4	3	2	1	1	1	1	2	2	3	2	3	3	2	1	1	1	1	1	--	3
DECEMBER																																
MAXIMUM	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MINIMUM	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
JANUARY																																
MAXIMUM	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	1	1	1	2	3	3	3	1	1	1	2	2	1	1	1	1	1
MINIMUM	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1
FEBRUARY																																
MAXIMUM	1	1	1	1	1	1	1	1	1	1	3	3	3	2	3	3	3	3	2	2	3	3	3	4	4	3	3	3	--	--	--	2
MINIMUM	1	1	1	1	1	1	1	1	1	1	1	3	2	2	2	3	3	2	1	1	2	2	3	3	3	2	2	1	--	--	--	2
MARCH																																
MAXIMUM	3	3	3	2	2	3	3	2	2	1	1	1	1	1	2	3	4	5	4	4	4	5	5	5	5	6	6	5	7	8	7	4
MINIMUM	2	3	2	1	2	2	2	1	1	1	1	1	1	1	1	2	2	3	3	4	3	3	3	3	3	3	4	4	3	4	4	2
APRIL																																
MAXIMUM	6	6	6	6	6	6	4	5	8	9	8	9	9	8	8	8	9	9	8	9	11	11	11	11	6	6	7	9	9	7	--	8
MINIMUM	4	3	4	3	4	4	3	3	5	6	6	6	8	7	7	6	7	7	6	6	7	9	9	6	5	5	4	6	7	6	--	6
MAY																																
MAXIMUM	7	11	11	11	11	11	11	10	10	11	11	11	11	10	9	10	12	12	11	11	11	11	12	12	13	12	12	12	12	12	12	11
MINIMUM	6	7	9	8	8	9	9	8	9	9	10	10	9	9	8	8	9	11	9	9	9	10	11	11	12	11	12	11	11	12	11	10
JUNE																																
MAXIMUM	12	13	14	17	17	16	16	16	14	13	13	14	14	16	16	15	16	17	17	17	15	13	13	13	11	9	9	12	12	14	--	14
MINIMUM	10	11	12	13	14	14	14	13	12	12	11	12	12	12	13	13	12	14	15	16	13	13	12	11	9	8	8	9	10	10	--	12
JULY																																
MAXIMUM	16	17	17	16	16	17	16	14	17	18	19	19	19	19	19	19	21	21	21	22	22	22	22	20	21	21	21	20	21	21	21	19
MINIMUM	13	14	15	13	13	14	14	12	13	14	16	17	16	17	16	17	17	17	18	18	18	18	18	18	18	17	17	18	18	17	18	16
AUGUST																																
MAXIMUM	21	21	22	22	19	19	19	19	21	21	20	20	18	19	19	19	18	18	19	19	20	20	21	21	21	19	19	18	17	17	16	19
MINIMUM	17	17	18	19	18	16	14	16	16	16	18	18	14	14	16	17	15	15	15	15	16	16	16	17	18	16	16	14	15	14	12	16
SEPTEMBER																																
MAXIMUM	17	17	17	15	13	14	15	16	17	17	16	16	16	16	14	14	14	14	14	13	13	12	12	12	13	13	14	14	14	13	--	15
MINIMUM	12	13	14	12	11	11	11	12	14	15	14	15	14	13	11	11	12	12	13	12	12	10	10	11	11	11	11	12	12	11	--	12

13154500 SNAKE RIVER AT KING HILL, IDAHO
(Irrigation network station)

LOCATION.--Lat 43°00'10", long 115°12'28", in NE¼SE¼ sec.12, T.5 S., R.10 E., Elmore County, at county highway bridge, approximately 1,700 ft downstream from gaging station at King Hill, 20 miles downstream from Big Wood River, and at mile 545.3.
DRAINAGE AREA.--35,800 sq mi, approximately.
PERIOD OF RECORD.--Chemical analyses: March 1951 to September 1969.
Water temperatures: March 1951 to September 1969.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 344 mg/l Nov. 18 to Dec. 15; minimum, 162 mg/l Apr. 15.
Hardness: Maximum, 213 mg/l Oct. 1-13; minimum, 85 mg/l Apr. 15.
Specific conductance: Maximum daily, 562 micromhos Oct. 19, 25; minimum daily, 298 micromhos Apr. 15.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
01-13	9310	--	49	22	35	--	233	0	--	--	--	--
14...	9140	--	32	21	34	--	182	4	--	--	--	--
15-16	9880	--	48	21	36	--	226	2	--	--	--	--
17-18	10100	--	38	21	37	--	198	8	--	--	--	--
19-31	11500	--	49	20	33	--	222	7	--	--	--	--
NOV.												
01-17	11500	--	49	20	33	--	222	7	--	--	--	--
18-30	11100	33	50	20	33	4.9	226	3	54	25	1.0	4.5
DEC.												
01-15	11100	33	50	20	33	4.9	226	3	54	25	1.0	4.5
16-25	12200	--	50	20	31	--	226	2	--	--	--	--
26-31	14900	--	49	19	29	--	212	5	--	--	--	--
JAN.												
01-20	14900	--	49	19	29	--	212	5	--	--	--	--
21-23	20300	--	43	16	24	--	190	0	--	--	--	--
24-31	16400	--	50	18	27	--	205	7	--	--	--	--
FEB.												
01-23	16400	--	50	18	27	--	205	7	--	--	--	--
24-28	15700	--	49	17	26	--	204	6	--	--	--	--
MAR.												
01-20	15700	--	49	17	26	--	204	6	--	--	--	--
21-31	19300	--	46	16	23	--	198	0	--	--	--	--
APR.												
01-02	19300	--	46	16	23	--	198	0	--	--	--	--
03...	20100	--	23	14	23	--	108	9	--	--	--	--
04-05	16600	--	43	15	24	--	166	12	--	--	--	--
06...	12300	--	34	13	21	--	164	0	--	--	--	--
07-08	12300	--	40	16	25	--	172	9	--	--	--	--
09...	12300	--	18	15	26	--	82	12	--	--	--	--
10-14	11800	--	42	16	26	--	194	0	--	--	--	--
15...	10400	--	11	14	24	--	88	14	--	--	--	--
16-26	14400	--	38	15	25	--	186	0	--	--	--	--
27...	21100	--	14	14	24	--	118	10	--	--	--	--
28-30	17000	--	45	15	24	--	196	0	--	--	--	--
MAY												
01-11	17000	--	45	15	24	--	196	0	--	--	--	--
12-21	9320	--	38	15	23	--	186	0	--	--	--	--
22-31	8640	--	44	17	29	--	200	2	--	--	--	--
JUNE												
01-17	8640	--	44	17	29	--	200	2	--	--	--	--
18-30	8000	--	39	20	32	--	188	4	--	--	--	--
JULY												
01-16	8000	--	39	20	32	--	188	4	--	--	--	--
17-31	7670	--	41	21	33	--	203	6	--	--	--	--
AUG.												
01-15	7670	--	41	21	33	--	203	6	--	--	--	--
16-31	8310	--	46	21	35	--	216	7	--	--	--	--
SEPT.												
01-14	9310	--	46	21	35	--	216	7	--	--	--	--
15-30	9520	--	48	21	34	--	229	3	--	--	--	--
WTD. AVG. TIME	--	--	46	18	29	--	205	4	--	--	--	--
WTD. AVG. TONS PER DAY	11800	--	45	19	30	--	206	4	--	--	--	--
	--	--	1470	588	933	--	6580	133	--	--	--	--

13154500 SNAKE RIVER AT KING HILL, IDAHO--Continued

EXTREMES.--1968-69:--Continued
Water temperatures: Maximum, 21.0°C on several days during July and August; minimum, 4.0°C Jan. 29.
Period of record:
Dissolved solids: Maximum, 381 mg/l June 19, 1968; minimum, 162 mg/l Apr. 15, 1969.
Hardness: Maximum, 222 mg/l Dec. 1-31, 1966; minimum, 85 mg/l Apr. 15, 1969.
Specific conductance: Maximum daily, 595 micromhos June 19, 1968; minimum daily, 298 micromhos Apr. 15, 1969.
Water temperatures: Maximum, 23.0°C Aug. 2, 1955; minimum, 4.0°C Dec. 16, 1967, Jan. 29, 1969.

REMARKS.--No appreciable inflow between gaging station and sampling point except during period of heavy local runoff.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
OCT.												
01-13	--	333	.45	8270	213	22	1.0	26	546	8.2	--	--
14...	--	345	.47	7280	166	11	1.1	31	496	8.4	--	--
15-16	--	341	.46	9100	206	18	1.1	28	553	8.3	--	--
17-18	--	326	.44	8890	152	14	1.2	31	523	8.4	--	--
19-31	--	341	.46	10600	205	13	1.0	26	549	9.4	--	--
NOV.												
01-17	--	341	.46	10600	205	13	1.0	26	549	8.4	--	--
18-30	40	344	.47	10300	209	18	1.0	25	549	8.3	5	--
DEC.												
01-15	40	344	.47	10300	209	18	1.0	25	549	8.3	5	--
16-25	--	333	.45	10800	208	19	.9	25	544	8.3	--	--
26-31	--	331	.45	13300	200	19	.9	24	510	8.4	--	--
JAN.												
01-20	--	331	.45	13300	200	19	.9	24	510	8.4	--	--
21-23	--	297	.40	16300	174	18	.8	23	444	8.2	--	--
24-31	--	309	.42	13700	199	20	.8	23	500	8.4	--	--
FEB.												
01-23	--	309	.42	13700	199	20	.8	23	500	8.4	--	--
24-28	--	310	.42	13100	192	16	.8	23	494	8.4	--	--
MAR.												
01-20	--	310	.42	13100	192	16	.8	23	494	8.4	--	--
21-31	--	329	.45	17100	181	18	.7	22	455	8.2	--	--
APR.												
01-02	--	325	.45	17100	181	18	.7	22	455	8.2	--	--
03...	--	186	.25	10100	115	12	.9	30	340	8.8	--	--
04-05	--	258	.35	11600	169	13	.8	24	427	8.6	--	--
06...	--	217	.30	7500	138	4	.8	25	379	8.0	--	--
07-08	--	238	.32	7300	166	10	.8	25	437	8.5	--	--
09...	--	172	.23	5710	106	20	1.1	35	314	9.0	--	--
10-14	--	277	.37	8600	171	12	.9	25	452	8.1	--	--
15...	--	162	.22	4550	85	0	1.1	38	298	8.9	--	--
16-26	--	255	.34	8720	156	4	.9	26	432	8.2	--	--
27...	--	139	.26	10800	92	0	1.1	36	355	8.7	--	--
28-30	--	253	.34	11600	174	14	.8	23	449	8.2	--	--
MAY												
01-11	--	253	.34	11600	174	14	.8	23	449	8.2	--	--
12-21	--	239	.33	6910	156	4	.8	24	426	8.1	--	--
22-31	--	279	.38	6510	190	12	.9	26	476	8.3	--	--
JUNE												
01-17	--	279	.38	6510	190	12	.9	26	476	8.3	--	--
18-30	--	292	.40	6310	183	22	1.0	28	480	8.5	--	--
JULY												
01-16	--	292	.40	6310	183	22	1.0	28	480	8.5	--	--
17-31	--	267	.36	5530	189	12	1.0	28	504	8.4	--	--
AUG.												
01-15	--	267	.36	5530	189	12	1.0	28	504	8.4	--	--
16-31	--	310	.42	6960	202	13	1.1	27	532	8.4	--	--
SEPT.												
01-14	--	310	.42	6960	202	13	1.1	27	532	8.4	--	--
15-30	--	308	.42	7940	206	14	1.0	26	545	8.3	--	--
WTD. AVG.	--	304	--	--	190	16	.9	--	497	8.3	--	--
TIME												
WTD. AVG.	--	303	.41	--	191	15	.9	25	501	8.3	--	--
TONS PER DAY	--	9720	--	--	--	--	--	--	--	--	--	--

13154500 SNAKE RIVER AT KING HILL, IDAHO--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	NITRATE (N) (MG/L)	NITRATE (N) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL AMMONIA ORGANIC NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT.								
01...	10900	.77	--	.00	.00	--	.77	.02
NOV.								
01...	12600	.84	--	.00	.00	--	.84	.04
DEC.								
01...	11400	.93	--	.00	.00	--	.93	.01
JAN.								
01...	12600	.68	--	.00	.00	--	.68	.05
FEB.								
01...	16700	--	--	.02	.00	--	--	.02
MAR.								
01...	15500	--	--	.01	.02	--	--	.07
APR.								
01...	19400	--	--	--	--	--	--	.21
MAY								
01...	19200	.16	.00	--	--	.06	.08	.03
JUNE								
01...	7520	.11	.00	--	--	.04	.15	.00
JULY								
01...	8710	.14	.00	.20	.05	--	.39	.06
AUG.								
01...	8430	.02	.00	.20	.46	--	.68	.05
SEP.								
01...	8760	.04	.00	.10	.26	--	.40	.07

PESTICIDE ANALYSES, OCTOBER 1968 TO SEPTEMBER 1969

DATE	ALDRIN (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	SILVEX (UG/L)	2,4,5-T (UG/L)
OCT.												
01...	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00
NOV.												
04...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DEC.												
14...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
JAN.												
20...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04
MAR.												
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR.												
18...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAY												
23...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00
JUNE												
23...	.00	.00	.00	.00	.00	.00	.00	.00	.00	--	--	--
JULY												
14...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00	.00
AUG.												
11...	.00	.00	.00	.02	.00	.00	.00	.00	.00	.03	.00	.00
SEPT.												
08...	.00	.00	.00	.03	.00	.00	.00	.00	.00	.05	.00	.00

13154500 SNAKE RIVER AT KING HILL, IDAHO--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	546	553	552	360	489	492	433	431	459	509	527	532
2	545	541	554	523	520	328	437	451	459	508	526	537
3	552	557	559	509	513	480	340	432	461	508	525	536
4	547	545	557	534	510	480	419	438	458	514	524	527
5	545	545	556	524	512	485	406	440	488	499	394	537
6	552	545	551	522	338	479	379	447	490	381	518	536
7	547	544	554	340	505	481	435	454	488	488	501	532
8	549	552	550	509	513	485	438	448	491	513	514	536
9	551	552	554	516	509	492	314	437	486	511	530	540
10	543	534	550	510	496	488	443	439	482	466	526	537
11	548	550	549	509	499	489	448	459	489	522	440	533
12	553	544	550	517	335	494	451	428	487	382	521	529
13	555	539	553	336	487	496	443	429	493	490	515	533
14	496	544	560	496	495	494	463	433	493	516	521	531
15	558	550	554	490	503	490	298	407	493	482	529	536
16	543	543	548	492	501	496	432	416	482	503	520	533
17	502	552	547	512	492	494	431	419	481	508	515	537
18	537	542	543	507	363	496	428	421	376	396	487	533
19	562	538	543	333	498	490	435	422	480	508	529	542
20	555	549	542	482	494	486	435	425	499	450	529	530
21	551	547	547	435	496	461	403	432	500	518	530	532
22	539	552	537	433	492	469	436	460	501	508	475	536
23	553	545	557	469	494	469	437	449	474	506	506	544
24	557	546	548	502	351	469	435	463	376	404	532	543
25	562	550	542	330	494	474	430	466	521	518	530	535
26	551	554	380	495	490	466	423	460	520	527	522	533
27	556	556	514	508	492	454	355	460	494	516	524	534
28	558	559	524	500	494	452	438	466	517	524	529	--
29	547	551	527	499	--	444	440	456	512	526	532	537
30	550	557	482	504	--	434	435	449	369	405	532	537
31	554	--	521	329	--	438	--	458	--	532	534	--
AVG	547	547	538	468	477	472	418	441	477	488	514	535

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	16	15	14	14	15	14	13	13	12	13	13	13	14	13	13	12	12	12	13	12	12	11	12	12	13	13	13	13	13	12	12	13
NOVEMBER.	13	12	12	12	12	11	11	12	11	11	11	11	11	9	9	9	9	9	10	10	10	11	11	10	9	9	9	8	9	8	--	10
DECEMBER.	9	8	8	9	9	9	8	9	8	8	8	8	7	8	7	8	7	7	6	7	6	5	6	5	7	7	7	7	7	6	5	7
JANUARY..	6	7	6	7	6	7	7	6	5	6	6	6	6	7	6	6	6	7	6	6	6	5	5	6	6	5	6	6	4	5	5	6
FEBRUARY.	5	5	6	5	5	6	6	6	6	6	6	7	7	6	6	6	6	6	7	7	7	7	7	7	7	7	6	7	--	--	--	6
MARCH....	6	7	7	7	7	7	7	6	6	6	7	7	6	7	6	7	8	9	8	8	9	8	8	8	9	8	9	9	10	11	11	8
APRIL....	11	11	11	12	11	10	11	12	12	13	12	12	12	13	12	13	12	13	13	14	14	15	14	14	14	13	12	13	11	12	--	12
MAY.....	11	12	12	12	13	14	15	16	17	16	17	17	17	17	17	18	18	17	18	17	18	17	18	18	19	18	18	18	19	18	18	16
JUNE.....	18	18	19	18	19	19	20	19	19	19	18	17	18	19	19	18	19	19	19	19	18	19	18	16	16	15	16	16	15	17	--	18
JULY.....	17	18	18	17	18	17	18	18	19	18	17	18	19	19	19	20	20	19	19	20	20	21	20	21	20	19	21	20	21	21	20	19
AUGUST...	21	19	21	20	19	19	19	18	18	19	19	18	19	19	19	19	18	19	18	19	18	19	18	19	19	20	21	19	18	18	17	19
SEPTEMBER	18	18	17	17	17	17	16	17	16	17	18	18	17	17	17	16	17	15	16	17	16	16	16	17	16	16	16	17	16	17	--	17

13169500 BIG JACKS CREEK NEAR BRUNEAU, IDAHO
(Formerly published as Wickahoney Creek near Bruneau)
(Hydrologic bench-mark station)

LOCATION.--Lat 42°47'06", long 115°59'00", in NW¼SE¼ sec.28, T.7 S., R.4 E., Owyhee County, at gaging station on left bank, 0.2 mile upstream from confluence with Little Jacks Creek (revised) and 11.5 miles southwest of Bruneau.

DRAINAGE AREA.--253 sq mi.

PERIOD OF RECORD.--Chemical analyses: January 1967 to September 1968 (miscellaneous), October 1968 to September 1969 (monthly).
Sediment records: October 1968 to September 1969 (partial records).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)
JAN.												
22...	104	23	--	6.4	1.9	6.0	3.8	30	0	5.6	5.0	.4
31...	5.3	36	--	11	3.0	11	3.7	58	0	9.8	5.0	.7
MAR.												
28...	100	--	--	8.1	2.3	6.2	--	40	0	4.8	3.0	--
29...	120	25	--	6.8	2.0	5.2	4.0	34	0	4.2	4.0	.3
APR.												
29...	10	34	50	9.2	2.5	10	3.7	57	0	7.0	4.0	.5
MAY												
26...	2.6	37	40	11	2.5	12	4.2	71	0	6.4	2.5	.6
JUNE												
18...	3.9	39	210	11	3.4	11	4.4	74	0	5.8	3.0	.4
AUG.												
06...	.75	--	--	--	--	--	--	--	--	--	--	--
09...	1.0	37	--	13	3.5	13	4.4	69	7	6.4	4.5	.6
29...	.35	41	--	13	3.2	14	4.5	69	6	6.8	5.0	.6

DATE	NITRATE (NO3) (MG/L)	PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	DIS-SOL-VED ORGANIC CARBON (C) (MG/L)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
JAN.												
22...	3.1	.66	82	23.0	24	0	.5	80	6.6	--	20	2
31...	1.5	.26	120	1.72	40	0	.8	134	7.6	--	20	0
MAR.												
28...	2.4	--	77	20.8	30	0	.5	90	6.7	--	--	8
29...	2.9	.49	74	24.0	25	0	.5	81	6.4	--	10	6
APR.												
29...	.2	.16	103	2.89	34	0	.8	117	8.1	3.0	15	7
MAY												
26...	.2	.27	120	.86	38	0	.8	134	7.8	--	5	21
JUNE												
18...	.2	.18	119	1.25	42	0	.7	141	8.2	--	10	30
AUG.												
06...	--	--	--	--	--	--	--	--	--	--	--	26
09...	.2	.07	130	.35	47	0	.8	155	8.6	--	10	26
29...	.2	.00	122	.12	45	0	.9	157	8.6	--	5	22

RADIO CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-SOLVED NATURAL URANIUM (U) (UG/L)	DIS-SOLVED RADIUM 226 (RA) (PC/L)	DIS-SOLVED ALPHA (UG/L)	DIS-SOLVED BETA (PC/L)	DIS-SOLVED SOLIDS (MG/L)	SUS-PENDED ALPHA (UG/L)	SUS-PENDED BETA (PC/L)	SUS-PENDED SOLIDS (MG/L)
JAN.								
22...	.13	.1	3.6	6.6	84	140	44	430
APR.								
29...	.20	.1	3.0	4.5	110	1.8	1.3	18
AUG.								
09...	.19	.1	2.2	5.1	140	.70	.80	10

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	ALDRIN (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	SILVEX (UG/L)	2,4,5-T (UG/L)
APR.											
29...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	WATER TEM-PERA-TURE (C)	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)
JAN 22, 1969	1305	2	104	686	193
JAN 31.....	1700	0	5.3	9	.13
MAR 28.....	1400	8	100	1040	281
MAR 29.....	0850	6	120	835	271
APR 29.....	1315	7	10	3	.08
MAY 26.....	1300	21	2.6	9	.06
JUN 18.....	1600	30	3.9	28	.29
AUG 6.....	2030	26	.75	48	.10
AUG 29.....	1650	22	.35	14	.01

13200000 MORES CREEK ABOVE ROBIE CREEK, NEAR ARROWROCK DAM, IDAHO

LOCATION.--Lat 43°38'45", long 115°58'45", in SE¼ sec.28, T.4 N., R.4 E., Boise County, temperature recorder at gaging station on left bank at State roadside park, 1.7 miles upstream from Robie Creek, 5 miles northwest of Arrowrock Dam, and at mile 5.8.

DRAINAGE AREA.--399 sq mi.

PERIOD OF RECORD.--Water temperatures: December 1964 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 27.0°C on several days during July and August; minimum, freezing point on many days during winter period.

Period of record:
Water temperatures: Maximum (1964-65, 1966-69), 27.0°C on several days during July and August in 1969; minimum (1965-69), freezing point on several days during winter periods.

REMARKS.--Where no maximum or minimum is shown, temperature is once-daily reading.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	12	12	11	10	10	10	9	8	7	8	8	9	9	9	9	8	7	7	6	6	6	6	6	7	7	7	7	6	6	7	7	8
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NOVEMBER.	6	6	7	7	6	4	4	4	4	4	4	6	4	3	3	3	3	3	4	4	5	6	4	4	3	3	2	2	2	2	--	4
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DECEMBER.	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAXIMUM	--	--	1	2	2	2	1	2	2	2	2	2	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	1	1	1	1	1
MINIMUM	--	--	1	1	2	1	1	1	1	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
JANUARY..	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAXIMUM	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1
MINIMUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	--	0
FEBRUARY.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAXIMUM	0	0	0	1	0	1	2	1	2	2	2	2	2	1	1	3	2	1	1	1	3	3	2	1	3	2	2	2	--	--	--	2
MINIMUM	0	0	0	0	0	0	0	0	1	1	1	2	1	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	--	--	--	0
MARCH....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAXIMUM	3	3	4	4	3	3	3	3	4	3	3	3	4	4	5	5	6	5	6	6	6	6	6	6	6	7	7	8	7	8	7	5
MINIMUM	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3	3	2	2	3	3	2	2	3	3	4	4	4	4	2
APRIL....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAXIMUM	7	7	7	8	7	6	6	7	8	7	7	7	7	7	8	8	8	8	8	8	9	9	9	--	--	--	--	--	--	--	--	--
MINIMUM	4	4	4	4	5	5	4	4	5	5	4	4	6	4	5	5	5	6	5	5	5	6	7	--	--	--	--	--	--	--	--	--
MAY.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11	12	12	12	12	12	11	11	12	12	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8	9	10	10	10	10	9	9	11	10	--
JUNE.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAXIMUM	12	13	14	15	15	16	16	15	15	15	14	16	16	16	16	16	17	17	17	18	18	18	15	14	12	13	13	14	14	17	--	15
MINIMUM	10	10	11	12	13	13	13	13	13	13	12	13	14	13	13	13	13	14	15	15	16	15	13	12	9	10	9	9	9	10	--	12
JULY.....	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAXIMUM	19	20	19	19	19	18	18	20	22	23	23	23	23	23	24	24	24	24	25	26	26	25	26	25	26	24	25	27	27	27	26	23
MINIMUM	12	14	14	13	13	14	12	13	15	16	17	18	17	17	18	17	17	17	17	18	18	18	18	18	21	17	17	20	18	19	18	16
AUGUST...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAXIMUM	25	24	26	25	23	23	23	24	26	24	23	24	24	26	26	26	24	--	--	27	26	26	27	27	--	--	--	--	--	--	--	--
MINIMUM	17	17	17	18	16	13	13	14	15	16	18	16	14	16	16	16	13	--	--	19	15	17	18	19	--	--	--	--	--	--	--	--
SEPTEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

13212500 BOISE RIVER AT NOTUS, IDAHO
(Irrigation network station)

LOCATION.--Lat 43°43'21", long 116°47'34", in S½SE¼ sec.34, T.5 N., R.4 W., Canyon County, at highway bridge 1,100 ft downstream from gaging station, 0.3 mile southeast of Notus, 7 miles northwest of Caldwell, and at mile 14.0.
DRAINAGE AREA.--3,820 sq mi, approximately.
PERIOD OF RECORD.--Chemical analyses: January 1939 to January 1940, November 1950 to September 1969.
Water temperatures: November 1950 to September 1969.
Sediment records: January 1939 to June 1940.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 393 mg/l Oct. 20 to Nov. 17; minimum, 88 mg/l June 6-13.
Hardness: Maximum, 175 mg/l Oct. 20 to Nov. 17; minimum, 40 mg/l Apr. 11 to May 6.
Specific conductance: Maximum daily, 688 micromhos Dec. 4; minimum daily, 121 micromhos Apr. 20.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
01-15	496	--	42	13	67	--	249	0	--	--	--	--
16-19	821	--	43	12	60	--	243	3	--	--	--	--
20-31	811	--	47	14	68	--	274	0	--	--	--	--
NOV.												
01-17	811	--	47	14	68	--	274	0	--	--	--	--
18-30	723	36	46	13	69	6.3	272	0	71	18	.6	10
DEC.												
01-16	723	36	46	13	69	6.3	272	0	71	18	.6	10
17-29	734	--	45	13	63	--	248	0	--	--	--	--
30-31	763	--	44	13	64	--	231	6	--	--	--	--
JAN.												
01-20	763	--	44	13	64	--	231	6	--	--	--	--
21-25	1360	--	36	9.9	44	--	184	1	--	--	--	--
26-31	908	--	44	12	61	--	240	0	--	--	--	--
FEB.												
01-07	908	--	44	12	61	--	240	0	--	--	--	--
08-11	3260	--	20	4.5	16	--	94	0	--	--	--	--
12-19	5510	--	18	4.3	14	--	82	0	--	--	--	--
20-28	5640	17	17	3.0	12	1.2	76	0	13	3.5	.3	2.2
MAR.												
01-18	5640	17	17	3.0	12	1.2	76	0	13	3.5	.3	2.2
19-29	4380	--	17	3.1	14	--	82	0	--	--	--	--
30-31	2630	--	16	3.4	15	--	84	0	--	--	--	--
APR.												
01-10	2630	--	16	3.4	15	--	84	0	--	--	--	--
11-30	4390	--	12	2.6	10	--	65	0	--	--	--	--
MAY												
01-06	4390	--	12	2.6	10	--	65	0	--	--	--	--
07-28	2340	--	17	3.8	16	--	77	0	--	--	--	--
29-31	1010	--	24	6.1	28	--	132	0	--	--	--	--
JUNE												
01-05	1010	--	24	6.1	28	--	132	0	--	--	--	--
06-13	3380	--	15	3.4	15	--	68	0	--	--	--	--
14-17	1940	--	18	4.1	18	--	94	0	--	--	--	--
18-30	876	--	28	7.5	36	--	160	0	--	--	--	--
JULY												
01-02	876	--	28	7.5	36	--	160	0	--	--	--	--
03-12	296	--	37	11	52	--	211	0	--	--	--	--
13-20	220	--	40	12	61	--	231	0	--	--	--	--
21-31	343	23	38	11	54	4.4	221	0	51	16	.5	13
AUG.												
01-20	343	23	38	11	54	4.4	221	0	51	16	.5	13
21-30	348	--	40	12	59	--	236	0	--	--	--	--
31...	548	--	39	11	53	--	226	0	--	--	--	--
SEPT.												
01-30	548	--	39	11	53	--	226	0	--	--	--	--
WTD. AVG.	--	--	22	5.3	24	--	113	0	--	--	--	--
TIME WTD. AVG.	1770	--	32	8.9	43	--	180	0	--	--	--	--
TONS PER DAY	--	--	105	25	114	--	542	1	--	--	--	--

13212500 BOISE RIVER AT NOTUS, IDAHO--Continued

EXTREMES.--1968-69:--Continued
Water temperatures: Maximum, 24.0°C July 25, 30; minimum, 1.0°C Feb. 14.
Period of record:
Dissolved solids: Maximum, 914 mg/l Aug. 21-31, 1939; minimum, 77 mg/l May 1-10, 1952, June 11-20, 1953.
Hardness: Maximum, 284 mg/l July 21-31, 1939; minimum, 35 mg/l June 11-26, 1953.
Specific conductance: Maximum daily, 1,470 micromhos July 30, Aug. 26, 1939; minimum daily, 82 micromhos Apr. 27, 1952.
Water temperatures: Maximum, 29.5°C on several days during summer periods in 1951, 1952, and 1954; minimum (1939-40, 1950-64, 1966-69), freezing point Jan. 31, 1956, Jan. 11-14, 1963.
REMARKS.--No appreciable inflow between gaging station and sampling point except during periods of heavy local runoff.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)
OCT.											
01-15	--	355	.48	475	158	0	2.3	48	569	8.0	--
16-19	--	354	.48	785	157	0	2.1	45	562	8.3	--
20-31	--	393	.53	861	175	0	2.2	46	633	8.2	--
NOV.											
01-17	--	393	.53	861	175	0	2.2	46	633	8.2	--
18-30	130	382	.52	746	168	0	2.3	46	625	8.0	5
DEC.											
01-16	130	382	.52	746	168	0	2.3	46	625	8.0	5
17-29	--	375	.51	743	166	0	2.1	45	604	7.8	--
30-31	--	379	.52	781	164	0	2.2	46	568	8.4	--
JAN.											
01-20	--	379	.52	781	164	0	2.2	46	568	8.4	--
21-25	--	274	.37	1010	131	0	1.7	42	452	8.3	--
26-31	--	370	.50	907	160	0	2.1	45	549	8.2	--
FEB.											
01-07	--	370	.50	907	160	0	2.1	45	549	8.2	--
08-11	--	137	.19	1210	68	0	.8	34	211	8.2	--
12-19	--	127	.17	1890	62	0	.8	33	180	8.0	--
20-28	--	111	.15	1690	55	0	.7	32	160	7.8	10
MAR.											
01-18	--	111	.15	1690	55	0	.7	32	160	7.8	10
19-29	--	125	.17	1480	56	0	.8	36	177	7.8	--
30-31	--	110	.18	781	54	0	.9	38	180	8.2	--
APR.											
01-10	--	110	.18	781	54	0	.9	38	180	8.2	--
11-30	--	89	.12	1060	40	0	.7	35	137	8.0	--
MAY											
01-06	--	89	.12	1060	40	0	.7	35	137	8.0	--
07-28	--	127	.17	802	58	0	.9	37	194	8.0	--
29-31	--	185	.25	504	85	0	1.3	42	292	7.9	--
JUNE											
01-05	--	185	.25	504	85	0	1.3	42	292	7.9	--
06-13	--	88	.12	803	52	0	.9	39	172	7.8	--
14-17	--	101	.14	529	62	0	1.0	39	203	7.8	--
18-30	--	203	.28	480	101	0	1.6	44	361	8.1	--
JULY											
01-02	--	203	.28	480	101	0	1.6	44	361	8.1	--
03-12	--	300	.41	239	138	0	1.9	45	491	8.2	--
13-20	--	344	.47	204	150	0	2.2	47	539	8.2	--
21-31	220	330	.45	306	140	0	2.0	45	469	8.0	10
AUG.											
01-20	220	330	.45	306	140	0	2.0	45	469	8.0	10
21-30	--	327	.44	307	150	0	2.1	46	527	7.9	--
31...	--	320	.44	473	142	0	1.9	45	490	8.2	--
SEPT.											
01-30	--	320	.44	473	142	0	1.9	45	490	8.2	--
WTD. AVG. TIME	--	165	--	--	76	0	--	--	255	8.0	--
WTD. AVG. TONS PER DAY	--	262	.36	--	118	0	1.6	42	410	8.1	--
	--	789	--	--	--	--	--	--	--	--	--

13212500 BOISE RIVER AT NOTUS, IDAHO--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	614	646	617	593	552	159	171	141	289	353	513	478
2	624	637	611	581	544	161	168	140	293	391	514	489
3	587	643	620	589	605	159	181	140	293	450	508	482
4	567	645	688	592	537	164	177	146	303	460	506	490
5	542	638	660	528	560	157	168	149	306	460	497	478
6	551	673	620	585	587	159	196	141	221	465	510	475
7	568	675	616	559	584	157	196	189	165	473	513	477
8	569	645	622	565	216	156	201	186	163	501	511	461
9	568	643	617	592	216	156	202	185	172	473	522	485
10	559	643	629	575	194	155	196	187	169	482	525	491
11	575	636	632	529	213	155	153	199	159	535	491	491
12	547	634	635	577	195	155	157	199	158	591	496	489
13	549	634	622	566	190	154	149	199	156	583	506	484
14	547	640	626	488	186	154	132	201	203	548	487	487
15	521	634	666	567	175	155	133	199	196	553	488	483
16	534	640	671	569	174	153	145	199	206	553	512	481
17	565	658	622	568	171	154	135	199	205	515	524	510
18	579	610	628	564	171	155	134	198	362	544	525	487
19	589	610	633	550	171	168	123	200	362	518	514	489
20	611	617	626	520	167	178	121	194	374	518	491	472
21	612	627	625	447	170	166	122	194	369	501	523	497
22	624	615	627	405	165	176	127	190	391	462	526	463
23	655	617	584	453	163	165	122	191	384	456	530	473
24	638	665	589	489	163	165	128	192	342	460	525	468
25	634	675	583	461	164	168	130	193	326	458	522	480
26	630	658	577	535	161	188	136	193	323	477	517	524
27	627	615	596	495	159	187	132	196	326	472	529	529
28	627	611	590	529	--	195	131	197	317	477	519	517
29	637	608	592	518	--	186	138	289	349	479	522	522
30	651	608	571	551	--	157	138	282	342	497	519	508
31	642	--	577	535	--	173	--	282	--	507	476	--
AVG	591	636	618	537	279	164	151	193	274	490	511	488

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	17	15	13	14	14	15	13	12	10	12	13	13	13	14	12	12	11	10	10	12	11	11	12	13	13	12	12	12	11	13	13	13
NOVEMBER.	12	12	12	11	10	10	10	12	11	10	10	11	9	8	8	8	9	9	9	10	11	11	10	9	8	8	9	8	7	8	--	10
DECEMBER.	7	7	7	8	9	9	8	7	8	8	7	7	4	6	7	7	6	6	4	4	3	3	5	6	7	7	6	5	4	3	2	6
JANUARY..	4	6	7	7	8	8	7	5	3	4	5	6	7	7	7	6	6	7	7	6	7	6	4	4	3	6	5	5	3	3	3	6
FEBRUARY.	4	5	4	6	4	6	4	3	3	4	3	3	2	1	2	3	4	3	3	3	3	4	3	3	3	4	4	4	--	--	--	4
MARCH....	4	4	4	4	4	4	4	4	4	4	4	4	3	5	5	5	6	6	6	6	6	7	6	5	7	7	8	8	9	9	9	6
APRIL....	10	10	10	11	10	9	7	9	11	11	10	11	11	9	9	10	9	9	11	11	11	12	11	9	9	10	11	11	10	9	--	10
MAY.....	10	10	10	11	12	11	13	14	14	14	15	15	15	15	14	14	15	14	13	12	11	15	16	16	16	16	17	16	17	17	17	14
JUNE.....	19	19	19	20	18	19	18	16	16	16	17	17	17	17	18	19	19	19	21	21	20	19	17	14	16	16	14	16	20	19	--	18
JULY.....	22	23	20	19	19	18	20	21	20	22	23	21	19	21	21	21	21	21	22	22	23	22	23	23	24	22	22	22	22	24	23	21
AUGUST...	22	21	22	22	18	18	19	22	22	23	22	22	22	22	23	20	22	20	21	21	21	22	22	21	21	21	21	19	16	17	19	21
SEPTEMBER	19	19	18	18	16	16	17	18	19	19	19	18	19	16	16	15	16	16	17	18	16	15	15	17	15	17	16	17	15	15	--	17

13251300 WEST BRANCH WEISER RIVER NEAR TAMARACK, IDAHO

LOCATION.--Lat 45°01'14", long 116°26'06", in SE¼SE¼ sec.34, T.20 N., R.1 W., Adams County, temperature recorder at gaging station on left bank at Price Valley guard station, 0.1 mile upstream from East Branch Weiser River and 5.2 miles northwest of Tamarack.

DRAINAGE AREA.--3.96 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1959 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 14.0°C July 20-26, 28-31; minimum, freezing point on many days during winter period.

Period of record:
Water temperatures: Maximum (1959-63, 1964-69), 16.5°C July 20, 1960, Aug. 12, 1963, July 31, 1966; minimum, freezing point on several days during winter periods.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	11	11	7	7	7	7	7	5	4	7	7	7	8	6	6	6	5	4	4	4	4	5	6	6	6	6	4	4	5	6	6	6
MINIMUM	9	7	6	6	4	6	4	3	3	4	7	6	6	5	6	4	3	3	3	3	3	4	4	4	4	4	3	3	3	6	4	5
NOVEMBER																																
MAXIMUM	4	3	5	5	3	2	2	2	2	2	2	3	3	2	1	1	2	2	2	2	2	3	3	3	2	2	1	1	1	1	--	2
MINIMUM	2	2	3	3	2	1	1	1	1	1	2	2	2	1	1	1	1	1	1	2	2	2	3	2	2	1	1	1	1	1	--	2
DECEMBER																																
MAXIMUM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MINIMUM	1	1	1	1	1	0	0	1	1	1	1	0	1	1	0	0	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1
JANUARY																																
MAXIMUM	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MINIMUM	1	0	1	1	1	0	0	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1
FEBRUARY																																
MAXIMUM	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	--	--	--	1
MINIMUM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	0	1	1	1	1	1	1	1	0	1	--	--	--	1
MARCH																																
MAXIMUM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	2	2	2	2	2	2	2	3	1
MINIMUM	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	1	2	2	2	2	2	2	1
APRIL																																
MAXIMUM	3	3	3	3	3	3	3	4	4	4	4	4	4	5	6	6	4	4	4	6	6	5	4	5	4	5	6	4	4	4	--	4
MINIMUM	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	--	3
MAY																																
MAXIMUM	4	4	6	7	7	7	8	8	8	8	8	8	7	7	7	8	9	9	7	7	9	9	10	9	11	11	9	9	9	11	11	8
MINIMUM	3	3	3	4	4	4	4	4	4	4	5	5	6	5	6	5	6	6	6	6	5	6	6	7	7	8	7	6	7	8	7	5
JUNE																																
MAXIMUM	11	12	12	13	12	13	13	12	12	12	12	12	13	12	13	13	13	13	12	12	12	12	10	9	9	8	8	7	8	9	--	11
MINIMUM	7	8	8	9	11	10	10	11	11	10	9	9	10	9	9	10	10	11	10	10	9	9	9	9	7	7	7	7	6	6	--	9
JULY																																
MAXIMUM	11	11	11	11	11	11	9	11	12	13	13	13	13	12	12	12	13	13	13	14	14	14	14	14	14	14	13	14	14	14	14	13
MINIMUM	7	8	9	8	8	9	8	8	8	9	11	11	9	9	9	9	9	10	10	11	11	11	11	12	12	9	10	12	11	11	11	10
AUGUST																																
MAXIMUM	13	13	13	13	13	11	11	11	12	12	12	12	11	12	13	13	13	12	12	12	12	13	13	13	13	12	12	11	11	11	11	12
MINIMUM	10	11	10	9	9	7	7	8	8	9	11	9	8	9	9	11	8	8	8	9	9	10	11	12	11	8	8	8	8	7	7	9
SEPTEMBER																																
MAXIMUM	11	12	12	11	8	9	11	11	11	12	12	12	12	12	9	8	9	9	9	9	9	9	9	9	9	9	9	11	11	9	--	10
MINIMUM	8	8	9	6	6	5	7	8	10	10	11	10	9	7	6	6	7	8	9	9	7	6	8	8	7	6	7	9	8	8	--	8

13269000 SNAKE RIVER AT WEISER, IDAHO

LOCATION.--Lat 44°14'35", long 116°58'35", in NE¼NW¼ sec.28, T.15 S., R.47 E., Malheur County, Oreg., 1,200 ft upstream from gaging station at bridge on U.S. Highway 30N at Weiser, 2,300 ft downstream from Weiser River, and at mile 351.5.

DRAINAGE AREA.--69,200 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: June 1967 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 25.0°C on several days during July and August; minimum, 1.0°C Dec. 30 to Jan. 1.

Period of record:
Water temperatures: Maximum, 27.0°C July 7-10, 1968; minimum, freezing point Dec. 14-17, 21, 1967.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(TWICE-DAILY MEASUREMENT AT 0800 AND 1700)

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
OCTOBER																																
AM.....	14	14	13	13	13	13	13	12	--	--	12	12	12	12	12	12	11	11	10	10	10	10	10	11	11	11	11	10	10	10	10	11
PM.....	16	16	14	14	14	14	13	--	--	12	12	13	13	12	12	12	12	12	11	11	10	11	12	12	12	12	12	11	10	11	10	12
NOVEMBER																																
AM.....	10	10	10	10	9	9	9	9	9	9	9	9	8	8	7	7	7	7	7	8	8	8	8	8	7	6	6	6	6	6	--	8
PM.....	11	10	10	10	10	10	10	9	10	10	9	9	9	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	--	9
DECEMBER																																
AM.....	6	6	5	6	6	6	6	6	6	6	6	5	4	4	4	4	4	4	4	3	2	2	2	2	3	4	4	4	3	1	1	4
PM.....	6	6	6	6	7	6	6	6	6	6	6	5	4	4	4	5	4	4	4	3	2	2	2	3	4	4	4	4	3	1	1	4
JANUARY																																
AM.....	1	2	3	4	4	4	4	3	3	2	2	2	4	4	5	4	3	3	4	4	4	4	3	2	2	3	4	4	3	2	2	3
PM.....	1	2	4	4	4	4	4	3	3	3	3	3	4	5	5	4	4	4	4	4	4	4	3	2	3	4	4	4	4	3	2	4
FEBRUARY																																
AM.....	2	2	3	3	2	3	3	4	3	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	5	4	--	--	--	4
PM.....	2	3	4	3	3	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	6	6	--	--	--	4
MARCH																																
AM.....	5	5	6	5	6	5	5	5	5	6	5	6	6	6	6	6	6	7	6	6	7	8	7	7	7	8	8	8	8	10	10	6
PM.....	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	8	8	8	8	8	8	8	9	10	10	10	11	11	7
APRIL																																
AM.....	10	10	10	10	11	10	8	8	10	10	10	11	10	10	10	10	10	11	11	11	12	12	13	11	10	10	10	11	11	11	--	10
PM.....	11	11	11	12	12	10	9	10	10	10	12	12	11	11	10	10	12	12	12	12	13	14	13	11	11	11	12	13	13	12	--	11
MAY																																
AM.....	11	11	11	12	12	13	14	14	15	16	16	17	16	16	16	16	16	17	16	15	15	16	18	18	18	18	18	17	17	18	18	16
PM.....	12	12	12	12	14	14	16	16	16	17	18	18	17	17	17	17	18	18	16	16	17	18	19	20	20	20	18	18	18	19	19	17
JUNE																																
AM.....	18	18	19	20	21	21	21	20	19	19	19	20	20	20	20	20	20	20	21	21	20	20	20	18	17	16	16	15	16	17	--	19
PM.....	19	20	21	22	22	22	22	22	20	20	20	21	22	22	22	22	22	22	22	22	22	21	20	18	18	17	16	16	18	20	--	20
JULY																																
AM.....	18	20	20	20	20	19	18	20	21	22	22	22	22	21	20	20	21	21	22	23	22	22	22	23	23	22	22	22	23	22	23	21
PM.....	21	22	21	22	22	21	21	22	24	24	24	24	24	23	22	23	24	24	25	25	25	25	25	25	24	24	24	25	25	25	25	24
AUGUST																																
AM.....	23	22	22	22	22	20	20	20	20	21	22	20	20	21	21	21	20	20	20	21	22	22	22	23	21	20	20	19	18	17	17	21
PM.....	25	25	24	24	22	22	22	22	23	24	23	22	23	24	24	23	22	22	23	24	24	24	24	25	22	22	21	21	20	19	20	23
SEPTEMBER																																
AM.....	18	18	18	17	17	17	17	18	19	20	20	20	20	17	16	16	16	16	16	17	16	16	16	16	16	16	16	17	17	16	--	17
PM.....	20	21	19	19	19	19	19	20	21	21	22	21	20	18	18	18	18	18	18	18	18	18	17	17	18	18	18	18	18	17	--	19

13290200 SNAKE RIVER BELOW PINE CREEK AT OXBOW, OREG.

LOCATION.--Lat 44°58'40", long 116°51'25", in NW¼NW¼ sec.9, T.7 S., R.48 E., Adams County, Idaho, temperature recorder opposite gaging station on right bank at Oxbow, 0.1 mile upstream from Hansaker Creek, 0.1 mile north of Oxbow school, 0.3 mile downstream from Pine Creek, 3.2 miles south of Homestead, and at mile 269.65.

DRAINAGE AREA.--73,150 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: May 1956 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C Aug. 14-29, 31; minimum, 2.0°C Feb. 6-23.

Period of record:
Water temperatures: Maximum (1956-62, 1963-69), 27.0°C July 25, 1956; minimum, freezing point on several days during January 1957.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	17	17	17	17	17	16	16	16	16	16	16	16	16	16	15	15	15	14	14	13	13	13	13	13	13	13	13	13	13	12	12	15
MINIMUM	17	17	17	17	16	16	16	16	16	16	16	16	16	15	15	15	14	14	13	13	13	13	13	13	13	13	13	13	12	12	12	15
NOVEMBER																																
MAXIMUM	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	9	9	10	9	9	--	11
MINIMUM	12	12	12	12	12	11	11	11	11	11	10	11	11	11	11	10	10	9	9	10	10	10	10	10	9	9	9	9	9	9	--	10
DECEMBER																																
MAXIMUM	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	8
MINIMUM	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	7	7	7	7	7	7	7	6	7	7	6	8
JANUARY																																
MAXIMUM	6	6	6	6	5	5	5	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
MINIMUM	6	6	6	5	5	5	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
FEBRUARY																																
MAXIMUM	3	3	3	3	3	3	3	2	2	2	2	2	2	3	2	2	2	3	3	3	3	3	3	3	3	3	4	3	--	--	--	3
MINIMUM	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	--	--	--	2
MARCH																																
MAXIMUM	3	4	4	4	4	4	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	8	8	8	6
MINIMUM	3	3	4	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	8	8	6
APRIL																																
MAXIMUM	8	9	9	9	9	9	9	9	10	11	11	11	10	10	10	10	11	11	11	11	11	11	11	11	11	11	12	12	12	12	--	10
MINIMUM	9	9	8	9	9	9	9	9	9	10	10	9	9	10	10	10	10	11	11	11	11	11	11	11	11	11	11	12	12	12	--	10
MAY																																
MAXIMUM	12	12	12	12	12	12	12	12	12	13	13	14	14	14	14	16	16	17	17	17	17	17	17	17	17	17	17	17	17	17	17	15
MINIMUM	12	12	12	12	12	12	12	12	12	12	12	13	14	14	14	14	16	16	17	16	17	17	17	17	17	16	14	14	16	17	17	14
JUNE																																
MAXIMUM	17	17	17	18	17	17	17	17	17	18	18	18	18	18	18	18	18	19	19	19	19	19	19	18	18	19	19	19	19	19	--	18
MINIMUM	17	17	17	17	17	16	16	17	17	17	18	18	18	19	18	18	18	18	19	18	18	19	18	18	18	18	19	19	19	18	--	18
JULY																																
MAXIMUM	18	19	19	19	19	19	19	18	18	19	19	20	20	20	20	20	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	18	19	19	19	19	18	18	18	18	18	19	19	20	20	19	20	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AUGUST																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	21	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	21	21	22	22	22	22	21	21	22	22	22	22	22	22	22	21	21	21	21	--
SEPTEMBER																																
MAXIMUM	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	--	20
MINIMUM	21	21	21	21	21	21	21	21	21	21	21	21	21	21	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	19	--	20

13317000 SALMON RIVER AT WHITE BIRD, IDAHO

LOCATION.--Lat 45°45'01", long 116°19'23", in NE¼NW¼SW¼ sec.22, T.28 N., R.1 E., Idaho County, at gaging station on left bank just upstream from White Bird Creek, 0.5 mile downstream from Canfield-Joseph highway bridge, 1 mile southwest of White Bird, and at mile 53.7.

DRAINAGE AREA.--13,550 sq mi, approximately, including White Bird Creek basin.

PERIOD OF RECORD.--Chemical analyses: November 1958 to September 1959, October 1965 to September 1969 (miscellaneous).
Water temperatures: October 1966 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 25.0°C Aug. 23; minimum, freezing point Jan. 2, 18, 24.

Period of record:
Water temperatures: Maximum, 25.0°C Aug. 23, 1969; minimum, freezing point Jan. 2, 18, 24, 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
JUNE												
13...	34200	12	8.9	1.2	2.9	.9	38	0	3.6	.0	.1	.2
SEPT.												
20...	4380	15	23	4.7	9.2	1.5	98	0	14	2.0	.5	.1

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	SPECI-FIC CONDU-CTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
JUNE											
13...	51	.07	4710	27	0	.2	18	70	7.4	5	15
SEPT.											
20...	112	.15	1330	77	0	.5	20	190	7.8	0	15

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(TEMPERATURE MEASUREMENT AT 0800 AND 1700 ON ALTERNATE DAYS)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
AM.....	--	11	--	11	--	11	--	9	--	9	--	9	--	9	--	8	--	8	--	8	--	8	--	8	--	9	--	7	--	8	--	--
PM.....	13	--	12	--	11	--	11	--	7	--	9	--	9	--	9	--	9	--	8	--	8	--	8	--	8	--	8	--	8	--	8	--
NOVEMBER																																
AM.....	6	--	7	--	8	--	8	--	7	--	6	--	6	--	5	--	5	--	7	--	5	--	6	--	6	--	7	--	4	--	--	--
PM.....	--	7	--	8	--	7	--	8	--	7	--	6	--	6	--	6	--	4	--	5	--	4	--	7	--	6	--	6	--	6	--	--
DECEMBER																																
AM.....	3	--	4	--	5	--	2	--	3	--	6	--	3	--	2	--	3	--	7	--	1	--	1	--	4	--	2	--	1	--	3	--
PM.....	--	4	--	5	--	4	--	3	--	7	--	--	--	3	--	4	--	3	--	1	--	1	--	3	--	2	--	3	--	3	--	--
JANUARY																																
AM.....	--	0	--	1	--	3	--	2	--	1	--	2	--	3	--	1	--	0	--	2	--	2	--	0	--	1	--	1	--	2	--	--
PM.....	1	--	1	--	1	--	2	--	2	--	4	--	4	--	2	--	1	--	3	--	2	--	1	--	2	--	3	--	1	--	1	--
FEBRUARY																																
AM.....	1	--	2	--	2	--	2	--	3	--	3	--	3	--	2	--	2	--	2	--	3	--	3	--	4	--	3	--	--	--	--	--
PM.....	--	1	--	4	--	2	--	3	--	4	--	2	--	3	--	2	--	2	--	2	--	3	--	5	--	4	--	4	--	--	--	--
MARCH																																
AM.....	4	--	6	--	7	--	4	--	2	--	4	--	4	--	6	--	5	--	6	--	6	--	7	--	9	--	8	--	8	--	7	--
PM.....	--	7	--	7	--	8	--	7	--	6	--	7	--	3	--	5	--	6	--	7	--	7	--	8	--	8	--	7	--	8	--	--
APRIL																																
AM.....	--	8	--	7	--	8	--	7	--	7	--	9	--	8	--	9	--	8	--	8	--	9	--	9	--	7	--	7	--	8	--	--
PM.....	8	--	8	--	9	--	8	--	9	--	9	--	9	--	9	--	9	--	9	--	11	--	9	--	8	--	8	--	8	--	--	--
MAY																																
AM.....	--	7	--	9	--	9	--	11	--	10	--	10	--	9	--	9	--	9	--	9	--	10	--	11	--	11	--	11	--	11	--	--
PM.....	8	--	9	--	11	--	12	--	11	--	11	--	9	--	9	--	10	--	9	--	9	--	11	--	11	--	11	--	11	--	12	--
JUNE																																
AM.....	11	--	11	--	13	--	13	--	13	--	13	--	13	--	14	--	13	--	14	--	14	--	14	--	13	--	12	--	11	--	--	--
PM.....	--	12	--	14	--	13	--	14	--	14	--	13	--	14	--	14	--	16	--	15	--	15	--	13	--	13	--	12	--	13	--	--
JULY																																
AM.....	13	--	14	--	16	--	16	--	19	--	17	--	17	--	18	--	18	--	19	--	20	--	18	--	21	--	20	--	21	--	21	--
PM.....	--	14	--	16	--	16	--	16	--	17	--	18	--	19	--	19	--	18	--	21	--	21	--	21	--	24	--	24	--	23	--	--
AUGUST																																
AM.....	--	21	--	21	--	19	--	20	--	21	--	20	--	20	--	20	--	20	--	20	--	21	--	21	--	19	--	19	--	17	--	--
PM.....	24	--	23	--	21	--	22	--	23	--	22	--	21	--	22	--	23	--	21	--	24	--	25	--	21	--	22	--	20	--	20	--
SEPTEMBER																																
AM.....	18	--	19	--	15	--	17	--	18	--	17	--	18	--	17	--	17	--	15	--	14	--	15	--	15	--	15	--	15	--	--	--
PM.....	--	21	--	18	--	20	--	20	--	18	--	20	--	18	--	19	--	17	--	16	--	18	--	17	--	17	--	18	--	17	--	--

13331500 MINAM RIVER AT MINAM, OREG.
(Hydrologic bench-mark station)

LOCATION.--Lat 45°37'12", long 117°43'32", in SW¼SW¼ sec.29, T.2 N., R.41 E., Wallowa County, at gaging station on left bank, 0.3 mile west of Minam, 2.3 miles downstream from Squaw Creek, and at mile 0.3.

DRAINAGE AREA.--240 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: December 1966 to September 1968 (miscellaneous), October 1968 to September 1969 (monthly).
Water temperatures: October 1965 to September 1969.
Sediment records: October 1967 to September 1969 (miscellaneous).

EXTREMES.--1968-69:
Water temperatures: Maximum, 24.0°C Aug. 22, 23; minimum, freezing point on many days during winter period.

Period of record:
Water temperatures: Maximum, 26.0°C Aug. 17, 18, 1967; minimum, freezing point on many days during winter periods.

REMARKS.--Recorder stopped Jan. 31 to Feb. 7; range in temperature, 0.0°C to 4.0°C.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
24...	175	17	5.4	1.3	2.2	1.0	30	0	.6	1.0	.0	.1
NOV.												
25...	380	20	5.0	1.6	2.1	1.1	30	0	.8	.0	.1	.1
JAN.												
07...	996	24	4.8	1.8	2.1	1.2	28	0	.6	1.0	.1	.4
FEB.												
25...	160	22	6.2	1.7	2.4	1.1	34	0	1.4	.0	.0	.2
MAR.												
25...	250	24	6.2	2.0	2.6	1.4	34	0	.4	1.0	.0	.2
APR.												
24...	1040	18	5.8	1.2	1.9	1.2	27	0	1.2	1.0	.0	.2
JUNE												
15...	996	11	2.9	.6	1.2	.5	17	0	.0	.0	.1	.0
JULY												
24...	228	10	4.4	.9	2.1	.9	26	0	.0	.5	.0	.1
SEPT.												
07...	61	17	6.0	1.5	2.6	.9	34	0	.0	.5	.0	.2

DATE	PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	PH (UNITS)
OCT.												
24...	.05	41	6.00	19.4	19	0	51	.2	19	5	6	7.4
NOV.												
25...	.03	50	.07	51.3	19	0	50	.2	18	10	5	7.5
JAN.												
07...	.22	56	.08	151	20	0	49	.2	18	25	3	7.5
FEB.												
25...	.02	50	.07	21.6	28	0	60	.2	18	5	1	7.4
MAR.												
25...	.09	62	.08	41.8	24	0	61	.2	18	10	8	7.4
APR.												
24...	.17	45	.06	126	20	0	44	.2	16	5	6	7.3
JUNE												
15...	.03	23	.03	61.9	10	0	28	.2	20	0	11	7.5
JULY												
24...	.05	34	.05	20.9	14	0	43	.2	22	0	23	7.7
SEPT.												
07...	.12	46	.06	7.58	21	0	56	.2	20	0	21	7.7

13331500 MINAM RIVER AT MINAM, OREG.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	BIOCHEMICAL OXYGEN DEMAND (MG/L)	COLIFORM (COLONIES PER 100 ML)
OCT.				
24...	6	11.7	--	247
NOV.				
25...	5	12.4	1.1	280
JAN.				
07...	3	11.9	--	--
FEB.				
25...	1	12.7	.4	68
MAR.				
25...	8	11.2	.6	134
APR.				
24...	6	11.6	.7	180
JUNE				
15...	11	10.3	--	--
JULY				
24...	23	7.8	.3	716
SEPT.				
07...	21	10.1	--	176

DATE	TOTAL IRON (FE) (UG/L)	TOTAL ALUMINUM (AL) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	NICKEL (NI) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)	LEAD (PB) (UG/L)	ARSENIC (AS) (UG/L)
APR.									
24...	240	300	0	0	10	0	0	10	0

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	ALDRIN (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DIELDRIN (UG/L)	ENDRIN (UG/L)	HEPTACHLOR (UG/L)	HEPTACHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
OCT.												
21...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
APR.												
24...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	DISSOLVED					SUSPENDED		
DATE	URANIUM (UG/L)	RADIUM (PC/L)	GROSS α (UG U/L)	GROSS β (PC/L)	TOTAL DISSOLVED SOLIDS (MG/L)	GROSS α (UG U/L)	GROSS β (PC/L)	SUSPENDED SEDIMENTS (MG/L)
OCT.								
24...	.14	.08	<.4	1.7	40	<.4	.8	<1

13331500 MINAM RIVER AT MINAM, ORE.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	12	11	9	11	10	10	9	6	9	8	9	9	7	6	8	7	8	7	7	7	9	9	9	9	9	7	7	7	7	8	8
MINIMUM	9	6	5	6	4	7	6	4	3	6	7	7	6	4	5	4	3	4	3	6	4	6	6	7	6	6	3	3	3	6	5	5
NOVEMBER																																
MAXIMUM	6	5	7	6	4	4	3	4	6	4	5	5	3	3	3	3	3	4	5	6	6	6	6	4	4	3	4	4	3	3	--	4
MINIMUM	3	2	4	4	2	1	1	2	4	3	3	3	2	2	2	1	2	3	4	4	4	5	4	3	3	2	3	2	2	2	--	3
DECEMBER																																
MAXIMUM	2	2	3	3	3	2	2	4	4	6	5	3	1	4	2	2	2	1	0	0	0	0	0	0	1	0	1	1	0	0	0	2
MINIMUM	1	1	2	2	2	1	1	2	2	4	3	1	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
JANUARY																																
MAXIMUM	1	3	3	2	4	3	2	1	3	3	3	2	3	2	1	2	1	1	1	1	0	0	0	0	0	1	0	0	1	0	--	1
MINIMUM	0	0	1	1	2	1	1	1	1	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	0
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	2	2	2	3	2	3	1	1	3	2	1	2	2	0	1	2	1	2	4	3	4	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	1	1	0	1	--	--	--	--
MARCH																																
MAXIMUM	6	4	5	7	5	4	6	4	6	4	5	5	6	4	6	4	7	6	7	7	7	6	6	7	8	8	7	8	7	8	8	6
MINIMUM	1	1	2	1	2	1	2	1	1	1	1	1	0	0	1	1	2	3	2	2	2	2	2	0	1	2	3	3	3	4	5	2
APRIL																																
MAXIMUM	7	8	7	7	8	6	8	8	8	8	8	8	8	7	7	9	8	6	7	8	9	9	8	6	6	7	8	7	6	7	--	7
MINIMUM	4	4	4	4	6	4	3	3	4	5	4	4	4	3	4	3	6	4	4	4	4	6	4	3	3	3	3	6	3	3	--	4
MAY																																
MAXIMUM	6	7	7	10	11	11	11	10	9	9	9	8	7	7	8	8	9	8	7	7	9	10	9	9	9	9	8	8	8	8	9	8
MINIMUM	4	4	3	5	6	6	7	6	6	6	6	5	6	5	5	4	6	6	6	5	5	6	6	7	6	6	6	5	6	7	6	5
JUNE																																
MAXIMUM	9	11	11	12	11	11	11	10	11	10	11	11	12	11	12	13	13	13	13	13	13	11	11	9	10	10	10	12	13	16	--	11
MINIMUM	6	7	7	7	8	8	8	8	8	8	8	8	8	9	9	9	11	11	11	10	11	9	8	8	8	8	8	8	8	9	--	8
JULY																																
MAXIMUM	15	13	14	15	14	16	17	18	18	17	18	17	17	17	17	18	19	20	21	20	20	21	22	21	20	19	22	21	21	22	--	18
MINIMUM	12	11	9	10	11	11	11	12	13	13	13	11	12	11	11	12	12	13	14	14	13	14	16	16	12	13	14	14	13	14	--	12
AUGUST																																
MAXIMUM	22	22	22	19	20	20	21	22	22	22	23	21	22	23	23	22	21	21	22	23	23	24	24	23	22	21	20	19	19	19	20	21
MINIMUM	16	13	13	14	13	11	12	13	13	14	16	14	13	14	16	15	12	13	13	14	14	16	17	16	13	12	13	12	10	11	11	13
SEPTEMBER																																
MAXIMUM	21	21	18	14	17	18	19	18	18	20	21	21	16	17	16	16	16	15	15	16	16	16	15	16	17	16	17	18	15	13	--	17
MINIMUM	12	13	12	9	8	14	9	12	14	13	14	14	10	9	7	9	11	12	12	11	10	9	12	11	11	11	10	12	11	12	--	11

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)
OCT 24, 1968	0930	6	185	1	.50
APR 8, 1969	1500	8	592	5	8.0
SEP 7.....	1100	21	74	4	.80

13334300 SNAKE RIVER NEAR ANATONE, WASH.

LOCATION.--Lat 46°05'55", long 116°58'30", in SE¼NE¼ sec.12, T.7 N., R.46 E., Asotin County, temperature recorder at gaging station on left bank, 1.5 miles downstream from Grande Ronde River, 7.8 miles east of Anatone, 22 miles south of Clarkston, and at mile 167.2.

DRAINAGE AREA.--92,960 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: October 1959 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Minimum, 1.0°C on several days during January, Feb. 1, 2.

Period of record:
Water temperatures: Maximum (1959-68), 25.0°C Aug. 11, 1960, Aug. 13, 1963; minimum, freezing point Jan. 25, 26, 1962, Dec. 22, 1964.

REMARKS.--No record Feb. 18 to May 10, June 11 to July 22, and Sept. 28-30.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	17.0	16.0	11.0	10.0	7.0	7.0	4.0	3.0	1.0	1.0	--	--
2	16.0	16.0	10.0	10.0	7.0	7.0	3.0	3.0	2.0	1.0	--	--
3	16.0	16.0	11.0	10.0	7.0	7.0	3.0	3.0	2.0	2.0	--	--
4	16.0	15.0	11.0	10.0	7.0	7.0	3.0	3.0	2.0	2.0	--	--
5	15.0	15.0	10.0	10.0	7.0	7.0	3.0	3.0	2.0	2.0	--	--
6	15.0	14.0	10.0	10.0	7.0	6.0	3.0	1.0	2.0	2.0	--	--
7	14.0	14.0	11.0	10.0	6.0	6.0	3.0	1.0	2.0	2.0	--	--
8	14.0	14.0	11.0	10.0	6.0	6.0	3.0	3.0	2.0	2.0	--	--
9	14.0	13.0	11.0	10.0	6.0	6.0	3.0	3.0	2.0	2.0	--	--
10	13.0	13.0	10.0	8.0	7.0	6.0	3.0	3.0	2.0	2.0	--	--
11	14.0	13.0	8.0	8.0	7.0	7.0	3.0	3.0	3.0	2.0	--	--
12	13.0	13.0	9.0	8.0	7.0	6.0	3.0	3.0	3.0	3.0	--	--
13	13.0	13.0	9.0	8.0	6.0	5.0	3.0	3.0	3.0	3.0	--	--
14	13.0	12.0	8.0	7.0	5.0	5.0	3.0	3.0	3.0	2.0	--	--
15	12.0	12.0	7.0	7.0	5.0	5.0	3.0	2.0	2.0	2.0	--	--
16	12.0	12.0	7.0	7.0	6.0	5.0	2.0	2.0	2.0	2.0	--	--
17	12.0	12.0	8.0	7.0	6.0	6.0	2.0	2.0	2.0	2.0	--	--
18	12.0	12.0	8.0	8.0	6.0	6.0	2.0	2.0	--	--	--	--
19	12.0	12.0	8.0	8.0	6.0	6.0	2.0	2.0	--	--	--	--
20	12.0	11.0	8.0	8.0	6.0	4.0	2.0	2.0	--	--	--	--
21	11.0	11.0	8.0	8.0	4.0	4.0	2.0	2.0	--	--	--	--
22	11.0	11.0	8.0	8.0	5.0	4.0	2.0	2.0	--	--	--	--
23	11.0	11.0	8.0	7.0	4.0	4.0	2.0	1.0	--	--	--	--
24	12.0	11.0	7.0	7.0	4.0	4.0	1.0	1.0	--	--	--	--
25	12.0	12.0	7.0	7.0	4.0	4.0	1.0	1.0	--	--	--	--
26	12.0	11.0	7.0	7.0	4.0	4.0	1.0	1.0	--	--	--	--
27	11.0	11.0	7.0	7.0	5.0	4.0	1.0	1.0	--	--	--	--
28	11.0	11.0	8.0	7.0	5.0	4.0	1.0	1.0	--	--	--	--
29	11.0	11.0	7.0	7.0	4.0	3.0	1.0	1.0	--	--	--	--
30	11.0	11.0	7.0	7.0	3.0	2.0	1.0	1.0	--	--	--	--
31	11.0	11.0	--	--	4.0	3.0	1.0	1.0	--	--	--	--
AVG	12.8	12.5	8.6	8.2	5.5	5.1	2.2	2.0	--	--	--	--

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	14.0	13.0	--	--	22.0	22.0	19.0	18.0
2	--	--	--	--	14.0	14.0	--	--	22.0	21.0	19.0	18.0
3	--	--	--	--	15.0	14.0	--	--	21.0	21.0	18.0	18.0
4	--	--	--	--	15.0	14.0	--	--	21.0	21.0	18.0	18.0
5	--	--	--	--	16.0	15.0	--	--	21.0	19.0	18.0	17.0
6	--	--	--	--	16.0	15.0	--	--	20.0	19.0	18.0	17.0
7	--	--	--	--	16.0	15.0	--	--	19.0	19.0	18.0	17.0
8	--	--	--	--	16.0	16.0	--	--	20.0	19.0	18.0	18.0
9	--	--	--	--	16.0	15.0	--	--	20.0	19.0	18.0	18.0
10	--	--	--	--	16.0	15.0	--	--	20.0	19.0	18.0	18.0
11	--	--	13.0	12.0	--	--	--	--	20.0	19.0	18.0	18.0
12	--	--	13.0	12.0	--	--	--	--	19.0	19.0	19.0	18.0
13	--	--	13.0	12.0	--	--	--	--	20.0	19.0	18.0	18.0
14	--	--	12.0	12.0	--	--	--	--	19.0	19.0	18.0	17.0
15	--	--	13.0	12.0	--	--	--	--	20.0	19.0	18.0	17.0
16	--	--	13.0	12.0	--	--	--	--	20.0	19.0	18.0	17.0
17	--	--	13.0	13.0	--	--	--	--	19.0	18.0	18.0	17.0
18	--	--	13.0	13.0	--	--	--	--	19.0	19.0	18.0	18.0
19	--	--	13.0	13.0	--	--	--	--	19.0	19.0	18.0	17.0
20	--	--	13.0	13.0	--	--	--	--	20.0	19.0	18.0	17.0
21	--	--	13.0	13.0	--	--	--	--	20.0	19.0	18.0	17.0
22	--	--	13.0	13.0	--	--	--	--	20.0	19.0	18.0	17.0
23	--	--	14.0	13.0	--	--	22.0	22.0	21.0	19.0	18.0	18.0
24	--	--	14.0	14.0	--	--	22.0	22.0	20.0	19.0	18.0	18.0
25	--	--	14.0	13.0	--	--	22.0	22.0	20.0	19.0	18.0	18.0
26	--	--	14.0	13.0	--	--	22.0	21.0	19.0	19.0	18.0	18.0
27	--	--	14.0	13.0	--	--	22.0	21.0	19.0	19.0	18.0	18.0
28	--	--	14.0	13.0	--	--	22.0	21.0	19.0	18.0	--	--
29	--	--	14.0	13.0	--	--	22.0	22.0	19.0	18.0	--	--
30	--	--	14.0	14.0	--	--	22.0	21.0	19.0	18.0	--	--
31	--	--	14.0	13.0	--	--	22.0	21.0	19.0	18.0	--	--
AVG	--	--	--	--	--	--	--	--	19.8	19.1	18.1	17.5

13335300 SNAKE RIVER ABOVE CLEARWATER RIVER, AT CLARKSTON, WASH.

LOCATION.--Lat 46°25'15", long 117°02'05", in NE¼NE¼ sec.21, T.11 N., R.45 E., Asotin County, at bridge on U.S. Highway 410 at Clarkston, 0.3 mile upstream from Clearwater River, 4.1 miles downstream from Tammany Creek, and at mile 139.6.

DRAINAGE AREA.--93,400 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: October 1961 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
NOV.												
12...	20	31	12	32	4.0	158	0	48	13	.5	2.2	--
FEB.												
24...	26	38	13	29	3.8	174	0	42	15	.4	3.0	110
APR.												
11...	23	22	7.3	13	2.7	102	0	19	8.4	.3	1.7	--
AUG.												
10...	16	23	8.0	21	3.0	116	0	31	7.4	.2	.8	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (MPN)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.												
12...	250	128	0	390	7.9	5	10	11.1	150	--	--	--
FEB.												
24...	266	149	6	414	8.1	5	4	13.4	91	0	0	0
APR.												
11...	160	85	2	233	7.8	20	11	10.9	70	--	--	--
AUG.												
10...	170	91	0	281	8.0	0	22	7.6	40	0	0	0

13336100 MEADOW CREEK NEAR LOWELL, IDAHO

LOCATION.--Lat 46°01'51", long 115°17'23", in NE¼ sec.14, T.31 N., R.9 E. (unsurveyed), Idaho County, temperature recorder at gaging station on right bank, 16.5 miles southeast of Lowell and at mile 1.1.

DRAINAGE AREA.--241 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1964 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C Aug. 23, 24.

Period of record:
Water temperatures: Maximum, 20.5°C Aug. 1, 2, 1965, and sometime during period July 17 to Aug. 29, 1966; minimum (1964-68), freezing point on many days during winter periods.

REMARKS.--No record Oct. 1-5, Dec. 13 to Feb. 15.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	--	--	--	--	--	8	8	7	6	7	7	7	7	7	7	6	5	4	4	5	6	6	7	7	6	7	6	5	6	7	7	6
MINIMUM	--	--	--	--	--	7	7	6	4	6	7	6	6	6	6	5	4	4	4	4	4	5	6	6	6	6	4	4	4	6	6	5
NOVEMBER																																
MAXIMUM	6	4	6	6	6	4	3	3	4	4	4	5	4	3	2	2	2	3	4	4	4	4	4	4	3	3	4	4	3	3	--	4
MINIMUM	4	3	4	6	4	3	3	3	3	3	4	4	3	2	2	2	1	2	3	3	3	4	4	3	3	3	3	3	2	2	--	3
DECEMBER																																
MAXIMUM	3	2	2	2	2	2	2	2	2	3	3	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	2	1	1	2	2	2	1	2	2	2	3	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JANUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	2	2	2	2	2	2	2	3	3	3	2	2	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	2	1	1	1	1	1	2	2	2	2	1	1	--	--	--	--
MARCH																																
MAXIMUM	3	3	3	3	3	3	3	2	1	1	2	2	2	3	3	3	4	4	4	4	4	4	4	4	4	5	5	6	6	6	5	4
MINIMUM	2	2	2	3	3	2	2	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3	3	2	2	3	3	3	3	4	4	2
APRIL																																
MAXIMUM	6	7	7	7	7	6	6	7	7	7	7	7	7	7	7	8	7	7	6	7	8	8	7	7	6	6	7	8	7	6	--	7
MINIMUM	4	4	5	4	5	5	4	4	4	6	6	4	6	4	6	5	6	6	5	5	5	6	6	6	4	4	4	5	4	4	--	5
MAY																																
MAXIMUM	7	6	7	8	9	9	9	9	9	9	9	8	8	8	9	9	9	8	7	10	11	11	11	11	11	11	10	10	11	10	10	9
MINIMUM	4	5	4	5	6	6	6	6	6	6	6	6	6	6	7	6	7	6	7	7	6	6	7	8	7	8	8	6	7	8	7	6
JUNE																																
MAXIMUM	11	12	13	14	13	13	14	14	14	13	13	13	13	13	14	14	15	16	16	14	14	14	13	12	11	10	11	10	11	12	--	13
MINIMUM	7	8	9	9	10	10	11	11	11	11	10	11	10	10	11	11	11	12	13	13	12	13	12	11	10	9	9	9	9	9	--	10
JULY																																
MAXIMUM	14	15	14	13	14	13	14	15	18	17	18	17	16	16	16	15	16	16	17	17	17	17	17	17	17	17	17	18	18	17	17	16
MINIMUM	11	12	13	11	11	12	12	12	12	14	14	16	13	13	13	13	13	14	14	15	15	15	15	16	17	14	14	16	16	15	16	14
AUGUST																																
MAXIMUM	17	17	17	17	17	16	15	16	16	16	17	16	16	16	17	17	16	16	16	17	18	18	19	19	18	17	16	16	14	14	14	16
MINIMUM	16	16	16	16	16	13	13	14	14	15	16	15	14	15	16	16	13	14	14	14	15	16	17	17	17	14	14	14	13	12	12	15
SEPTEMBER																																
MAXIMUM	15	16	14	12	12	12	13	13	15	16	16	16	16	14	12	12	12	12	12	12	11	11	11	11	11	11	12	13	12	12	--	13
MINIMUM	13	13	12	11	10	10	11	12	13	14	14	14	14	12	10	10	11	12	12	11	11	10	11	11	11	11	11	11	12	11	--	12

13341000 NORTH FORK CLEARWATER RIVER AT AHSAHKA, IDAHO

LOCATION.--Lat 46°31'00", long 116°37'35", in SW¼SE¼ sec.26, T.37 N., R.1 E., Clearwater County, temperature recorder on right bank at cableway at Ahsahka, at mile 0.4.

DRAINAGE AREA.--2,440 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: August 1959 to August 1960.
Water temperatures: October 1957 to September 1969.
Sediment records: January 1966 to June 1968.

EXTREMES.--1968-69:
Water temperatures: Maximum, 23.0°C Aug. 15; minimum, freezing point on several days during December.

Period of record:
Water temperatures: Maximum, 29.0°C Aug. 11-13, 1963; minimum, freezing point on many days during winter periods.

REMARKS.--No record Aug. 16 to Sept. 27.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	13	12	12	11	11	11	10	9	9	9	8	8	8	8	7	7	6	6	7	7	7	8	8	8	8	7	6	6	6	6	8
MINIMUM	13	12	11	11	11	11	10	9	9	9	8	8	8	8	7	7	6	6	6	6	7	7	7	8	8	7	6	6	5	5	6	8
NOVEMBER																																
MAXIMUM	6	6	5	6	6	6	5	4	4	4	4	5	5	5	4	3	2	2	2	3	4	4	4	4	4	4	3	3	3	3	--	4
MINIMUM	6	5	5	5	6	5	4	4	4	4	4	4	5	4	3	2	2	2	2	2	3	4	4	4	4	3	3	3	3	2	--	4
DECEMBER																																
MAXIMUM	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	1	2	2	1	1	0	0	0	0	0	0	0	1	1	1	1	1
MINIMUM	2	2	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1
JANUARY																																
MAXIMUM	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
MINIMUM	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1
FEBRUARY																																
MAXIMUM	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	2	3	3	3	4	4	4	4	--	--	--	2
MINIMUM	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	2	2	2	2	3	3	3	3	3	--	--	--	2
MARCH																																
MAXIMUM	4	4	4	5	4	3	4	4	3	3	3	3	3	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	6	6	6	5
MINIMUM	3	3	3	4	3	3	3	3	2	2	2	2	2	2	3	3	4	4	4	4	4	4	4	4	4	5	5	5	5	5	6	4
APRIL																																
MAXIMUM	6	6	6	6	7	7	6	7	7	7	6	7	7	7	7	8	8	7	7	7	8	9	9	8	7	7	8	8	8	7	--	7
MINIMUM	5	6	6	6	6	6	6	6	6	6	6	6	7	6	7	7	7	7	7	6	7	8	8	7	6	6	7	8	7	6	--	7
MAY																																
MAXIMUM	7	7	8	9	9	10	10	10	10	10	10	9	9	9	9	9	10	10	10	9	9	10	11	11	11	11	11	10	10	10	10	10
MINIMUM	7	7	7	8	9	9	9	9	9	9	9	9	8	8	9	9	9	9	9	9	8	9	10	10	10	11	10	9	9	9	9	9
JUNE																																
MAXIMUM	11	12	13	13	13	13	13	14	15	15	14	14	14	13	14	15	16	16	17	18	17	16	15	14	13	12	12	12	13	13	--	14
MINIMUM	9	11	11	12	12	12	12	13	14	14	13	13	13	13	13	14	15	16	16	17	16	15	14	13	12	11	11	12	12	12	--	13
JULY																																
MAXIMUM	15	17	17	16	16	16	17	18	19	21	19	19	19	19	19	20	20	21	21	22	22	22	22	22	22	22	21	22	21	21	22	20
MINIMUM	13	15	16	16	14	14	14	16	16	17	18	18	17	17	16	17	17	18	18	19	19	19	20	21	21	19	19	19	19	19	20	17
AUGUST																																
MAXIMUM	22	21	22	21	20	20	19	21	21	21	22	21	22	22	23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	20	20	20	20	19	18	18	18	18	19	20	20	19	19	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEPTEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	16	16	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	13	14	--	--

13341050 CLEARWATER RIVER NEAR PECK, IDAHO

LOCATION.--Lat 46°30'00", long 116°23'30", in NE¼ sec.1, T.36 N., R.1 W., Nez Perce County, temperature recorder at gaging station on left bank, 2 miles upstream from Big Canyon Creek, 2.2 miles northeast of Peck, 3 miles downstream from North Fork Clearwater River, and at mile 37.4.

DRAINAGE AREA.--8,040 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: October 1964 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 23.0°C on several days during July and August; minimum, 1.0°C on many days during December to February.

Period of record:
Water temperatures: Maximum, 25.0°C July 28, 1968; minimum, freezing point on many days during January and February 1966.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	13	12	12	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	13	12	12	11	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NOVEMBER																																
MAXIMUM	--	--	7	7	7	7	6	6	6	6	6	6	6	6	5	4	4	4	4	4	4	5	5	5	5	4	4	4	4	4	--	5
MINIMUM	--	--	7	7	7	6	6	6	6	6	6	6	6	5	4	4	4	4	4	4	4	4	5	5	4	4	4	4	4	3	--	5
DECEMBER																																
MAXIMUM	3	3	3	3	3	3	3	2	2	3	3	3	3	3	2	2	2	2	2	2	1	1	1	1	1	2	2	1	1	1	1	2
MINIMUM	3	3	3	3	3	3	2	2	2	2	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2
JANUARY																																
MAXIMUM	1	1	1	1	1	1	2	2	2	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MINIMUM	1	1	1	1	1	1	1	2	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
FEBRUARY																																
MAXIMUM	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	--	--	--	2
MINIMUM	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	--	--	--	2
MARCH																																
MAXIMUM	4	4	4	4	4	4	4	4	4	3	3	4	4	4	4	4	5	6	6	6	6	5	5	6	6	6	6	6	6	6	6	5
MINIMUM	4	4	4	4	4	4	4	4	3	2	2	2	3	3	4	4	4	5	5	5	5	5	5	5	5	5	6	6	6	6	6	4
APRIL																																
MAXIMUM	6	7	7	7	7	7	7	7	8	8	7	7	7	7	7	7	7	7	7	7	8	9	9	8	7	7	8	8	8	8	--	7
MINIMUM	6	6	7	6	7	7	7	6	7	7	7	7	7	6	7	7	7	7	7	6	7	8	8	7	7	7	7	8	8	7	--	7
MAY																																
MAXIMUM	7	8	8	9	9	10	10	10	10	9	9	9	9	9	10	10	11	11	10	10	10	11	11	11	11	11	11	11	11	11	11	10
MINIMUM	7	7	7	8	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	9	9	9	10	11	11	11	11	9	10	11	10	9
JUNE																																
MAXIMUM	11	12	13	14	14	13	14	15	16	16	15	14	14	14	14	16	16	16	18	18	18	17	17	16	14	14	13	13	14	14	--	15
MINIMUM	10	11	12	13	13	12	13	13	14	14	14	14	14	13	14	14	16	16	17	18	17	17	16	14	14	13	13	13	13	14	--	14
JULY																																
MAXIMUM	16	17	17	17	17	17	17	18	19	20	20	20	20	20	19	20	20	21	22	22	22	23	23	23	23	23	22	23	23	23	23	20
MINIMUM	14	16	17	17	16	16	16	17	17	19	19	19	19	19	18	18	19	19	20	21	21	21	21	22	22	21	21	21	21	21	21	19
AUGUST																																
MAXIMUM	23	22	23	22	21	21	21	22	22	22	22	22	22	22	23	23	22	22	21	22	22	23	23	23	22	22	21	20	19	19	18	22
MINIMUM	21	21	21	21	20	19	19	19	19	20	21	21	19	20	21	21	19	19	19	19	20	20	21	22	20	19	19	18	17	17	17	20
SEPTEMBER																																
MAXIMUM	19	19	18	17	17	16	17	17	18	18	19	19	19	18	17	16	16	16	17	16	16	16	15	15	15	15	16	16	16	16	--	17
MINIMUM	17	17	17	16	16	14	14	16	17	16	17	18	18	17	14	14	14	16	16	16	16	14	15	15	14	14	14	16	16	16	--	16

13342500 CLEARWATER RIVER AT SPALDING, IDAHO

LOCATION.--Lat 46°26'55", long 116°49'35", in Indian allotment 198, NE¼SW¼ sec.22, T.36 N., R.4 W., Nez Perce County, temperature recorder at gaging station on left bank, 0.4 mile downstream from Lapwai Creek, 0.5 mile west of Spalding Post Office, 3,100 ft downstream from bridge on U.S. Highway 12, and at mile 11.6.

DRAINAGE AREA.--9,570 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: August 1959 to August 1960 (monthly), October 1967 to September 1968 (miscellaneous).
Water temperatures: October 1959 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 24.0°C July 21, Aug. 15; minimum, 1.0°C on many days during December to February.

Period of record:
Water temperatures: Maximum, 28.0°C Aug. 13, 1963; minimum, freezing point on many days during winter periods of most years.

REMARKS.--No record May 11-18, June 6 to July 15, July 22 to Aug. 12.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	DAY																														
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	12	12	11	12	11	11	11	11	10	11	11	10	10	9	9	9	8	8	8	8	8	9	9	11	11	10	10	9	9	8	8	10
MINIMUM	12	11	11	11	10	11	10	9	9	10	10	10	9	9	9	8	8	8	8	8	8	8	9	9	10	10	9	8	8	8	8	9
NOVEMBER																																
MAXIMUM	8	8	8	8	7	7	7	7	7	6	6	6	6	6	6	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	5
MINIMUM	8	8	8	7	7	7	7	7	6	6	6	6	6	6	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	5
DECEMBER																																
MAXIMUM	4	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2
MINIMUM	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2
JANUARY																																
MAXIMUM	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2
MINIMUM	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1
FEBRUARY																																
MAXIMUM	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	--	--	--	2
MINIMUM	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	--	--	--	2
MARCH																																
MAXIMUM	4	4	4	5	5	4	5	5	4	4	4	4	4	4	5	5	6	6	6	6	6	6	5	6	7	7	6	6	6	7	6	5
MINIMUM	3	3	3	4	4	4	3	3	3	3	3	3	3	3	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	6	4
APRIL																																
MAXIMUM	6	6	6	6	6	6	6	7	7	7	7	7	8	7	7	8	8	8	8	7	8	9	9	9	8	8	8	8	8	8	--	7
MINIMUM	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	8	8	7	7	7	8	9	8	7	7	8	8	8	8	--	7
MAY																																
MAXIMUM	8	8	9	9	11	11	11	11	11	11	--	--	--	--	--	--	--	--	10	9	9	11	11	11	11	11	11	11	11	11	11	--
MINIMUM	8	8	8	9	9	11	11	11	11	11	--	--	--	--	--	--	--	--	9	7	7	9	11	11	11	11	11	11	11	11	11	--
JUNE																																
MAXIMUM	11	12	12	13	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	11	11	12	12	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JULY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	22	22	22	23	23	24	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	20	20	21	21	22	22	--	--	--	--	--	--	--	--	--	--	--
AUGUST																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	23	23	24	23	23	22	22	23	23	23	23	23	23	22	22	21	20	20	19	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	20	21	22	21	20	20	20	20	21	21	22	22	21	20	20	19	18	18	18	--
SEPTEMBER																																
MAXIMUM	20	20	19	18	18	18	18	18	18	18	19	21	19	18	18	16	16	16	17	17	16	16	15	16	14	14	15	16	16	16	--	17
MINIMUM	18	19	18	17	16	16	16	17	17	17	18	18	17	16	16	15	15	16	16	16	15	14	14	14	13	13	13	14	14	14	--	16

13343500 SNAKE RIVER NEAR CLARKSTON, WASH.
(International Hydrological Decade River Station)

LOCATION.--Lat 46°25'30", long 117°10'30", in SE¼SE¼ sec.21, T.11 N., R.45 E., Asotin County, at gaging station 2 miles upstream from Alpowa Creek, 7 miles downstream from Clarkston, and at mile 132.9.

DRAINAGE AREA.--103,200 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: November 1951 to October 1955 (daily), October 1966 to September 1969 (monthly).
Water temperatures: December 1959 to September 1968.

REMARKS.--Data presented below represents a composite of four samples taken at cableway cross section.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
OCT.										
17...	33700	17	19	7.3	19	2.5	98	0	25	8.6
NOV.										
05...	33800	19	22	8.5	21	2.7	112	0	30	8.1
JAN.										
09...	80100	20	16	5.8	13	2.2	76	0	19	5.5
APR.										
16...	114000	20	15	4.8	10	2.0	73	0	13	4.6
MAY										
28...	146000	8.7	4.4	1.0	2.4	.4	22	0	3.5	.8
JULY										
23...	25300	13	14	3.9	10	1.7	68	0	14	3.7
SEPT.										
03...	20600	18	24	9.5	27	3.7	127	0	36	11

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
OCT.										
17...	.3	.7	.14	152	78	0	240	7.7	10	1
NOV.										
05...	.3	1.7	.17	174	90	0	273	7.8	10	6
JAN.										
09...	.1	2.9	.14	128	64	2	184	7.6	20	2
APR.										
16...	.1	1.6	.00	121	57	0	166	7.2	5	9
MAY										
28...	.1	.1	.04	32	15	0	44	7.5	5	12
JULY										
23...	.1	.2	.13	97	51	0	151	7.6	5	14
SEPT.										
03...	.4	.9	.11	195	99	0	322	7.8	0	16

13343680 DEADMAN CREEK NEAR CENTRAL FERRY, WASH.

LOCATION.--Lat 46°37'14", long 117°45'35", in NE¼NW¼ sec.14, T.13 N., R.40 E., Garfield County, 0.4 mile southwest of Central Ferry, 1.4 miles upstream from Meadow Creek, 2.5 miles upstream from mouth, and 13 miles northwest of Pomeroy.

DRAINAGE AREA.--135 sq mi.

PERIOD OF RECORD.--Sediment records: October 1963 to September 1969 (partial records).

REMARKS.--Discharge weighted mean concentration for year, 4,300 mg/l (estimated).
Sediment yield, 440 tons/sq mi.
Maximum daily load, 22,000 tons (partly estimated) Jan. 7; minimum daily load, less than 0.50 ton for many days.
Maximum daily concentration, not determined.
Maximum observed concentration, 32,700 mg/l Jan. 7; minimum observed concentration, 6 mg/l Sept. 10.
Estimated runoff, 10,000 acre-ft.

MONTHLY AND ANNUAL SUMMARY OF SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	MEAN DISCHARGE (CFS)		SUSPENDED-SEDIMENT (TONS)
OCTOBER 1968	-	E	9
NOVEMBER	-	E	21
DECEMBER	-	E	56
JANUARY 1969	-	A	22,000
FEBRUARY	-	A	33,000
MARCH	-	E	3,900
APRIL	-	E	74
MAY	-	E	36
JUNE	-	E	19
JULY	-	E	1
AUGUST	-	E	1
SEPTEMBER	-	E	1
TOTAL FOR YEAR	-	A	59,000

E ESTIMATED.
A PARTLY ESTIMATED.

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
OCT 23, 1968	1605	13	2.0	68	.37	--	--	--	--	--	--	--	--	--	--	--	
DEC 5.....	1150	4	5.9	792	13	--	--	--	--	--	--	--	--	--	--	--	
JAN 6, 1969	0720	1	65	1470	258	--	--	--	--	--	--	--	--	--	--	--	
JAN 6.....	1015	1	78	1880	396	32	44	55	79	95	--	--	--	--	--	--	PWC
JAN 6.....	1220	0	80	4590	991	--	--	--	--	--	--	--	--	--	--	--	
JAN 6.....	1330	0	70	2120	401	--	--	--	--	--	--	--	--	--	--	--	
JAN 6.....	2250	2	90	1300	316	--	--	--	--	--	--	--	--	--	--	--	
JAN 7.....	1100	2	473	32700	41800	11	19	30	48	56	98	100	--	--	--	--	VPWC
JAN 7.....	1305	2	240	17500	11300	--	--	--	--	--	--	--	--	--	--	--	
JAN 7.....	1430	1	139	12300	4620	--	--	--	--	--	--	--	--	--	--	--	
JAN 8.....	1540	0	112	298	90	--	--	--	--	--	--	--	--	--	--	--	
FEB 4.....	1750	0	--	37	--	--	--	--	--	--	--	--	--	--	--	--	
FEB 11.....	1505	6	420	21800	24700	14	28	35	56	81	97	100	--	--	--	--	VPWC
FEB 12.....	1020	4	55	1980	294	--	--	--	--	--	--	--	--	--	--	--	
FEB 12.....	1430	5	107	13900	4020	--	--	--	--	--	--	--	--	--	--	--	
FEB 13.....	0835	2	37	797	80	--	--	--	--	--	--	--	--	--	--	--	
MAR 5.....	1145	4	29	1340	105	--	--	--	--	--	--	--	--	--	--	--	
MAR 5.....	1525	5	40	5140	555	--	--	--	--	--	--	--	--	--	--	--	
MAR 5.....	1900	5	48	8060	1040	22	34	51	78	99	--	--	--	--	--	--	PWC
MAR 6.....	0830	4	34	1440	132	--	--	--	--	--	--	--	--	--	--	--	
MAR 12.....	1600	9	19	396	20	--	--	--	--	--	--	--	--	--	--	--	
MAR 19.....	1355	12	33	1180	105	--	--	--	--	--	--	--	--	--	--	--	
MAR 19.....	1935	10	31	792	66	--	--	--	--	--	--	--	--	--	--	--	
MAR 20.....	0030	6	64	--	--	14	16	26	52	77	98	100	--	--	--	--	VPWC
MAR 20.....	0830	8	33	2250	200	--	--	--	--	--	--	--	--	--	--	--	
APR 2.....	1550	16	18	167	8.1	--	--	--	--	--	--	--	--	--	--	--	
APR 7.....	1600	15	16	148	6.4	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1530	13	17	88	4.0	--	--	--	--	--	--	--	--	--	--	--	
MAY 7.....	1615	26	12	74	2.4	--	--	--	--	--	--	--	--	--	--	--	
JUN 12.....	1740	27	4.2	184	2.1	--	--	--	--	--	--	--	--	--	--	--	
JUN 23.....	1520	19	3.5	18	.17	--	--	--	--	--	--	--	--	--	--	--	
JUL 29.....	1655	29	.77	10	.02	--	--	--	--	--	--	--	--	--	--	--	
SEP 10.....	1615	26	1.5	6	.02	--	--	--	--	--	--	--	--	--	--	--	

13343800 MEADOW CREEK NEAR CENTRAL FERRY, WASH.

LOCATION.--Lat 46°35'51", long 117°46'54", in SE¼NW¼ sec.22, T.13 N., R.40 E., Garfield County, on right bank 5 ft downstream from county bridge, 1.3 miles upstream from mouth, 1.8 miles southeast of Central Ferry, and 5.4 miles north of Dodge.

DRAINAGE AREA.--66.2 sq mi.

PERIOD OF RECORD.--Sediment records: October 1963 to September 1969.

REMARKS.--Discharge weighted mean concentration for year, 912 mg/l.
Sediment yield, 482 tons/sq mi.
Maximum daily load, 12,000 tons Jan. 7; minimum daily load, less than 0.50 ton on many days.
Maximum daily concentration, not determined.
Maximum observed concentration, 69,700 mg/l Jan. 7; minimum observed concentration, 2 mg/l Sept. 10.
Runoff, 2,570 acre-ft.

MONTHLY AND ANNUAL SUMMARY OF SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	MEAN DISCHARGE (CFS)		SUSPENDED SEDIMENT (TONS)
OCTOBER 1968	29.72	E	1
NOVEMBER	31.22	E	1
DECEMBER	33.40	E	1
JANUARY 1969	205.42	A	13,000
FEBRUARY	224.6	A	4,900
MARCH	272.4	A	2,000
APRIL	173.9	E	12
MAY	111.8	E	6
JUNE	97.4	E	12,000
JULY	32.54	E	1
AUGUST	48.52	E	1
SEPTEMBER	33.07	T	---
TOTAL FOR YEAR	1,293.99	A	32,000

E ESTIMATED.
A PARTLY ESTIMATED.
T LESS THAN 0.50 TON.

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
OCT 23, 1968	1720	12	1.0	13	.04	--	--	--	--	--	--	--	--	--	--	--	
DEC 5.....	1050	4	1.3	16	.06	--	--	--	--	--	--	--	--	--	--	--	
JAN 5, 1969	1605	0	.68	10	.02	--	--	--	--	--	--	--	--	--	--	--	
JAN 5.....	2340	1	.68	24	.04	--	--	--	--	--	--	--	--	--	--	--	
JAN 6.....	0330	2	63	1070	182	--	--	--	--	--	--	--	--	--	--	--	
JAN 6.....	0700	2	58	2140	335	--	--	--	--	--	--	--	--	--	--	--	
JAN 6.....	1000	2	49	1540	204	--	--	--	--	--	--	--	--	--	--	--	
JAN 6.....	1150	0	40	1700	184	57	64	86	88	96	--	--	--	--	--	--	PWC
JAN 6.....	1400	1	33	1280	114	--	--	--	--	--	--	--	--	--	--	--	
JAN 6.....	2325	2	17	701	32	--	--	--	--	--	--	--	--	--	--	--	
JAN 7.....	1030	2	310	69700	58300	13	21	32	50	68	96	100	--	--	--	--	VPWC
JAN 7.....	1240	2	132	31900	11400	--	--	--	--	--	--	--	--	--	--	--	
JAN 7.....	1440	1	60	15200	2460	--	--	--	--	--	--	--	--	--	--	--	
JAN 8.....	1600	1	5.0	364	4.9	--	--	--	--	--	--	--	--	--	--	--	
JAN 13.....	1715	--	6.2	56	.94	--	--	--	--	--	--	--	--	--	--	--	
FEB 4.....	1740	3	2.6	30	.21	--	--	--	--	--	--	--	--	--	--	--	
FEB 11.....	1300	6	32	5580	482	--	--	--	--	--	--	--	--	--	--	--	
FEB 11.....	1655	5	63	27200	4630	13	21	36	60	89	99	100	--	--	--	--	VPWC
FEB 12.....	1050	4	26	3300	232	--	--	--	--	--	--	--	--	--	--	--	
FEB 12.....	1455	6	66	16000	2850	--	--	--	--	--	--	--	--	--	--	--	
FEB 13.....	0935	3	8.0	1080	23	--	--	--	--	--	--	--	--	--	--	--	
MAR 5.....	1130	5	8.8	1680	40	--	--	--	--	--	--	--	--	--	--	--	
MAR 5.....	1540	5	13	1720	60	--	--	--	--	--	--	--	--	--	--	--	
MAR 5.....	1840	6	66	14400	2570	16	30	53	75	83	--	--	--	--	--	--	PWC
MAR 5.....	2000	4	51	22100	3040	--	--	--	--	--	--	--	--	--	--	--	
MAR 6.....	0815	2	11	6500	193	--	--	--	--	--	--	--	--	--	--	--	
MAR 12.....	1610	10	5.3	166	2.4	--	--	--	--	--	--	--	--	--	--	--	
MAR 19.....	1335	13	9.3	1440	36	--	--	--	--	--	--	--	--	--	--	--	
MAR 19.....	1920	12	8.0	718	16	--	--	--	--	--	--	--	--	--	--	--	
MAR 20.....	0020	7	9.8	580	15	--	--	--	--	--	--	--	--	--	--	--	
MAR 20.....	0910	6	8.4	432	9.8	--	--	--	--	--	--	--	--	--	--	--	
APR 2.....	1615	16	6.5	41	.72	--	--	--	--	--	--	--	--	--	--	--	
APR 7.....	1620	17	6.5	21	.37	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1550	14	5.9	18	.29	--	--	--	--	--	--	--	--	--	--	--	
MAY 7.....	1825	25	3.6	21	.20	--	--	--	--	--	--	--	--	--	--	--	
JUN 12.....	1750	24	1.5	44	.18	--	--	--	--	--	--	--	--	--	--	--	
JUN 23.....	1510	19	2.2	12	.07	--	--	--	--	--	--	--	--	--	--	--	
JUL 29.....	1705	27	1.5	12	.05	--	--	--	--	--	--	--	--	--	--	--	
SEP 10.....	1740	22	.92	2	0	--	--	--	--	--	--	--	--	--	--	--	

13344500 TUCANNON RIVER NEAR STARBUCK, WASH.

LOCATION.--Lat 46°30'17", long 118°03'55", in NE¼SW¼ sec.21, T.12 N., R.38 E., Columbia County, at county road bridge 180 ft upstream from gaging station, 0.5 mile downstream from Smith Hollow, 3 miles east of Starbuck, 3.3 miles downstream from Pataha Creek, and at mile 7.9.

DRAINAGE AREA.--431 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1962 to September 1969.
Sediment records: October 1962 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 30.0°C Aug. 22; minimum, freezing point Dec. 20.
Sediment concentrations: Maximum daily, 18,800 mg/l Jan. 7; minimum daily, 4 mg/l Nov. 1-6.
Sediment loads: Maximum daily, 156,000 tons Jan. 7; minimum daily, 0.86 ton Nov. 6.

Period of record:
Water temperatures: Maximum (1962-65, 1967-69), 30.0°C Aug. 22, 1969; minimum, freezing point Dec. 11, 12, 1963, Dec. 20, 1969.
Sediment concentrations: Maximum daily, 106,000 mg/l Dec. 22, 1964; minimum daily, 4 mg/l several days in October 1965, September and November 1968.
Sediment loads: Maximum daily, 1,600,000 tons Dec. 22, 1964; minimum daily, less than 1 ton on many days in 1966, 1967, 1968, and 1969.

REMARKS.--Maximum observed during water year: Sediment concentration, 28,800 mg/l Jan. 7.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.5	--	9.0	--	1.5	5.5	7.5	6.5	21.0	--	26.5	24.0
2	--	7.0	6.0	--	1.5	7.0	4.5	6.5	22.5	21.0	--	--
3	16.5	10.0	7.0	--	2.0	5.5	7.0	9.0	--	--	25.5	21.0
4	16.0	9.5	5.5	2.0	1.5	5.5	7.0	13.5	19.5	--	--	--
5	11.5	7.0	--	2.0	4.5	6.5	9.0	18.5	24.0	--	--	22.0
6	--	--	4.5	2.0	1.5	4.5	7.0	11.0	--	21.0	19.5	--
7	12.0	7.0	4.0	5.0	2.0	5.0	12.5	21.0	20.0	--	18.5	--
8	12.0	--	5.0	3.5	4.0	5.0	7.0	14.5	24.0	--	--	22.5
9	12.0	11.0	5.5	5.0	4.5	6.0	9.5	--	24.5	26.0	--	--
10	--	--	9.5	4.0	6.0	2.5	8.5	20.5	21.0	--	--	--
11	12.0	8.5	6.5	4.5	6.5	3.5	15.0	16.5	21.0	--	--	22.0
12	11.0	7.0	4.0	4.0	5.0	3.5	9.5	12.5	19.5	21.0	--	--
13	14.0	7.0	2.0	3.5	4.5	4.5	10.5	12.0	21.5	--	--	--
14	11.0	7.0	5.0	4.0	3.5	5.0	7.0	11.0	18.5	--	--	--
15	11.5	5.0	4.5	1.5	4.5	6.0	12.5	16.5	20.0	24.0	--	20.5
16	12.5	6.0	4.5	2.5	4.5	8.5	15.0	11.0	20.0	--	--	--
17	12.0	6.5	2.5	4.5	4.0	8.5	10.5	17.5	26.0	--	27.5	20.5
18	11.5	7.0	4.5	4.0	4.5	6.5	8.5	15.5	26.0	26.0	--	--
19	--	--	3.5	--	4.0	9.0	12.0	14.0	--	--	22.5	--
20	11.0	10.0	0.0	2.0	4.0	6.0	14.0	11.0	20.0	--	25.5	--
21	--	7.0	1.5	0.5	4.0	4.5	11.0	11.5	--	26.5	26.0	--
22	13.5	--	2.0	0.5	6.0	6.5	12.5	12.5	--	--	30.0	19.0
23	--	7.0	4.0	--	4.5	9.0	11.5	21.0	16.0	--	27.5	--
24	8.5	5.5	5.0	--	2.5	5.0	7.5	18.5	18.5	--	--	--
25	14.0	7.0	4.5	--	4.0	5.0	7.5	--	18.5	--	15.5	20.0
26	8.5	7.0	3.5	--	4.5	6.0	10.0	15.0	--	24.0	--	--
27	--	8.5	4.0	--	7.5	8.5	--	16.5	18.5	--	18.5	17.0
28	6.0	4.0	0.5	--	5.0	8.5	10.5	15.5	16.5	--	19.0	--
29	--	--	1.5	--	--	7.5	9.5	15.0	19.5	26.5	--	17.0
30	--	4.5	--	--	--	11.0	7.5	14.5	24.0	--	18.5	--
31	--	--	--	0.5	--	9.5	--	--	--	25.0	--	--
AVG	--	7.0	4.0	--	4.0	6.0	9.5	14.0	21.0	--	--	--

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
JAN 5, 1969	1440	1	1800	25300	123000	6	11	18	29	49	69	74	79	83	89	95	SVPWC
JAN 5.....	1855	2	1700	14700	67500	10	14	24	39	63	91	96	98	100	--	--	VPWC
JAN 6.....	1500	4	2870	16800	130000	11	15	26	40	67	94	97	99	100	--	--	VPWC
JAN 7.....	0935	4	3810	28800	296000	11	15	25	39	62	90	97	99	100	--	--	VPWC
JAN 7.....	1420	2	3170	16900	145000	11	15	22	37	58	89	95	98	100	--	--	VPWC
JAN 8.....	1510	4	2600	8210	57600	8	12	20	31	54	88	96	99	100	--	--	VPWC
MAR 20.....	0950	6	368	1240	1230	14	22	35	39	64	--	--	--	--	--	--	PWC
APR 2.....	1920	11	606	1540	2520	9	11	20	29	51	89	97	99	100	--	--	VPWC

13344500 TUCANNON RIVER NEAR STARBUCK, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	68	40	7.3	87	4	.94	140	29	11
2	68	28	5.1	87	4	.94	135	14	5.1
3	74	9	1.8	87	4	.94	130	13	4.6
4	72	9	1.7	85	4	.92	161	105	46
5	70	9	1.7	83	4	.90	170	51	23
6	72	9	1.7	80	4	.86	161	30	13
7	70	9	1.7	80	14	3.0	164	24	11
8	70	9	1.7	87	18	4.2	164	22	9.7
9	70	9	1.7	135	49	18	164	21	9.3
10	74	9	1.8	143	25	9.7	167	20	9.0
11	76	9	1.8	132	11	3.9	224	145	88
12	105	23	6.5	146	11	4.3	224	60	36
13	102	9	2.5	146	11	4.3	212	44	25
14	91	6	1.5	140	11	4.2	203	32	18
15	93	10	2.5	137	11	4.1	197	29	15
16	105	42	12	132	11	3.9	194	64	34
17	93	12	3.0	124	11	3.7	173	38	18
18	93	12	3.0	124	11	3.7	182	38	19
19	91	12	2.9	124	11	3.7	167	35	16
20	96	12	3.1	122	11	3.6	146	24	9.5
21	109	12	3.5	124	11	3.7	132	22	7.8
22	100	5	1.4	185	76	38	130	22	7.7
23	98	5	1.3	221	67	40	132	42	15
24	96	5	1.3	212	30	17	135	43	16
25	98	5	1.3	203	24	13	135	62	23
26	96	5	1.3	185	23	11	130	24	8.4
27	93	5	1.3	167	16	7.2	137	32	12
28	89	5	1.2	158	14	6.0	120	21	6.8
29	87	5	1.2	149	14	5.6	90	24	5.8
30	91	5	1.2	146	16	6.3	75	20	4.1
31	93	5	1.3	--	--	--	75	20	4.1
TOTAL	2703	--	81.3	4031	--	227.60	4769	--	530.9

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	80	20	4.3	170	146	67	236	135	86
2	90	20	4.9	170	151	69	236	167	106
3	100	30	8.1	178	312	150	239	260	168
4	120	50	16	168	267	121	245	288	191
5	1080	9330	38000	162	233	102	267	820	591
6	2770	16600	124000	158	123	52	264	2200	1570
7	2930	18800	156000	155	132	55	236	290	185
8	1470	10900	47100	170	601	338	224	152	92
9	989	4770	12700	231	6820	4430	213	136	78
10	739	3270	6520	180	1640	797	202	144	79
11	628	2220	3760	225	3900	2620	199	150	81
12	475	870	1120	312	3640	3150	196	136	72
13	465	750	942	348	1470	1380	188	137	70
14	460	660	820	352	1210	1150	191	202	104
15	422	378	431	340	570	523	199	360	193
16	404	408	445	325	1140	1000	230	3000	1860
17	360	206	200	318	3640	3130	261	2910	2190
18	320	180	156	315	669	569	380	6930	7520
19	296	149	119	307	270	224	376	2800	2840
20	273	146	108	297	188	151	368	1550	1540
21	240	105	68	290	158	124	368	1420	1410
22	200	84	45	280	109	82	384	1580	1640
23	160	80	35	277	112	84	412	1600	1780
24	140	80	30	264	149	106	368	740	735
25	160	80	35	261	112	79	368	720	715
26	180	80	39	252	84	57	376	1000	1020
27	160	80	35	239	98	63	428	1720	1990
28	160	80	35	236	134	85	470	2780	3530
29	160	80	35	--	--	--	524	2790	3950
30	160	80	35	--	--	--	561	2180	3300
31	170	180	83	--	--	--	681	4710	8660
TOTAL	16361	--	392929.3	6980	--	20758	9890	--	48346

13344500 TUCANNON RIVER NEAR STARBUCK, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	723	4600	8980	416	210	236	340	130	119
2	641	2750	4760	396	173	185	314	98	83
3	576	1500	2330	348	126	118	297	77	62
4	514	1250	1730	352	110	105	290	70	55
5	501	760	1030	336	111	101	284	69	53
6	586	1510	2390	332	110	99	274	62	46
7	537	970	1410	344	142	132	270	100	73
8	460	610	758	404	257	280	248	97	65
9	408	460	507	478	690	891	236	67	43
10	424	469	537	542	1200	1760	.230	57	35
11	412	312	347	591	2000	3190	216	53	31
12	416	447	502	631	1500	2560	202	54	29
13	448	323	391	631	1000	1700	185	29	14
14	444	360	432	586	1400	2220	165	25	11
15	400	206	222	532	1000	1440	155	26	11
16	356	280	269	478	500	645	146	34	13
17	348	290	272	440	460	546	134	33	12
18	400	368	397	436	410	483	124	26	8.7
19	396	222	237	456	490	603	111	23	6.9
20	384	182	189	510	600	826	107	23	6.6
21	352	162	154	460	410	509	103	23	6.4
22	364	182	179	428	390	451	100	23	6.2
23	492	1690	2240	420	220	249	109	23	6.8
24	626	2260	3820	432	189	220	126	23	7.8
25	551	780	1160	436	200	235	115	23	7.1
26	465	510	640	424	230	263	107	23	6.6
27	412	430	478	404	200	218	121	437	245
28	400	310	335	368	153	152	124	700	234
29	470	3120	3960	340	80	73	105	300	85
30	436	534	629	376	170	173	96	82	21
31	--	--	--	376	180	183	--	--	--
TOTAL	13942	--	41285	13703	--	20846	5434	--	1403.1

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	96	44	11	70	24	4.5	60	6	.97
2	95	57	15	70	24	4.5	58	6	.94
3	95	58	15	70	24	4.5	55	6	.89
4	95	48	12	70	24	4.5	60	6	.97
5	95	36	9.2	70	24	4.5	63	6	1.0
6	95	31	8.0	70	16	3.0	65	6	1.1
7	90	31	7.5	70	16	3.0	65	6	1.1
8	85	31	7.1	70	16	3.0	63	6	1.0
9	80	31	6.7	70	16	3.0	60	6	.97
10	80	31	6.7	66	16	2.9	63	6	1.0
11	80	13	2.8	64	10	1.7	63	6	1.0
12	80	13	2.8	62	10	1.7	62	6	1.0
13	78	13	2.7	62	10	1.7	62	6	1.0
14	77	13	2.7	62	10	1.7	62	6	1.0
15	76	13	2.7	62	10	1.7	62	6	1.0
16	76	13	2.7	62	10	1.7	63	6	1.0
17	74	13	2.6	60	10	1.6	63	6	1.0
18	73	13	2.6	60	10	1.6	65	6	1.1
19	74	13	2.6	60	10	1.6	70	6	1.1
20	76	13	2.7	58	10	1.6	76	6	1.2
21	77	13	2.7	58	10	1.6	75	6	1.2
22	74	13	2.6	58	10	1.6	74	6	1.2
23	73	13	2.6	58	10	1.6	72	6	1.2
24	73	13	2.6	57	10	1.5	69	6	1.1
25	73	13	2.6	55	10	1.5	67	6	1.1
26	73	13	2.6	55	10	1.5	72	6	1.2
27	73	13	2.6	55	10	1.5	74	6	1.2
28	73	13	2.6	58	10	1.6	74	6	1.2
29	72	13	2.5	60	10	1.6	74	6	1.2
30	70	13	2.5	60	10	1.6	76	6	1.2
31	70	13	2.5	60	10	1.6	--	--	--
TOTAL	2471	--	153.5	1942	--	71.2	1987	--	32.14

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 84213
TOTAL LOAD FOR YEAR (TONS) 526664.04

13351000 PALOUSE RIVER AT BOOPER, WASH.

LOCATION.--Lat 46°45'30", long 118°08'50", in NE¼SE¼ sec.27, T.15 N., R.37 E., Whitman County, at bridge on State Highway 26 at Hooper, 150 ft upstream from gaging station, 0.4 mile upstream from Cow Creek, and at mile 19.6.

DRAINAGE AREA.--2,500 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1968, October 1968 to September 1969 (miscellaneous).
Water temperatures: October 1961 to September 1969.
Sediment records: October 1961 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Minimum, freezing point Dec. 28, Jan. 2.
Sediment concentrations: Maximum daily, 10,300 mg/l Mar. 18; minimum daily, 12 mg/l Oct. 9.
Sediment loads: Maximum daily, 199,000 tons Mar. 18; minimum daily, 0.53 ton Aug. 17, 18, 19.

Period of record:
Water temperatures: Maximum (1961-65, 1966-68), 30.0°C July 12, 1964; minimum, freezing point on several days in winter periods during some years.
Sediment concentrations: Maximum daily, 46,000 mg/l Feb. 5, 1963; minimum daily, 0 mg/l Aug. 3-6, 10-16, Aug. 30 to Sept. 3, 1968.
Sediment loads: Maximum daily, 2,110,000 tons Feb. 5, 1963; minimum daily, 0 ton Aug. 3-6, 10-16, Aug. 30 to Sept. 3, 1968.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. Maximum observed during water year: Sediment concentration, 12,500 mg/l Mar. 18.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
NOV.									
12...	164	18	25	8.1	22	4.1	143	0	11
FEB.									
24...	972	--	--	--	--	--	--	--	--
APR.									
12...	3310	24	14	4.4	9.2	2.9	67	0	8.0
AUG.									
10...	22	27	26	12	27	5.0	184	0	12

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	PH (UNITS)
NOV.									
12...	8.5	.3	3.3	--	184	96	0	282	7.7
FEB.									
24...	--	--	--	30	--	--	--	--	--
APR.									
12...	2.0	.3	9.3	--	134	53	0	149	7.5
AUG.									
10...	7.5	.3	2.5	--	216	115	0	335	8.2

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (MPN)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.							
12...	5	7	11.9	4600	--	--	--
FEB.							
24...	--	2	13.2	930	0	0	0
APR.							
12...	30	9	10.0	2400	--	--	--
AUG.							
10...	5	24	6.0	70	0	0	0

13351000 PALOUSE RIVER AT HOOPER, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	--	9.0	3.5	--	--	5.5	9.5	8.5	--	--	24.0	--
2	15.5	--	--	0.0	--	5.5	9.0	6.5	20.5	21.5	--	2.5
3	--	--	--	--	--	5.0	9.5	7.0	--	--	--	--
4	14.0	7.0	4.5	1.5	1.0	5.5	9.0	9.0	--	--	20.0	--
5	--	--	3.5	--	--	5.5	10.5	11.5	25.5	21.0	--	--
6	--	7.5	2.5	0.5	--	4.0	7.5	15.0	--	--	--	--
7	10.5	--	2.5	1.0	--	5.0	5.0	12.5	--	--	21.0	--
8	--	--	4.5	0.5	0.5	4.0	9.5	--	26.0	--	--	20.5
9	11.0	--	4.5	1.0	1.5	4.5	11.5	20.5	--	--	--	--
10	--	--	5.0	1.5	1.0	4.5	10.5	--	--	23.5	--	20.5
11	11.5	7.0	5.5	1.5	0.5	2.5	11.0	--	--	--	21.5	21.5
12	--	--	3.5	0.5	1.5	5.0	11.0	15.0	23.5	--	--	--
13	--	11.5	2.0	1.0	0.5	5.5	5.5	--	--	--	--	--
14	11.0	--	2.0	1.0	1.0	6.0	7.0	15.0	--	22.5	--	17.5
15	--	4.5	2.5	1.5	2.0	7.0	8.5	--	--	--	20.5	--
16	--	3.5	--	1.0	2.0	7.5	8.5	--	--	24.0	--	--
17	11.0	4.5	2.0	0.5	2.5	6.5	11.0	14.5	25.5	--	--	--
18	--	4.5	--	1.0	1.5	5.0	9.0	18.5	--	--	20.0	17.0
19	10.5	6.0	2.0	1.5	1.0	5.5	9.0	--	--	--	--	--
20	--	--	--	1.0	--	6.0	11.0	--	--	--	--	--
21	10.5	5.5	0.5	0.5	1.5	7.0	9.5	20.0	--	26.0	--	17.5
22	--	6.0	0.5	0.5	2.0	7.0	11.0	21.0	21.0	--	19.0	--
23	10.0	5.5	0.5	--	--	7.5	14.0	--	--	--	--	17.0
24	--	5.0	1.0	--	2.0	4.0	10.0	--	16.0	25.5	--	--
25	13.5	5.0	2.5	--	3.5	2.0	11.5	--	--	--	20.0	17.0
26	--	5.0	1.0	--	2.0	1.5	11.0	--	--	--	--	--
27	--	4.5	0.5	--	--	4.0	11.5	19.0	--	--	--	--
28	11.0	4.5	0.0	--	3.5	9.5	11.0	--	--	--	19.0	--
29	--	--	--	--	--	9.5	8.5	--	20.5	23.5	--	17.5
30	10.0	3.5	--	--	--	10.0	9.0	--	--	--	--	--
31	--	--	--	--	--	10.0	--	--	--	--	--	--
AVG	--	--	2.5	--	--	5.5	9.5	--	--	--	--	--

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
JAN 7, 1969	1220	1	5980	5420	87500	14	21	27	35	49	76	92	100	--	--	--	VPWC
JAN 8.....	1340	0	5000	1220	16500	29	30	41	52	74	92	96	100	--	--	--	VPWC
MAR 20.....	1710	6	6480	2900	50700	14	16	28	43	75	97	99	100	--	--	--	VPWC
APR 24.....	1255	11	3190	4290	36900	31	39	52	78	92	--	--	--	--	--	--	PWC

13351000 PALOUSE RIVER AT HOOPER, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	44	26	3.1	68	17	3.1	278	105	79
2	39	24	2.5	68	16	2.9	273	135	100
3	37	22	2.2	70	16	3.0	242	125	82
4	36	19	1.8	69	15	2.8	225	122	74
5	38	19	1.9	73	15	3.0	321	120	104
6	36	18	1.7	75	16	3.2	574	219	339
7	37	18	1.8	73	16	3.2	436	543	639
8	36	15	1.5	69	16	3.0	333	504	453
9	36	12	1.2	81	16	3.5	300	240	194
10	38	16	1.6	82	16	3.5	339	154	141
11	42	19	2.2	98	16	4.2	389	125	131
12	46	18	2.2	164	24	11	1290	1710	6740
13	45	16	1.9	191	24	12	942	2370	6530
14	50	15	2.0	270	52	38	601	800	1300
15	70	15	2.8	303	86	70	471	298	379
16	102	15	4.1	234	141	89	440	158	188
17	103	15	4.2	200	150	81	487	100	131
18	94	18	4.6	168	147	67	483	180	235
19	88	20	4.8	158	127	54	410	533	590
20	103	28	7.8	139	114	43	280	259	196
21	94	36	9.1	149	114	46	240	124	80
22	91	32	7.9	162	105	46	180	60	29
23	88	28	6.7	202	87	47	220	68	40
24	84	26	5.9	479	200	259	300	58	47
25	113	24	7.3	429	500	579	365	60	59
26	103	24	6.7	333	534	480	738	146	291
27	86	24	5.6	286	420	324	738	240	478
28	95	24	6.2	273	233	172	450	132	160
29	89	24	5.8	278	185	139	180	72	35
30	77	24	5.0	321	134	116	100	77	21
31	70	20	3.8	--	--	--	90	100	24
TOTAL	2110	--	125.9	5565	--	2708.4	12715	--	19889

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	110	110	33	340	33	30	1030	660	1840
2	130	108	38	360	33	32	1050	640	1810
3	150	83	34	400	32	35	1160	1550	4850
4	200	42	23	460	32	40	1190	900	2890
5	350	30	28	420	29	33	1490	1920	7720
6	1000	1230	6400	400	26	28	1940	3490	18300
7	6630	4470	75000	420	23	26	1640	980	4340
8	5230	1480	20900	460	20	25	1490	570	2290
9	3720	820	8240	500	47	63	1370	370	1370
10	2570	420	2910	540	33	48	1240	210	703
11	2040	300	1650	600	145	235	1140	170	523
12	1590	156	670	1200	390	1260	1170	530	1670
13	1430	103	398	1500	605	2450	1240	830	2780
14	1790	190	918	1720	490	2280	1420	1100	4220
15	2050	215	1190	1550	450	1880	1750	2050	9690
16	1600	94	406	1470	225	893	2550	4150	28600
17	1300	68	239	1310	190	672	4060	7200	78900
18	900	43	104	1270	180	617	7160	10300	199000
19	850	40	92	1250	205	692	8510	6900	159000
20	800	61	132	1150	185	574	7120	3100	59600
21	700	87	164	1060	200	572	6440	2300	40000
22	490	111	120	1010	120	327	6090	1850	30400
23	200	95	51	984	160	425	6780	2240	41000
24	240	60	39	972	184	483	6190	1600	26700
25	280	37	28	984	277	736	5450	1320	19400
26	310	36	30	1010	630	1720	5250	1200	17000
27	280	36	27	978	630	1660	5410	1260	18400
28	270	35	26	954	660	1700	6340	1940	33200
29	260	35	25	--	--	--	5920	1180	18900
30	300	34	28	--	--	--	5380	800	11600
31	320	34	29	--	--	--	5180	605	8460
TOTAL	38000	--	119972	25272	--	19352	114150	--	855156

13351000 PALOUSE RIVER AT HOOPER, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	5540	740	11100	2330	820	5160	456	19	23
2	5080	470	6450	2080	260	1460	467	19	24
3	4340	435	5100	1800	174	846	403	19	21
4	3860	455	4740	1630	133	585	358	20	19
5	3420	335	3090	1480	137	547	330	20	18
6	3290	495	4400	1280	125	432	309	22	18
7	4450	865	10400	1190	109	350	300	23	19
8	4080	650	7160	1150	96	298	281	24	18
9	3160	312	2660	1160	84	263	257	28	19
10	2800	340	2570	1140	80	246	244	32	21
11	3980	1130	12100	1100	77	229	225	32	19
12	3310	480	4290	1060	74	212	211	38	22
13	3020	240	1960	994	58	154	202	40	22
14	2870	200	1550	897	43	104	189	42	21
15	2610	165	1160	826	44	98	184	44	22
16	2270	195	1200	760	44	90	174	46	22
17	1990	165	887	695	45	84	162	48	21
18	2090	430	2430	625	30	51	158	46	20
19	2320	660	4130	601	28	45	145	45	18
20	2330	220	1380	583	26	41	138	43	16
21	2190	125	739	610	24	40	132	42	15
22	1860	105	527	655	21	37	127	41	14
23	1940	135	707	556	21	32	127	43	15
24	2890	6350	49200	495	20	27	132	45	16
25	3200	1650	14300	463	20	25	139	42	16
26	2580	570	3970	436	19	22	145	39	15
27	2020	315	1720	410	19	21	164	36	16
28	1750	222	1050	389	19	20	184	33	16
29	1960	465	2460	375	19	19	166	30	13
30	2260	1970	12000	382	19	20	154	31	13
31	--	--	--	368	19	19	--	--	--
TOTAL	89460	--	175430	28510	--	11577	6663	--	552

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	145	32	13	36	26	2.5	21	26	1.5
2	145	33	13	34	29	2.7	19	27	1.4
3	127	30	10	33	32	2.9	18	27	1.3
4	120	26	8.4	32	36	3.1	19	27	1.3
5	115	22	6.8	30	35	2.8	21	28	1.6
6	110	20	5.9	30	34	2.8	25	28	1.9
7	105	19	5.4	29	33	2.6	26	29	2.0
8	102	18	5.0	27	31	2.3	26	29	2.0
9	94	17	4.3	24	29	1.9	25	32	2.2
10	86	16	3.7	22	27	1.6	24	35	2.3
11	79	17	3.6	20	24	1.3	23	24	1.5
12	74	18	3.6	18	21	1.0	22	22	1.3
13	73	18	3.5	19	18	.92	22	20	1.2
14	74	19	3.8	18	15	.73	22	18	1.1
15	73	18	3.5	17	13	.60	23	19	1.2
16	73	16	3.2	17	13	.60	22	20	1.2
17	70	16	3.0	14	14	.53	22	21	1.2
18	72	16	3.1	14	14	.53	24	23	1.5
19	70	16	3.0	14	14	.53	28	23	1.7
20	63	16	2.7	14	15	.57	32	22	1.9
21	61	16	2.6	15	15	.61	32	22	1.9
22	59	18	2.9	15	16	.65	36	24	2.3
23	55	20	3.0	15	16	.65	43	27	3.1
24	53	23	3.3	16	17	.73	46	24	3.0
25	47	25	3.2	19	18	.92	44	20	2.4
26	47	27	3.4	16	18	.78	41	20	2.2
27	47	29	3.7	13	18	.63	42	20	2.3
28	44	31	3.7	13	18	.63	53	20	2.9
29	43	34	3.9	14	20	.76	53	20	2.9
30	42	31	3.5	16	22	.95	49	20	2.6
31	38	28	2.9	20	24	1.3	--	--	--
TOTAL	2406	--	144.6	634	--	41.12	902	--	56.9

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 326,387
TOTAL LOAD FOR YEAR (TONS) 1,205,188.92

13353000 SNAKE RIVER BELOW ICE HARBOR DAM, WASH.

LOCATION.--Lat 46°14'45", long 118°52'40", in NE¼SW¼ sec.24, T.9 N., R.31 E., Franklin County, at south fish-ladder at Ice Harbor Dam, 1.1 miles upstream from gaging station, 10.5 miles east of Pasco, and at mile 9.7.

DRAINAGE AREA.--108,500 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: July 1960 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
22...	37300	17	19	8.9	21	2.7	107	0	22
NOV.									
13...	40900	18	25	10	27	3.2	130	0	41
DEC.									
10...	33900	20	26	10	24	3.0	129	0	36
JAN.									
21...	44900	23	23	8.5	19	2.8	111	0	28
FEB.									
18...	46900	23	27	9.3	21	3.2	130	0	30
MAR.									
11...	48100	24	30	10	22	3.2	141	0	31
APR.									
15...	119000	20	16	5.1	1.0	2.1	75	0	14
MAY									
20...	172000	13	9.4	2.5	5.4	1.1	44	0	8.2
JUNE									
24...	51100	8.9	12	3.4	8.6	1.8	58	0	13
JULY									
22...	30600	13	13	3.7	9.4	1.7	65	0	14
AUG.									
19...	18200	12	18	5.6	15	2.3	88	0	18
SEPT.									
23...	18100	16	24	9.4	26	3.4	124	0	33

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
22...	9.0	.4	.9	--	161	84	0	261	7.7
NOV.									
13...	11	.4	1.5	--	207	105	0	327	7.8
DEC.									
10...	11	.4	1.6	--	198	106	1	314	7.8
JAN.									
21...	9.0	.3	2.8	30	182	93	2	267	7.9
FEB.									
18...	9.9	.5	2.7	--	207	106	0	309	8.0
MAR.									
11...	14	.4	2.7	--	214	116	1	336	8.0
APR.									
15...	5.5	.1	2.2	--	127	61	0	166	7.9
MAY									
20...	2.5	.2	.4	--	69	34	0	96	7.4
JUNE									
24...	3.2	.2	.2	--	87	44	0	130	7.4
JULY									
22...	3.2	.1	.2	--	94	48	0	143	7.9
AUG.									
19...	6.7	.3	.9	--	124	68	0	208	7.5
SEPT.									
23...	12	.4	.8	--	184	99	0	310	7.7

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
22...	10	10	10.0	300	--	--	--
NOV.							
13...	5	9	10.3	170	--	--	--
DEC.							
10...	10	6	9.9	580	--	--	--
JAN.							
21...	10	0	11.4	940	0	0	0
FEB.							
18...	10	3	14.5	320	--	--	--
MAR.							
11...	5	6	15.2	54	--	--	--
APR.							
15...	5	10	13.3	270	--	--	--
MAY							
20...	5	10	11.9	360	--	--	--
JUNE							
24...	0	19	10.7	70	--	--	--
JULY							
22...	0	24	9.4	1400	0	0	0
AUG.							
19...	5	22	7.7	720	--	--	--
SEPT.							
23...	0	19	7.4	70	--	--	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES IN SNAKE RIVER BASIN IN WYOMING

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBEK 1969

DATE	TIME	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (MG/L)	CALCIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
LEWIS RIVER BASIN												
13007100 HERRON CR NR OLD FAITHFUL, YELLOWSTONE NATIONAL PK (LAT 44 26 52 LONG 110 42 22)												
MAY 1969												
22...	1220	6.1	13	80	.8	1.0	1.1	2.1	9	0	1.2	.4
JUL												
17...	1350	1.2	26	120	3.4	.6	2.0	1.5	11	0	3.4	.6
SEP												
16...	1025	.30	36	90	2.3	.7	2.4	2.0	14	0	3.4	.7
13009200 UNNAMED TRIB TO LEWIS R BL LEWIS FALLS, YELLOWSTONE NATIONAL PK (LAT 44 15 20 LONG 110 38 28)												
MAY 1969												
22...	1315	6.3	15	60	2.4	.0	1.6	.9	10	0	.2	.3
JUL												
17...	1450	2.5	2.6	190	1.8	1.3	2.4	2.3	14	0	2.4	.4
SEP												
16...	0915	1.5	28	50	3.8	.5	2.4	2.0	16	0	1.8	.8
13009250 UNNAMED SP AT PITCHSTONE PLAT TR HD, IN LEWIS CAN, YELLOWSTONE NATIONAL PK (LAT 44 14 35 LONG 110 38 50)												
AUG 1969												
18...	1800	.01	31	--	4.8	.7	3.0	1.5	23	0	2.4	.6
PILGRIM CREEK BASIN												
13010100 PHANTOM SP AT PHANTOM CAMPSITE, YELLOWSTONE NATIONAL PK (LAT 44 13 49 LONG 110 44 18)												
AUG 1969												
18...	1535	.02	16	--	1.4	.1	1.3	.9	8	0	1.4	.3
13010390 PILGRIM CR AB PK BOUNDARY, NR MORAN, GRAND TETON NATIONAL PK (LAT 43 55 54 LONG 110 33 34)												
JUL 1969												
22...	1330	25	7.1	40	31	5.2	4.6	1.0	127	0	5.2	.5
13010440 PILGRIM CR AT ABANDONED FORD, NR MORAN, GRAND TETON NATIONAL PK (LAT 43 55 08 LONG 110 33 53)												
JUL 1969												
22...	1245	43	7.8	30	27	5.5	4.0	.8	112	0	6.2	.5
SEP												
25...	1120	17	7.4	--	27	6.9	5.2	.8	124	0	7.2	.5
COTTONWOOD CREEK BASIN												
13012800 COTTONWOOD CR AT OUTLET OF JENNY LK, NR MOOSE, GRAND TETON NATIONAL PK (LAT 43 45 03 LONG 110 43 29)												
MAY 1969												
20...	1400	280	2.4	40	3.5	.6	.8	.8	15	0	.4	.2
JUL												
23...	1120	240	2.0	70	2.6	1.3	.7	.6	13	0	4.2	.2
SEP												
25...	1645	38	2.2	--	1.2	2.2	.6	.7	12	0	4.0	.4
13012850 COTTONWOOD CR AB GLACIER GUL, NR MOOSE, GRAND TETON NATIONAL PK (LAT 43 43 50 LONG 110 44 02)												
JUL 1969												
23...	1250	229	2.1	50	3.3	1.0	.6	.6	13	0	3.0	.3
DITCH CREEK BASIN												
13013530 DITCH CR BL SOUTH FK, NR KELLY, NR GRAND TETON NATIONAL PK (LAT 43 40 53 LONG 110 34 58)												
MAY 1969												
13...	1620	181	8.1	160	26	2.4	3.8	1.4	92	0	9.4	.5
JUL												
22...	1530	8.0	10	80	38	9.0	8.6	1.4	135	6	27	.2
SEP												
26...	1020	4.2	9.6	--	48	9.2	11	1.5	176	0	36	.9
13013570 KELLY WARM SP NR KELLY, GRAND TETON NATIONAL PK (LAT 43 38 24 LONG 110 37 04)												
MAY 1969												
13...	1245	16	16	80	54	22	6.7	2.8	179	0	81	1.6
JUL												
22...	1640	13	18	140	54	22	6.5	2.9	176	2	85	1.7
SEP												
26...	0850	9.8	16	--	52	23	7.2	2.9	176	0	87	1.7
GREYS RIVER BASIN												
13023000 GREYS R AB RESERVOIR NR ALPINE (LAT 43 08 35 LONG 110 58 25)												
NOV 1968												
12...A	-	297	6.2	--	53	16	3.0	.5	185	0	52	1.5
HENRYS FORK BASIN												
13046690 BECHLER R AT MOUTH, NR BECHLER RANGER STA, YELLOWSTONE NATIONAL PK (LAT 44 08 59 LONG 110 59 57)												
AUG 1969												
22...	1550	500	43	--	4.1	1.4	26	2.8	60	0	5.4	11

A INCLUDES 0.1 SODIUM ADSORPTION RATIO AND 3 PERCENT SODIUM.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)
LEWIS RIVER BASIN												
13007100 HERRON CR NR OLD FAITHFUL, YELLOWSTONE NATIONAL PK (LAT 44 26 52 LONG 110 42 22)												
MAY 1969												
22...	.1	.3	20	24	.05	.66	6	0	21	7.1	30	2.0
JULY												
17...	.1	.2	10	43	.04	.09	6	0	33	6.9	--	12.0
SEP												
16...	.2	.0	0	55	.09	.05	--	--	33	6.2	2	4.0
13009200 UNNAMED TRIB TO LEWIS R BL LEWIS FALLS, YELLOWSTONE NATIONAL PK (LAT 44 15 20 LONG 110 38 28)												
MAY 1969												
22...	.9	.1	40	27	.04	.51	6	0	24	6.4	12	6.0
JUL												
17...	1.9	.0	10	22	.04	.19	10	0	37	6.6	4	14.0
SEP												
16...	2.0	.0	0	49	.07	.21	12	0	39	6.2	3	4.0
13009250 UNNAMED SP AT PITCHSTONE PLAT TR HD, IN LEWIS CAN, YELLOWSTONE NATIONAL PK (LAT 44 14 35 LONG 110 38 50)												
AUG 1969												
18...	1.3	.0	0	56	.07	.00	15	0	47	6.4	4	8.0
PILGRIM CREEK BASIN												
13010100 PHANTOM SP AT PHANTOM CAMPSITE, YELLOWSTONE NATIONAL PK (LAT 44 13 49 LONG 110 44 18)												
AUG 1969												
18...	.0	.0	0	25	.04	.00	4	0	16	6.2	3	18.0
13010390 PILGRIM CR AB PK BOUNDARY, NR MORAN, GRAND TETON NATIONAL PK (LAT 43 55 54 LONG 110 33 34)												
JUL 1969												
22...	.2	.0	0	117	.16	7.69	99	0	203	8.1	4	17.0
13010440 PILGRIM CR AT ABANDONED FORD, NR MORAN, GRAND TETON NATIONAL PK (LAT 43 55 08 LONG 110 33 53)												
JUL 1969												
22...	.1	.0	0	107	.17	14.2	90	0	184	7.6	5	16.0
SEP												
25...	--	.1	0	116	.16	5.32	96	0	208	7.0	4	7.0
COTTONWOOD CREEK BASIN												
13012800 COTTONWOOD CR AT OUTLET OF JENNY LK, NR MOOSE, GRAND TETON NATIONAL PK (LAT 43 45 94 LONG 110 43 29)												
MAY 1969												
20...	.1	.2	10	16	.02	12.1	11	0	100	6.7	3	8.0
JUL												
23...	.0	.0	0	18	.04	20.7	12	1	26	6.9	5	--
SEP												
25...	.0	.0	30	17	.02	1.85	12	2	27	6.1	3	14.0
13012850 COTTONWOOD CR AB GLACIER GUL, NR MOOSE, GRAND TETON NATION PAK (LAT 43 43 50 LONG 110 44 02)												
JUL 1969												
23...	.0	.0	0	17	.04	18.5	12	1	28	6.9	5	19.0
DITCH CREEK BASIN												
13013530 DITCH CR BL SOUTH FK, NR KELLY, NR GRAND TETON NATIONAL PK (LAT 43 40 53 LONG 110 34 58)												
MAY 1969												
13...	.1	.2	0	97	.14	51.8	75	0	162	7.0	35	7.0
JUL												
22...	.1	.0	20	157	.24	3.84	132	11	276	8.6	5	22.0
SEP												
26...	.1	.1	60	202	.27	2.29	158	14	340	7.3	5	5.0
13013570 KELLY WARM SP NR KELLY, GRAND TETON NATIONAL PK (LAT 43 38 24 LONG 110 37 04)												
MAY 1969												
13...	.8	.1	0	273	.39	12.3	224	77	443	8.0	5	26.0
JUL												
22...	.8	.0	30	280	.39	10.2	223	75	440	8.3	5	27.0
SEP												
26...	.9	.0	0	277	.38	7.41	226	82	445	7.5	5	26.0
GREYS RIVER BASIN												
13023000 GREYS R AB RESERVOIR NR ALPINE (LAT 43 08 35 LONG 110 58 25)												
NOV 1968												
12...	.2	.1	--	B221	.30	177	198	47	384	8.2	0	2.0
HENRYS FORK BASIN												
13046690 BECHLER R AT MOUTH, NR BECHLER RANGER STA, YELLOWSTONE NATIONAL PK (LAT 44 08 59 LONG 110 59 57)												
AUG 1969												
22...	2.0	.0	230	126	.17	165	16	0	179	7.2	3	16.0

B RESIDUE AT 180°C.

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	WATER TEM-PERA-TURE (°C)	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY)
SALT RIVER BASIN					
13025000 SWIFT CREEK NEAR AFTON (LAT 42 43 30 LONG 110 54 00)					
JUN 3, 1969	1335	8.0	214	15	8.7

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
MUD LAKE-LOST RIVER BASINS												
13112000 CAMAS CREEK AT CAMAS (LAT 44 00 10 LONG 112 13 12)												
OCT 1968												
02...	17	22	19	4.7	4.4	3.0	86	0	4.2	2.0	.2	.1
MAY 1969												
14...	361	16	17	3.5	3.0	2.5	76	0	3.6	1.0	.1	.7
13115000 MUD LAKE NEAR TERRETON (LAT 43 53 30 LONG 112 21 30)												
OCT 1968												
14...	--	27	31	8.4	11	2.6	144	0	8.2	7.0	.5	.8
APR 1969												
02...	--	29	31	8.4	9.9	2.2	145	0	7.6	6.0	.4	1.3
13116000 MEDICINE LODGE CREEK AT ELLIS RANCH, NEAR ARGORA (LAT 44 17 30 LONG 112 30 05)												
OCT 1968												
02...	54	19	64	18	8.5	2.6	234	0	52	7.0	.3	.1
JUN 1969												
26...	8.7	23	79	16	10	3.2	288	0	45	6.5	.2	.5
13117030 BIRCH CREEK AT EIGHT-MILE CANYON ROAD, NEAR RENO (LAT 44 05 00 LONG 112 53 00)												
OCT 1968												
14...	54	11	42	15	5.4	1.0	178	0	25	6.0	.2	.5
MAY 1969												
26...	45	11	51	13	6.2	1.3	189	0	27	6.0	.2	1.1
13119000 LITTLE LOST RIVER NEAR HOWE (LAT 43 53 00 LONG 113 06 00)												
NOV 1968												
15...	65	16	41	17	11	1.4	191	2	18	14	.2	.8
MAY 1969												
30...	251	14	28	11	6.0	1.6	130	0	11	7.5	.2	.8
SEP												
17...	82	14	42	16	9.1	1.3	196	0	19	10	.2	.0
13127000 BIG LOST RIVER BELOW MACKAY RESERVOIR, NEAR MACKAY (LAT 43 56 20 LONG 113 38 50)												
OCT 1968												
11...	176	12	39	9.5	5.6	1.4	162	0	15	2.5	.3	.0
JUN 1969												
03...	1340	11	20	9.1	3.6	1.3	105	0	10	1.0	.1	.7
13132500 BIG LOST RIVER NEAR ARCO (LAT 43 35 16 LONG 113 16 13)												
OCT 1968												
11...	84	15	66	14	9.7	1.9	257	0	22	5.0	.3	1.8
NOV												
16...	84	14	57	14	8.3	1.5	233	0	20	6.0	.3	1.3
MAY 1969												
30...	723	11	38	13	6.2	1.7	174	0	15	3.0	.2	1.2
AUG												
20...	120	16	51	15	9.0	1.6	227	0	17	3.0	.6	.4
BICKEL SPRINGS BASIN												
13132790 BICKEL SPRINGS NEAR HAGERMAN (LAT 42 45 29 LONG 114 51 19)												
OCT 1968												
02...	19	--	--	--	--	--	170	0	27	11	--	2.1
DEC												
13...	32	32	30	17	18	3.7	173	0	27	12	.5	2.1
MAR 1969												
13...	21	34	28	15	16	3.4	157	0	26	11	.1	2.5
SEP												
09...	18	33	32	16	17	3.3	174	0	25	12	.4	2.1
BIG WOOD RIVER BASIN												
13141000 BIG WOOD RIVER NEAR BELLEVUE (LAT 43 19 40 LONG 114 20 25)												
OCT 1968												
07...	96	16	50	9.4	5.3	1.5	197	0	16	1.5	.4	.0
MAY 1969												
26...	2550	13	28	5.5	2.8	.9	106	0	10	1.0	.2	.7
AUG.												
18...	127	18	56	11	5.0	1.3	219	2	15	1.0	.3	.2
13152500 BIG WOOD RIVER NEAR GOODING (LAT 42 53 10 LONG 114 48 10)												
OCT 1968												
02...	366	9.1	47	16	23	4.9	201	0	44	20	.7	1.8
NOV												
05...	295	14	50	16	20	4.4	215	0	38	18	.6	1.0
APR 1969												
18...	2000	17	23	5.7	6.9	2.2	97	0	11	3.0	.2	2.8
AUG												
18...	116	6.9	45	16	20	4.2	192	0	40	18	.6	3.2

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO (SAR)	PERCENT SODIUM	SPECI-FIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
MUD LAKE-LOST RIVER BASINS												
13112000 CAMAS CREEK AT CAMAS (LAT 44 00 10 LONG 112 13 12)												
OCT 1968												
02...	--	109	.15	5.03	67	0	.2	12	158	7.4	15	14.0
MAY 1969												
14...	--	92	.13	89.7	57	0	.2	10	130	7.1	25	12.0
13115000 MUD LAKE NEAR TERRETON (LAT 43 53 30 LONG 112 21 30)												
OCT 1968												
14...	--	166	.23	--	112	0	.5	17	262	7.7	0	9.0
APR 1969												
02...	--	172	.23	--	112	0	.4	16	251	7.8	0	7.0
13116000 MEDICINE LODGE CREEK AT ELLIS RANCH, NEAR ARGORA (LAT 44 17 30 LONG 112 30 05)												
OCT 1968												
02...	--	273	.37	39.8	234	0	.2	7	468	8.0	5	9.0
JUN 1969												
26...	--	315	.43	7.42	263	27	.3	8	525	8.2	5	8.0
13117030 BIRCH CREEK AT EIGHT-MILE CANYON ROAD, NEAR RENO (LAT 44 05 00 LONG 112 53 00)												
OCT 1968												
14...	--	194	.26	28.3	166	20	.2	6	335	7.9	5	8.0
MAY 1969												
26...	--	200	.27	24.3	180	26	.2	7	354	8.2	0	11.0
13119000 LITTLE LOST RIVER NEAR HOWE (LAT 43 53 00 LONG 113 06 00)												
NOV 1968												
15...	--	205	.28	36.0	172	12	.4	12	370	8.3	0	3.0
MAY 1969												
30...	--	147	.20	99.6	115	8	.2	10	238	7.9	10	11.0
SEP												
17...	--	196	.27	43.4	171	11	.3	10	370	8.2	0	--
13127000 BIG LOST RIVER BELOW MACKAY RESERVOIR, NEAR MACKAY (LAT 43 56 20 LONG 113 38 50)												
OCT 1968												
11...	--	163	.22	77.5	136	4	.2	8	286	7.9	5	9.0
JUN 1969												
03...	--	105	.14	380	88	2	.2	8	187	7.8	5	12.0
13132500 BIG LOST RIVER NEAR ARCO (LAT 43 35 16 LONG 113 16 13)												
OCT 1968												
11...	--	263	.36	59.9	222	12	.3	9	449	7.9	0	7.0
NOV												
16...	--	219	.30	49.7	200	8	.3	8	406	8.0	0	1.0
MAY 1969												
30...	--	171	.23	334	148	6	.2	8	303	7.9	5	14.0
AUG												
20...	--	232	.32	75.2	188	2	.3	9	389	7.9	0	19.0
BICKEL SPRINGS BASIN												
13132790 BICKEL SPRINGS NEAR HAGERMAN (LAT 42 45 29 LONG 114 51 19)												
OCT 1968												
02...	--	--	--	--	--	--	--	--	361	8.0	--	16.0
DEC												
13...	--	214	.29	12.7	145	3	.7	21	354	8.0	--	15.0
MAR 1969												
13...	--	218	.30	12.4	132	3	.6	20	330	8.2	0	16.0
SEP												
09...	.00	215	.29	10.4	146	4	.6	20	349	8.1	0	16.0
BIG WOOD RIVER BASIN												
13141000 BIG WOOD RIVER NEAR BELLEVUE (LAT 43 19 40 LONG 114 20 25)												
OCT 1968												
07...	--	199	.27	52.0	164	2	.2	6	342	7.9	5	12.0
MAY 1969												
26...	--	112	.15	771	92	6	.1	6	183	7.8	5	14.0
AUG												
18...	--	210	.29	72.0	185	5	.2	6	359	8.4	0	16.0
13152500 BIG WOOD RIVER NEAR GOODING (LAT 42 53 10 LONG 114 48 10)												
OCT 1968												
02...	--	263	.36	260	184	19	.7	21	467	7.3	5	13.0
NOV												
05...	--	282	.38	225	191	15	.6	18	462	7.9	5	8.0
APR 1969												
18...	--	122	.17	659	81	2	.3	15	186	7.4	20	9.0
AUG												
18...	--	241	.33	75.5	179	21	.7	19	434	7.5	0	21.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES IN SNAKE RIVER BASIN IN IDAHO

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
HENRYS FORK BASIN												
13055450 TEXAS SLOUGH NEAR REXBURG (LAT 43 47 17 LONG 111 53 43)												
OCT 1968												
24...	100	12	55	15	13	2.3	211	0	35	10	.4	2.3
MAY 1969												
12...	184	13	51	13	11	2.2	184	0	42	9.0	.3	1.6
13056500 HENRYS FORK NEAR REXBURG (LAT 43 49 35 LONG 111 54 12)												
NOV 1968												
21...	1660	26	20	5.6	15	2.3	112	0	4.4	6.5	1.8	.4
JAN 1969												
02...	1450	31	20	5.8	15	2.7	111	0	5.4	6.0	1.9	.8
MAY												
16...	4200	17	16	3.1	6.5	1.6	75	0	3.6	1.0	.6	.6
WILLOW CREEK BASIN												
13058000 WILLOW CREEK NEAR RIRIE (LAT 43 35 35 LONG 111 46 07)												
OCT 1968												
28...	49	17	52	17	20	2.5	237	0	21	24	.2	.1
MAY 1969												
08...	1020	14	51	12	7.9	1.7	206	0	11	9.0	.2	.7
BLACKFOOT RIVER BASIN												
13068500 BLACKFOOT RIVER NEAR BLACKFOOT (LAT 43 07 50 LONG 112 28 35)												
OCT 1968												
17...	400	14	43	14	13	3.0	177	0	33	9.5	.6	.9
APR 1969												
03...	358	16	50	14	8.6	4.7	206	0	21	10	.7	2.8
PORTNEUF RIVER BASIN												
13073000 PORTNEUF RIVER AT TOPAZ (LAT 42 37 00 LONG 112 05 00)												
OCT 1968												
30...	136	23	77	39	36	10	419	0	48	36	.2	2.7
APR 1969												
01...	736	19	49	13	9.8	6.6	206	0	17	11	.1	5.7
13075500 PORTNEUF RIVER AT POCATELLO (LAT 42 51 40 LONG 112 27 25)												
DEC 1968												
05...	259	27	68	36	38	8.4	374	0	43	41	.3	3.7
APR 1969												
03...	1020	18	44	14	17	6.9	197	0	18	23	.0	5.0
13075980 SPRING CREEK SOUTH OF FERRY BUTTE, NEAR BLACKFOOT (LAT 43 05 44 LONG 112 30 16)												
OCT 1968												
17...	288	--	--	--	--	--	234	0	38	19	--	3.0
JAN 1969												
03...	305	23	59	16	20	3.3	234	0	38	19	.8	3.2
MAR												
14...	281	25	60	16	20	3.2	234	0	39	19	.3	2.9
BANNOCK CREEK BASIN												
13076200 BANNOCK CREEK NEAR POCATELLO (LAT 42 53 05 LONG 112 38 29)												
OCT 1968												
29...	20	26	77	27	37	5.5	327	0	32	64	.2	1.6
APR 1969												
03...	163	22	54	21	37	10	225	0	23	71	.2	2.2
SNAKE RIVER MAIN STEM												
13077000 SNAKE RIVER AT NEELEY (LAT 42 46 20 LONG 112 52 45)												
OCT 1968												
29...	2640	22	53	17	22	4.0	216	0	47	21	.8	2.8
JUNE 1969												
19...	10900	14	50	11	16	3.0	186	0	37	12	.5	.9
ROCK CREEK BASIN												
13077650 ROCK CREEK NEAR AMERICAN FALLS (LAT 42 39 09 LONG 113 00 48)												
OCT 1968												
28...	13	35	67	36	43	12	358	0	27	68	.3	3.1
APR 1969												
03...	68	31	66	17	22	12	267	0	16	42	.1	.8

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	PHOSPHATE (PO4) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SODIUM ADSORPTION RATIO (SAR)	PERCENT SODIUM	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)
HENRYS FORK BASIN												
13055450 TEXAS SLOUGH NEAR REXBURG (LAT 43 47 17 LONG 111 53 43)												
OCT 1968 24...	--	258	.35	69.7	198	26	.4	12	448	7.8	5	5.0
MAY 1969 12...	.04	228	.31	113	180	30	.4	12	394	7.7	0	10.0
13056500 HENRYS FORK NEAR REXBURG (LAT 43 49 35 LONG 111 54 12)												
NOV 1968 21...	--	132	.18	592	73	0	.8	30	211	7.8	0	3.0
JAN 1969 02...	--	138	.19	540	74	0	.8	30	211	7.4	--	1.0
MAY 16...	--	93	.13	1060	53	0	.4	21	131	7.4	5	11.0
WILLOW CREEK BASIN												
13058000 WILLOW CREEK NEAR RIRIE (LAT 43 35 35 LONG 111 46 07)												
OCT 1968 28...	--	268	.36	36.0	200	6	.6	18	467	8.2	5	5.0
MAY 1969 08...	--	213	.29	587	176	8	.3	9	345	7.8	10	13.0
BLACKFOOT RIVER BASIN												
13068500 BLACKFOOT RIVER NEAR BLACKFOOT (LAT 43 07 50 LONG 112 28 35)												
OCT 1968 17...	.22	217	.30	234	165	20	.4	14	378	7.7	5	8.0
APR 1969 03...	.58	227	.31	219	182	14	.3	9	392	7.2	10	8.0
PORTNEUF RIVER BASIN												
13073000 PORTNEUF RIVER AT TOPAZ (LAT 43 37 00 LONG 112 05 00)												
OCT 1968 30...	--	466	.63	171	352	9	.8	18	812	7.6	5	10.0
APR 1969 01...	--	229	.31	455	176	7	.3	10	384	7.3	10	4.0
13075500 PORTNEUF RIVER AT POCATELLO (LAT 42 51 40 LONG 112 27 25)												
DEC 1968 05...	.26	431	.59	301	318	11	.9	20	725	8.0	--	3.0
APR 1969 03...	.66	233	.32	642	168	6	.6	17	415	7.3	10	10.0
13075980 SPRING CREEK SOUTH OF FERRY BUTTE, NEAR BLACKFOOT (LAT 43 05 44 LONG 112 30 16)												
OCT 1968 17...	--	--	--	--	--	--	--	--	478	7.7	--	11.0
JAN 1969 03...	.06	286	.39	236	213	21	.6	17	490	7.6	--	9.0
MAR 14...	--	292	.40	222	216	24	.6	17	489	7.8	0	10.0
BANNOCK CREEK BASIN												
13076200 BANNOCK CREEK NEAR POCATELLO (LAT 42 53 05 LONG 112 38 29)												
OCT 1968 29...	--	436	.59	23.5	303	35	.9	21	746	8.0	5	7.0
APR 1969 03...	--	359	.49	158	221	36	1.1	26	600	7.4	10	10.0
SNAKE RIVER MAIN STEM												
13077000 SNAKE RIVER AT NEELEY (LAT 42 46 20 LONG 112 52 45)												
OCT 1968 29...	.45	298	.41	2120	202	25	.7	19	491	7.8	0	10.0
JUN 1969 19...	--	241	.33	7090	170	18	.5	17	404	8.1	5	18.0
ROCK CREEK BASIN												
13077650 ROCK CREEK NEAR AMERICAN FALLS (LAT 42 39 09 LONG 113 00 48)												
OCT 1968 28...	--	465	.63	16.3	315	22	1.1	22	787	7.8	5	10.0
APR 1969 03...	--	336	.46	61.7	234	16	.6	16	558	7.2	10	11.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES IN SNAKE RIVER BASIN IN IDAHO

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
RAFT RIVER BASIN												
13078000 RAFT RIVER AT PETERSON RANCH NEAR BRIDGE (LAT 42 04 OD LONG 113 27 00)												
OCT 1968												
05...	7.7	34	118	28	94	7.7	227	0	93	245	.8	1.8
APR 1969												
16...	41	26	76	16	56	5.8	239	D	44	98	.3	.8
AUG												
12...	5.3	79	111	30	104	7.9	239	0	94	246	1.0	.0
13079900 RAFT RIVER AT YALE (LAT 42 34 11 LONG 113 13 42)												
OCT 1968												
05...	1.1	59	75	38	150	22	423	0	78	182	.5	4.5
APR 1969												
15...	13	55	75	40	146	19	410	0	78	190	.1	5.7
AUG												
12...	1.7	48	66	37	140	20	422	0	68	169	.5	1.4
GOOSE CREEK BASIN												
13084000 GOOSE CREEK NEAR OAKLEY (LAT 42 12 15 LONG 113 54 35)												
OCT 1968												
07...	2.0	33	45	7.9	18	6.9	187	0	17	16	.3	.0
13084700 GOOSE CREEK AT BURLEY (LAT 42 32 15 LONG 113 46 05)												
OCT 1968												
05...	10	44	83	17	76	10	391	0	71	33	.3	16.0
BLUE LAKES SPRING BASIN												
13091000 BLUE LAKES SPRING NEAR TWIN FALLS (LAT 42 36 53 LONG 114 28 06)												
OCT 1968												
04...	210	--	--	--	--	--	--	--	--	--	--	--
SEP 1969												
12...	209	39	58	20	35	5.9	232	0	57	44	.3	5.1
ROCK CREEK BASIN												
13093000 ROCK CREEK NEAR TWIN FALLS (LAT 42 35 37 LONG 114 31 44)												
NOV 1968												
07...	150	45	85	34	65	7.9	354	0	140	42	.9	3.1
APR 1969												
15...	250	38	67	20	44	7.1	258	0	87	29	.6	4.3
SEP												
12...	45	40	80	31	57	5.4	324	0	132	38	.8	8.0
CEDAR DRAW BASIN												
13093500 CEDAR DRAW NEAR FILER (LAT 42 37 25 LONG 114 39 05)												
NOV 1968												
06...	58	43	73	37	78	5.0	356	0	137	45	.9	11.0
APR 1969												
14...	29	38	69	29	60	5.2	304	0	112	42	.2	12.0
SEP												
11...	76	36	73	33	63	4.8	338	0	121	38	.8	11.0
DEEP CREEK BASIN												
13095000 DEEP CREEK NEAR BUHL (LAT 42 37 05 LONG 114 50 40)												
NOV 1968												
06...	241	29	66	25	42	5.5	288	0	79	31	.9	5.4
MAY 1969												
28...	11	35	84	26	44	6.8	314	0	104	36	.8	7.8
SEP												
15...	85	32	72	27	47	4.9	314	0	92	30	.8	6.7
SALMON FALLS CREEK BASIN												
13108150 SALMON FALLS CREEK NEAR BANBURY HOT SPRINGS (LAT 42 41 47 LONG 114 51 15)												
NOV 1968												
05...	206	41	76	27	65	9.2	270	0	145	51	.8	8.7
APR 1969												
14...	166	40	75	25	58	8.7	257	0	133	50	.8	8.9
SEP												
15...	163	43	77	27	66	7.5	282	0	146	50	.8	8.1

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	PHOSPHATE (PO4) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	SODIUM ADSORPTION RATIO (SAR)	PERCENT SODIUM	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)
RAFT RIVER BASIN												
13078000 RAFT RIVER AT PETERSON RANCH NEAR BRIDGE (LAT 42 04 00 LONG 113 27 00)												
OCT 1968												
05...	--	763	1.00	15.9	410	224	2.0	33	1260	7.8	5	15.0
APR 1969												
16...	--	446	.61	49.5	256	60	1.5	32	711	8.1	10	5.0
AUG												
12...	--	801	1.09	11.5	400	204	2.7	44	1280	8.2	0	21.0
13079900 RAFT RIVER AT YALE (LAT 42 34 11 LONG 113 13 42)												
OCT 1968												
05...	.14	821	1.10	2.59	344	0	3.5	47	1340	7.9	5	14.0
APR 1969												
15...	.24	783	1.06	27.5	352	16	3.4	46	1340	7.7	0	10.0
AUG												
12...	.07	762	1.04	3.50	317	0	3.4	47	1220	8.1	5	13.0
GOOSE CREEK BASIN												
13084000 GOOSE CREEK NEAR OAKLEY (LAT 42 12 15 LONG 113 54 35)												
OCT 1968												
07...	--	237	.32	1.28	145	0	.6	20	370	8.2	10	7.0
13084700 GOOSE CREEK AT BURLEY (LAT 42 32 15 LONG 113 46 05)												
OCT 1968												
05...	--	535	.73	14.4	277	0	2.0	36	816	8.0	5	13.0
BLUE LAKES SPRING BASIN												
13091000 BLUE LAKES SPRING NEAR TWIN FALLS (LAT 42 36 53 LONG 114 28 06)												
OCT 1968												
04...	--	--	--	--	--	--	--	--	600	--	--	15.0
SEP 1969												
12...	--	374	.51	211	227	37	1.0	25	610	7.8	0	15.0
ROCK CREEK BASIN												
13093000 ROCK CREEK NEAR TWIN FALLS (LAT 42 35 37 LONG 114 31 44)												
NOV 1968												
07...	.78	601	.82	243	352	62	1.5	28	898	7.2	0	12.0
APR 1969												
15...	1.4	428	.58	289	250	38	1.2	27	621	7.1	5	8.0
SEP												
12...	.00	551	.75	66.9	327	62	1.4	27	812	8.2	5	17.0
CEDAR DRAW BASIN												
13093500 CEDAR DRAW NEAR FILER (LAT 42 37 25 LONG 114 39 05)												
NOV 1968												
06...	.17	594	.81	94.0	334	42	1.9	33	898	8.2	5	12.0
APR 1969												
14...	.22	488	.66	38.3	292	42	1.5	30	798	7.6	5	13.0
SEP												
11...	.39	535	.73	111	318	41	1.5	30	820	7.7	5	14.0
DEEP CREEK BASIN												
13095000 DEEP CREEK NEAR BUHL (LAT 42 37 05 LONG 114 50 40)												
NOV 1968												
06...	.32	425	.58	277	268	32	1.1	25	671	7.9	0	8.0
MAY 1969												
28...	.47	508	.69	15.6	316	59	1.1	23	767	7.9	5	11.0
SEP												
15...	.00	475	.65	110	291	33	1.2	26	733	8.1	5	12.0
SALMON FALLS CREEK BASIN												
13108150 SALMON FALLS CREEK NEAR BANBURY HOT SPRINGS (LAT 42 41 47 LONG 114 51 15)												
NOV 1968												
05...	.21	560	.76	311	300	79	1.6	31	838	8.1	0	11.0
APR 1969												
14...	.02	533	.72	239	290	80	1.5	30	807	7.9	0	12.0
SEP												
15...	.00	570	.78	251	303	72	1.6	31	831	8.2	5	14.0

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
SALMON FALLS CREEK BASIN--CONTINUED												
13152900 COVE CREEK NEAR HAGERMAN (LAT 42 52 01 LONG 114 52 06)												
MAY 1969												
23...	54	34	35	17	22	3.6	198	0	25	14	.3	4.2
SEP												
09...	63	33	40	18	21	3.4	200	3	33	14	.4	4.0
13152950 BIG WOOD RIVER BELOW UPPER POWER PLANT, NEAR HAGERMAN (LAT 42 51 52 LONG 114 53 04)												
OCT 1968												
01...	--	--	--	--	--	--	200	0	32	13	--	3.2
DEC												
13...	--	34	50	21	30	4.5	219	0	50	34	.5	4.0
SNAKE RIVER BASIN												
13153735 UNNAMED SPRING AT SNAKE RIVER POTTERY RANCH, NEAR BLISS (LAT 42 53 03 LONG 114 55 03)												
OCT 1968												
01...	5.0	--	--	--	--	--	326	0	81	33	--	8.1
DEC												
13...	5.0	36	59	30	56	5.2	307	0	81	34	.5	9.3
MAR 1969												
13...	5.0	37	63	29	57	5.0	326	0	86	32	.4	10.0
SEP												
09...	5.0	37	34	28	53	4.5	224	4	82	30	.3	9.8
BOISE RIVER BASIN												
13202000 BOISE RIVER NEAR BOISE (LAT 43 31 33 LONG 116 04 02)												
OCT 1968												
23...	32	13	12	1.5	4.4	.9	49	0	3.8	.0	.3	.7
FEB 1969												
27...	5090	15	11	1.4	4.5	.7	47	0	4.4	1.0	.3	.8
PAYETTE RIVER BASIN												
13251000 PAYETTE RIVER NEAR PAYETTE (LAT 44 02 30 LONG 116 55 30)												
NOV 1968												
07...	1230	19	16	3.2	20	1.4	100	0	12	3.0	.7	.3
APR 1969												
09...	7660	17	7.2	1.5	5.6	1.1	38	0	3.2	1.0	.2	.9
AUG												
24...	1630	17	15	3.5	19	1.7	99	0	11	2.0	.4	.2
WEISER RIVER BASIN												
13266000 WIESER RIVER NEAR WEISER (LAT 44 16 25 LONG 116 46 25)												
OCT 1968												
06...	105	25	14	6.3	11	3.0	94	0	8.0	3.0	.2	.2
APR 1969												
14...	4000	26	7.7	3.4	4.1	1.2	49	0	2.2	1.0	.1	.6
SEP												
08...	231	29	12	5.2	8.0	3.2	79	0	5.6	1.0	.2	1.0
SALMON RIVER BASIN												
13302000 PAHSIMEROI RIVER NEAR MAY (LAT 44 41 31 LONG 114 02 52)												
OCT 1968												
09...	80	19	46	16	12	1.9	209	0	21	8.5	.2	.0
13305300 LEMHI RIVER NEAR SALMON (LAT 45 07 47 LONG 113 47 47)												
OCT 1968												
09...	--	23	52	19	27	3.5	231	8	48	13	.3	.1
JUN 1969												
04...	555	20	38	9.0	21	2.8	165	0	32	7.0	.2	1.0
AUG												
19...	22	25	60	20	46	4.0	276	6	75	14	.3	.6
CLEARWATER RIVER BASIN												
13341000 NORTH FORK CLEARWATER RIVER AT AHSAHKA (LAT 46 31 00 LONG 116 17 35)												
MAR 1969												
11...	2720	16	4.9	1.2	2.5	1.4	26	0	1.8	1.0	.1	.5
13342500 CLEARWATER RIVER AT SPALDING (LAT 46 26 55 LONG 116 49 35)												
MAY 1969												
11...	67700	9.3	2.3	.5	1.3	1.0	13	0	.2	.5	.1	.4
AUG												
12...	3430	13	4.8	1.0	2.4	1.8	27	0	2.0	.0	.1	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO (SAR)	PERCENT SODIUM	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
SALMON FALLS CREEK BASIN--CONTINUED												
13152900 COVE CREEK NEAR HAGERMAN (LAT 42 52 01 LONG 114 52 06)												
MAY 1969												
23...	--	251	.34	37.0	158	0	.8	23	407	8.0	0	--
SEP												
09...	--	243	.33	41.3	174	5	.7	20	414	8.4	0	16.0
13152950 BIG WOOD RIVER BELOW UPPER POWER PLANT, NEAR HAGERMAN (LAT 42 51 52 LONG 114 53 04)												
OCT 1968												
01...	--	--	--	--	--	--	--	--	422	7.5	--	15.0
DEC												
13...	--	341	.46	--	211	32	.9	23	558	8.0	--	14.0
SNAKE RIVER BASIN												
13153735 UNNAMED SPRING AT SNAKE RIVER POTTERY RANCH, NEAR BLISS (LAT 42 53 03 LONG 114 55 03)												
OCT 1968												
01...	--	--	--	--	--	--	--	--	741	7.9	--	14.0
DEC												
13...	--	453	.62	6.12	271	19	1.5	31	721	8.0	--	15.0
MAR 1969												
13...	--	484	.66	6.53	276	10	1.5	30	746	7.9	0	13.0
SEP												
09...	.00	391	.53	5.28	200	17	1.6	36	599	8.4	0	14.0
BOISE RIVER BASIN												
13202000 BOISE RIVER NEAR BOISE (LAT 43 31 33 LONG 116 04 02)												
OCT 1968												
23...	--	70	.10	6.14	36	0	.3	20	91	7.5	0	9.0
FEB 1969												
27...	--	63	.09	866	34	0	.3	22	88	7.5	10	3.0
PAYETTE RIVER BASIN												
13251000 PAYETTE RIVER NEAR PAYETTE (LAT 44 02 30 LONG 116 55 30)												
NOV 1968												
07...	--	122	.17	405	53	0	1.2	44	193	7.8	5	9.0
APR 1969												
09...	--	58	.08	1200	24	0	.5	32	72	7.1	20	9.0
AUG												
24...	--	112	.15	493	52	0	1.1	43	184	7.5	5	23.0
WEISER RIVER BASIN												
13266000 WIESER RIVER NEAR WEISER (LAT 44 16 25 LONG 116 46 25)												
OCT 1968												
06...	--	112	.15	31.8	61	0	.6	27	175	7.4	10	13.0
APR 1969												
14...	--	72	.10	778	33	0	.3	20	82	7.3	10	8.0
SEP												
08...	--	114	.16	71.1	52	0	.5	24	137	7.5	40	21.0
SALMON RIVER BASIN												
13302000 PAHSIMERDI RIVER NEAR MAY (LAT 44 41 31 LONG 114 02 52)												
OCT 1968												
09...	--	214	.29	46.2	181	10	.4	11	380	8.0	5	8.0
13305300 LEMHI RIVER NEAR SALMON (LAT 45 07 47 LONG 113 47 47)												
OCT 1968												
09...	--	307	.42	--	208	4	.8	22	496	8.3	5	7.0
JUN 1969												
04...	--	213	.29	319	132	0	.8	25	332	7.8	10	15.0
AUG												
19...	--	365	.50	22.5	232	6	1.3	30	586	8.4	5	21.0
CLEARWATER RIVER BASIN												
13341000 NORTH FORK CLEARWATER RIVER AT AHSAHKA (LAT 46 31 00 LONG 116 17 35)												
MAR 1969												
11...	--	40	.05	294	17	0	.3	22	48	7.0	5	--
13342500 CLEARWATER RIVER AT SPALDING (LAT 46 26 55 LONG 116 49 35)												
MAY 1969												
11...	--	20	.03	3660	8	0	.2	24	22	7.1	5	10.0
AUG												
12...	--	40	.05	370	16	0	.3	22	45	7.3	0	21.0

WALLA WALLA RIVER BASIN

14013600 MILL CREEK BELOW BLUE CREEK, NEAR WALLA WALLA, WASH.

LOCATION.--Lat 46°04'55", long 118°11'25", in SE¼SW¼ sec.16, T.7 N., R.37 E., Walla Walla County, at bridge on county road, 2.0 miles downstream from Blue Creek, 5.5 miles east of Walla Walla, 6.4 miles downstream from gaging station near Walla Walla, and at mile 14.8.

DRAINAGE AREA.--91 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: October 1962 to September 1969.
Sediment records: October 1962 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Minimum, freezing point on several days during January.
Sediment concentrations: Maximum daily, 7,720 mg/l Jan. 6; minimum daily, 2 mg/l Dec. 31, June 14-22.
Sediment loads: Maximum daily, 59,000 tons Jan. 6; minimum daily, 0.19 ton Oct. 7-9.

Period of record:
Water temperatures: Maximum (1962-65, 1966-68), 26.5°C Aug. 17, 1967; minimum, freezing point Dec. 26, 1962, Jan. 20, 1966, Dec. 13, 1967, and several days during January 1969.
Sediment concentrations: Maximum daily, 8,000 mg/l Dec. 23, 1964; minimum daily, less than 1 mg/l Jan. 6-13, 1968.
Sediment loads: Maximum daily, 59,300 tons Dec. 23, 1964; minimum daily, less than 0.50 ton on many days in 1962-69.

REMARKS.--Maximum observed during water year: Sediment concentration, 14,600 mg/l Jan. 6. Records of discharge given are the combined discharge of Blue Creek near Walla Walla (station 14013500) and Mill Creek near Walla Walla (station 14013000). No appreciable inflow between gaging stations and sampling point except during periods of high flows.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.5	9.0	7.0	--	--	4.0	5.5	6.5	17.0	--	22.0	17.0
2	9.5	7.0	--	--	1.5	2.5	7.5	7.0	17.0	19.0	17.0	--
3	10.0	8.5	6.5	--	2.5	5.5	5.0	7.5	--	--	--	17.0
4	10.0	7.0	4.5	0.5	3.5	6.0	5.5	10.0	17.5	--	17.0	--
5	9.0	4.5	5.0	6.5	--	4.5	6.0	11.5	21.0	20.5	--	16.0
6	11.5	5.0	4.0	7.5	1.5	3.5	5.0	16.0	22.5	--	17.5	--
7	10.5	4.5	4.0	4.5	--	4.0	5.0	--	17.0	--	--	15.5
8	8.5	11.0	4.5	4.0	3.5	4.0	5.5	11.5	15.5	15.5	16.0	--
9	7.5	8.5	4.5	3.5	--	5.5	8.5	10.5	--	--	--	16.0
10	10.0	8.5	7.5	4.0	4.5	5.5	6.0	9.5	21.0	17.0	--	--
11	10.5	8.5	4.5	2.5	6.0	6.5	10.5	15.5	15.0	--	20.0	18.5
12	10.0	7.0	4.0	2.5	4.0	6.5	9.5	14.5	17.5	--	--	--
13	10.0	5.5	4.5	2.5	4.5	5.5	7.5	13.5	14.5	16.5	21.5	15.0
14	7.0	5.0	6.0	4.5	2.5	3.5	9.0	9.5	17.0	--	--	--
15	7.5	5.5	7.5	2.5	4.5	8.5	10.0	14.0	18.5	21.0	16.0	17.5
16	7.5	5.0	6.0	4.5	--	7.5	11.5	15.5	22.0	--	--	--
17	6.5	6.0	5.0	2.5	5.0	6.0	9.0	10.0	24.5	24.0	20.0	--
18	7.5	5.0	4.5	2.5	--	5.0	7.0	15.5	17.5	--	--	15.0
19	4.5	7.0	5.5	2.0	4.0	4.5	7.5	12.5	16.5	--	17.0	--
20	8.5	6.0	3.5	--	2.5	6.0	5.5	10.0	22.5	24.0	--	13.5
21	7.0	7.5	2.5	0.0	3.5	9.0	14.0	19.0	19.0	--	--	--
22	9.0	7.0	2.0	0.0	4.5	7.0	14.0	11.5	16.5	24.5	20.5	10.0
23	10.0	5.5	7.5	--	3.5	4.5	7.5	15.5	14.0	--	21.5	14.0
24	10.0	4.5	6.5	0.0	3.5	4.5	5.5	12.5	12.5	--	--	15.5
25	8.5	4.5	--	--	4.5	7.5	7.5	--	12.5	21.5	15.5	16.0
26	8.5	5.5	4.5	--	4.0	9.5	11.0	16.5	11.5	--	--	12.0
27	6.0	6.0	4.0	--	6.0	5.5	10.0	12.5	--	--	16.5	13.5
28	7.5	5.0	--	--	5.0	5.0	8.5	17.0	16.5	24.0	--	--
29	9.0	6.5	--	--	--	8.5	5.0	12.5	16.5	--	20.0	10.0
30	9.0	5.5	--	--	--	--	7.5	14.0	21.0	23.5	--	10.0
31	5.0	--	--	--	--	6.5	--	11.5	--	--	--	--
AVG	8.5	6.5	5.0	--	4.0	5.5	8.0	12.5	17.5	--	--	--

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
JAN 5, 1969	1700		1020	3760	10400	11	16	24	36	54	79	88	94	97	97	97	SVPWC
JAN 6.....	1600	6	3030	6710	54900	2	8	17	32	56	81	91	96	99	100	--	VPWC

14013600 MILL CRREK BELOW BLUE CREEK, NEAR WALLA WALLA, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	26	3	.21	41	3	.33	98	6	1.6
2	26	3	.21	41	3	.33	89	6	1.4
3	25	3	.20	42	3	.34	94	9	2.3
4	26	3	.21	39	3	.32	164	34	15
5	25	3	.20	39	3	.32	168	14	6.4
6	25	3	.20	36	3	.29	140	10	3.8
7	24	3	.19	37	3	.30	124	12	4.0
8	24	3	.19	48	15	2.5	134	10	3.6
9	24	3	.19	104	26	7.3	146	9	3.5
10	25	3	.20	92	7	1.7	174	42	20
11	39	12	1.3	94	35	10	234	69	44
12	63	18	3.1	170	50	23	191	18	9.3
13	51	8	1.1	158	16	6.8	158	10	4.3
14	43	4	.46	121	9	2.9	139	17	6.4
15	68	16	2.9	100	5	1.4	136	12	4.4
16	75	8	1.6	82	5	1.1	151	12	4.9
17	65	6	1.1	68	5	.92	141	10	3.8
18	70	21	4.0	75	5	1.0	128	14	4.8
19	66	6	1.1	91	5	1.2	111	8	2.4
20	102	29	8.2	98	5	1.3	99	9	2.4
21	113	18	5.5	106	18	6.8	88	10	2.4
22	92	12	3.0	245	75	50	82	7	1.5
23	78	4	.84	212	22	13	79	7	1.5
24	67	4	.72	172	10	4.6	98	18	4.8
25	59	4	.64	140	11	4.2	132	20	7.1
26	53	4	.57	122	8	2.6	130	12	4.2
27	48	4	.52	126	8	2.7	116	18	5.6
28	46	4	.50	122	8	2.6	102	9	2.5
29	45	4	.49	114	8	2.5	75	5	1.0
30	47	4	.51	104	8	2.2	52	5	.70
31	43	4	.46	--	--	--	51	2	.28
TOTAL	1583	--	40.61	3039	--	154.55	3824	--	179.88

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	51	4	.55	72	150	29	81	8	1.7
2	57	4	.62	67	166	30	82	8	1.8
3	64	4	.69	66	230	41	86	8	1.9
4	120	263	85	66	64	11	88	8	1.9
5	1040	4120	20200	62	12	2.0	109	30	8.8
6	2720	7720	59000	60	7	1.1	126	21	7.1
7	1670	3350	16800	64	7	1.2	122	8	2.6
8	803	358	776	70	10	1.9	113	8	2.4
9	508	87	119	78	19	4.0	105	8	2.3
10	341	26	24	83	13	2.9	99	7	1.9
11	263	19	13	171	313	145	93	7	1.8
12	222	20	12	236	138	88	93	7	1.8
13	283	78	60	704	38	72	96	7	1.8
14	294	88	70	172	22	10	101	7	1.9
15	247	18	12	157	24	10	103	7	1.9
16	210	15	8.5	151	19	7.7	112	7	2.1
17	189	20	10	154	14	5.8	171	63	29
18	164	24	11	149	14	5.6	283	152	116
19	154	24	10	137	8	3.0	271	44	32
20	138	22	8.2	121	10	3.3	231	21	13
21	115	13	4.0	110	11	3.3	214	20	12
22	95	11	2.8	101	6	1.6	219	17	10
23	74	11	2.2	98	6	1.6	231	14	8.7
24	58	26	4.1	91	6	1.5	203	11	6.0
25	67	25	4.5	86	6	1.4	215	9	5.2
26	79	25	5.3	83	6	1.3	258	31	22
27	72	25	4.9	78	6	1.3	319	34	29
28	72	25	4.9	81	6	1.3	352	66	63
29	72	25	4.9	--	--	--	373	36	36
30	71	25	4.8	--	--	--	422	192	219
31	71	150	29	--	--	--	481	208	270
TOTAL	10384	--	97291.96	3568	--	487.8	5852	--	914.6

14013600 MILL CREEK BELOW BLUE CREEK, NEAR WALLA WALLA, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	399	54	58	346	34	32	82	8	1.8
2	364	24	24	315	25	21	77	4	.83
3	339	12	11	270	20	15	73	4	.79
4	304	11	9.0	235	18	11	69	4	.75
5	339	19	17	210	21	12	68	4	.73
6	390	48	51	207	20	11	67	4	.72
7	300	16	13	239	20	13	62	4	.67
8	267	16	12	281	20	15	61	4	.66
9	271	19	14	292	22	17	59	4	.64
10	367	46	46	293	17	13	56	4	.60
11	341	33	30	286	16	12	55	4	.59
12	324	34	30	243	12	7.9	52	4	.56
13	354	26	25	224	8	4.8	51	4	.55
14	289	16	12	189	12	6.1	48	2	.26
15	245	14	9.3	159	4	1.7	47	2	.25
16	210	12	6.8	142	10	3.8	46	2	.25
17	231	20	12	135	11	4.0	44	2	.24
18	274	23	17	131	7	2.5	42	2	.23
19	258	17	12	127	6	2.1	42	2	.23
20	239	16	10	122	6	2.0	41	2	.22
21	238	15	9.6	113	8	2.4	41	2	.22
22	283	19	15	106	7	2.0	44	2	.24
23	343	23	21	108	9	2.6	62	11	1.8
24	306	17	14	109	14	4.1	102	25	6.9
25	237	13	8.3	101	8	2.2	76	8	1.6
26	202	10	5.5	96	8	2.1	64	5	.86
27	183	8	4.0	93	6	1.5	59	5	.80
28	229	102	63	83	6	1.3	59	5	.80
29	301	38	31	80	6	1.3	55	5	.74
30	313	30	25	124	24	8.0	51	5	.69
31	--	--	--	92	44	11	--	--	--
TOTAL	8740	--	615.5	5551	--	245.4	1755	--	26.22

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	48	4	.52	29	4	.31	25	4	.27
2	47	4	.51	29	4	.31	25	4	.27
3	45	4	.49	29	4	.31	25	4	.27
4	43	4	.46	29	4	.31	27	4	.29
5	42	4	.45	30	4	.32	29	4	.31
6	42	4	.45	30	4	.32	29	4	.31
7	42	4	.45	30	4	.32	29	4	.31
8	40	4	.43	30	4	.32	29	4	.31
9	40	4	.43	30	4	.32	29	4	.31
10	38	4	.41	29	4	.31	29	4	.31
11	38	4	.41	27	4	.29	28	4	.30
12	38	4	.41	27	4	.29	27	4	.29
13	36	4	.39	28	4	.30	28	4	.30
14	35	4	.38	27	4	.29	28	4	.30
15	35	4	.38	27	4	.29	28	4	.30
16	34	4	.37	27	4	.29	28	4	.30
17	33	4	.36	27	4	.29	28	4	.30
18	33	4	.36	27	4	.29	29	4	.31
19	32	4	.35	27	4	.29	29	4	.31
20	31	4	.33	27	4	.29	31	4	.33
21	31	4	.33	26	4	.28	29	4	.31
22	30	4	.32	26	4	.28	29	4	.31
23	30	4	.32	25	4	.27	29	4	.31
24	29	4	.31	25	4	.27	29	4	.31
25	28	4	.30	25	4	.27	28	4	.30
26	28	4	.30	26	4	.28	28	4	.30
27	27	4	.29	26	4	.28	28	4	.30
28	27	4	.29	27	4	.29	28	4	.30
29	29	4	.31	27	4	.29	29	51	4.0
30	29	4	.31	26	4	.28	40	13	1.4
31	29	4	.31	25	4	.27	--	--	--
TOTAL	1089	--	11.73	850	--	9.12	857	--	13.84

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 47092
TOTAL LOAD FOR YEAR (TONS) 99991.21

14018500 WALLA WALLA RIVER NEAR TOUCHET, WASH.

LOCATION.--Lat 46°02'15", long 118°45'55", in SE¼SE¼ sec.35, T.7 N., R.32 E., Walla Walla County, at bridge on county road, 0.9 mile downstream from Warm Springs Canyon, 2.5 miles downstream from gaging station, 3.7 miles west of Touchet, and at mile 15.7.

DRAINAGE AREA.--1,657 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1969.
Water temperatures: July 1959 to September 1969.
Sediment records: October 1962 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 28.5°C June 6, 9; minimum, freezing point on several days during January.
Sediment concentrations: Maximum daily, 11,000 mg/l Jan. 6; minimum daily, 5 mg/l Oct. 1-12.
Sediment loads: Maximum daily, 358,000 tons Jan. 6; minimum daily, 0.31 ton Oct. 11.

Period of record:
Water temperatures: Maximum, 34.5°C Aug. 4, 1961; minimum (1959-61, 1962-69), freezing point on several days during winter periods.
Sediment concentrations: Maximum daily, 61,200 mg/l Feb. 5, 1963; minimum daily, 0 mg/l July 30 to Aug. 8, Aug. 12, 13, 1968.
Sediment loads: Maximum daily, 3,230,000 tons Dec. 23, 1964; minimum daily, 0 ton July 30 to Aug. 8, Aug. 12, 13, 1968.

REMARKS.--Maximum observed during water year: Sediment concentration, 13,600 mg/l Jan. 7. No appreciable inflow between gaging station and sampling point.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
22...	234	29	18	7.0	14	4.4	102	0	10
NOV.									
13...	952	29	12	4.1	8.6	5.1	64	0	7.2
DEC.									
10...	762	33	13	4.5	8.2	2.8	68	0	6.0
JAN.									
22...	920	33	15	5.9	9.6	2.8	72	0	11
FEB.									
18...	1410	33	16	5.9	9.3	3.0	73	0	8.8
MAR.									
11...	862	34	17	6.6	11	3.0	82	0	10
APR.									
15...	1870	30	9.8	3.6	6.0	2.1	51	0	4.4
MAY									
20...	658	28	13	4.9	8.7	2.9	71	0	8.4
JUNE									
24...	90	33	43	16	40	7.4	207	0	45
JULY									
22...	13	29	50	24	61	9.3	262	0	83
AUG.									
19...	8.4	25	67	30	70	9.3	275	0	139
SEPT.									
23...	35	27	53	17	52	8.6	276	0	45

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
22...	7.5	.2	1.9	--	149	74	0	209	7.4
NOV.									
13...	3.3	.2	2.3	--	--	47	0	138	6.8
DEC.									
10...	3.2	.1	1.8	--	119	51	0	139	7.5
JAN.									
22...	6.5	.1	6.0	20	138	62	3	176	7.5
FEB.									
18...	4.9	.2	8.4	--	142	65	5	178	7.6
MAR.									
11...	8.4	.1	7.9	--	144	70	3	196	7.7
APR.									
15...	3.7	.2	.7	--	98	40	0	109	7.6
MAY									
20...	6.2	.1	1.4	--	111	53	0	151	8.1
JUNE									
24...	33	.3	2.0	--	324	174	4	532	8.0
JULY									
22...	45	.2	1.9	--	446	224	9	711	7.8
AUG.									
19...	50	.4	2.9	--	532	291	65	843	7.5
SEPT.									
23...	33	.2	1.2	--	376	202	0	617	7.8

14018500 WALLA WALLA RIVER NEAR TOUCHET, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
22...	10	10	9.8	35000	--	--	--
NOV.							
13...	30	6	10.6	48000	--	--	--
DEC.							
10...	20	6	9.8	6300	--	--	--
JAN.							
22...	10	0	7.8	7500	0	0	0
FEB.							
18...	20	4	12.5	5200	--	--	--
MAR.							
11...	10	6	12.7	2400	--	--	--
APR.							
15...	10	10	10.8	2500	--	--	--
MAY							
20...	5	18	9.6	1400	--	--	--
JUNE							
24...	5	18	11.5	760	--	--	--
JULY							
22...	5	27	14.5	3600	0	0	0
AUG.							
19...	0'	21	13.0	3300	--	--	--
SEPT.							
23...	5	19	9.5	120	--	--	--

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	--	8.5	5.0	--	--	5.5	10.5	10.0	22.5	--	24.0	24.0
2	14.5	--	4.5	--	--	5.5	10.0	10.0	24.5	--	--	--
3	--	8.5	6.0	--	1.0	6.0	10.5	12.0	26.5	17.5	--	20.0
4	13.5	--	7.0	--	2.0	5.5	10.5	10.5	27.0	--	20.5	--
5	--	7.0	6.5	0.5	2.0	7.0	10.5	12.5	25.5	22.5	--	19.0
6	--	--	5.5	2.5	1.0	6.5	8.5	14.5	28.5	--	25.0	--
7	--	6.5	4.5	4.5	2.0	5.5	10.5	15.0	27.0	--	--	--
8	13.5	--	6.0	2.5	4.0	5.5	11.5	15.0	26.0	25.5	19.5	19.0
9	--	9.0	5.0	4.0	3.5	5.5	12.5	16.5	28.5	--	--	--
10	12.5	6.0	5.5	4.5	3.5	5.0	12.0	16.0	25.5	25.0	--	22.5
11	--	7.0	5.5	4.5	4.0	4.5	12.0	16.0	25.0	--	25.0	--
12	13.5	8.5	3.5	1.5	5.0	4.5	11.5	19.0	26.0	20.5	--	24.5
13	--	7.0	--	2.5	5.0	7.0	9.5	16.5	25.0	--	25.5	--
14	11.0	6.0	--	3.5	4.0	6.0	11.0	13.5	24.5	21.5	--	--
15	--	6.0	--	2.5	5.0	6.5	5.0	13.5	25.5	--	--	16.0
16	10.0	4.5	--	2.0	--	7.0	13.5	15.5	26.5	23.5	19.5	--
17	--	6.0	--	2.5	--	9.5	11.5	19.5	26.5	--	--	16.0
18	10.0	6.5	5.0	2.0	--	7.5	12.5	17.5	27.5	24.0	--	--
19	--	7.0	3.5	1.5	--	7.5	10.0	16.0	26.0	--	19.0	17.0
20	10.5	8.5	2.0	1.0	3.5	9.5	10.5	17.0	22.5	--	--	--
21	--	7.0	--	0.5	4.0	10.0	12.5	16.5	20.0	24.5	27.0	--
22	11.5	9.0	1.0	0.0	3.5	9.0	14.0	18.5	20.5	--	--	17.5
23	12.0	9.0	--	0.5	4.0	8.5	13.5	21.0	18.5	22.0	27.5	--
24	13.5	5.5	2.5	0.0	2.5	9.0	9.5	20.0	19.0	--	--	16.0
25	13.5	6.0	--	--	2.5	6.5	9.0	19.5	18.5	--	23.5	--
26	12.5	7.0	--	--	4.0	7.0	9.5	19.5	19.0	20.0	--	16.5
27	11.5	7.0	4.0	0.0	4.0	9.0	11.5	18.5	19.0	--	20.0	--
28	11.0	5.5	--	--	5.5	10.0	12.5	16.5	18.5	24.5	--	--
29	9.5	4.0	--	--	--	10.0	10.0	19.0	21.5	24.5	16.0	18.5
30	8.5	5.0	--	0.5	--	10.5	10.0	20.5	23.5	--	--	--
31	--	--	--	--	--	10.5	--	20.0	--	--	--	--
AVG	--	7.0	--	--	3.5	7.5	11.0	16.5	24.0	--	--	--

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
OCT 22, 1968	1850	12	218	972	572	65	77	90	95	100	--	--	--	--	--	--	PWC
DEC 12.....	1720	4	1210	1490	4870	21	35	47	71	92	--	--	--	--	--	--	PWC
JAN 6, 1969	0700	2	8970	10400	252000	16	25	33	51	71	92	98	100	--	--	--	VPWC
JAN 6.....	1400	3	13000	10400	365000	16	24	34	59	79	95	98	100	--	--	--	VPWC
JAN 9.....	1400	3	4300	5200	60400	8	12	18	32	56	93	99	100	--	--	--	VPWC
APR 7.....	1010	6	2900	1750	13700	16	18	28	41	60	86	95	100	--	--	--	VPWC

14018500 WALLA WALLA RIVER NEAR TOUCHET, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	41	5	.55	87	22	5.2	510	59	81
2	41	5	.55	84	22	5.0	464	48	60
3	40	5	.54	80	22	4.8	404	56	61
4	40	5	.54	80	22	4.8	628	1070	2620
5	36	5	.49	76	8	1.6	844	1280	2920
6	40	5	.54	74	8	1.6	784	148	313
7	38	5	.51	79	8	1.7	685	97	179
8	32	5	.43	90	8	1.9	632	83	142
9	28	5	.38	197	361	490	756	155	317
10	27	5	.36	488	1290	1700	762	143	294
11	23	5	.31	392	250	265	1420	8620	40300
12	30	5	.41	737	376	959	1360	3900	15900
13	78	8	1.7	952	880	2260	1040	100	281
14	76	8	1.6	751	192	389	898	100	242
15	55	8	1.2	582	78	123	817	100	221
16	54	8	1.2	472	53	68	910	1100	2700
17	87	8	1.9	396	48	51	862	600	1400
18	74	8	1.6	354	47	45	800	430	929
19	72	8	1.6	388	46	48	778	1540	3230
20	80	8	1.7	420	53	60	685	280	518
21	167	90	41	432	62	72	582	90	141
22	234	500	316	686	1080	3690	550	82	122
23	179	635	307	1120	2270	6860	528	80	114
24	147	115	46	874	341	805	568	110	169
25	126	39	13	806	182	396	982	1600	4240
26	107	41	12	664	127	228	940	400	1020
27	88	30	7.1	622	100	168	800	220	475
28	85	23	5.3	627	98	166	650	150	263
29	82	21	4.6	597	91	147	400	120	130
30	79	18	3.8	578	82	128	300	100	81
31	80	18	3.9	--	--	--	300	100	81
TOTAL	2366	--	777.81	13785	--	19144.6	22641	--	79544

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	350	100	95	500	1100	1490	812	225	493
2	440	100	119	537	1200	1740	800	200	432
3	460	100	124	773	1100	2300	812	195	428
4	650	150	263	751	480	973	812	185	406
5	3400	3610	51700	762	350	720	874	550	1300
6	11400	11000	358000	712	200	384	1200	4730	15700
7	11600	10100	317000	669	130	235	1120	750	2270
8	7180	8080	158000	690	530	987	1040	410	1150
9	4280	5400	62400	1010	2470	6740	976	285	751
10	3240	3750	32800	946	680	1740	922	180	448
11	2880	2800	21800	1300	1540	6200	862	147	342
12	2280	1710	10500	2660	5780	41500	839	139	315
13	2270	1500	9190	2300	2560	15900	828	140	313
14	2590	1480	10300	1830	1020	5040	834	144	324
15	2290	1010	6240	1600	700	3020	850	187	429
16	2050	760	4210	1470	630	2500	934	310	782
17	1860	680	3410	1490	640	2570	1120	820	2480
18	1650	610	2720	1410	540	2060	2180	5190	33200
19	1520	540	2220	1340	450	1630	2340	2900	18300
20	1340	430	1560	1240	320	1070	2060	1490	8290
21	1100	310	921	1150	250	776	1860	980	4920
22	920	170	422	1060	245	701	1790	1220	5900
23	750	160	324	1020	220	606	1900	1190	6100
24	540	270	394	970	165	432	1670	630	2840
25	400	230	248	928	150	376	1530	490	2020
26	420	200	227	898	145	352	1620	680	2970
27	460	275	342	834	120	270	1910	1020	5260
28	460	140	174	812	115	252	2190	1480	8750
29	460	90	112	--	--	--	2400	1590	10300
30	460	54	67	--	--	--	2520	1610	11000
31	480	352	456	--	--	--	2970	2510	20100
TOTAL	70180	--	1056338	31662	--	102564	44575	--	168313

WALLA WALLA RIVER BASIN

14018500 WALLA WALLA RIVER NEAR TOUCHET, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	3090	2300	19200	1930	515	2680	396	14	15
2	2710	1480	10800	1850	333	1660	322	13	11
3	2490	1050	7060	1620	265	1160	276	16	12
4	2200	810	4810	1410	242	921	240	19	12
5	2190	790	4670	1250	206	695	204	16	8.8
6	2830	1550	11800	1150	191	593	179	12	5.8
7	2670	1400	10100	1170	227	717	162	14	6.1
8	2200	710	4220	1290	250	871	164	14	6.2
9	2160	640	3730	1430	262	1010	153	12	5.0
10	2510	1140	7730	1440	266	1030	144	390	152
11	2510	800	5420	1400	268	1010	138	123	46
12	2300	860	5340	1320	210	748	128	27	9.3
13	2490	1120	7530	1220	161	530	128	23	7.9
14	2300	560	3480	1140	166	511	113	24	7.3
15	1870	380	1920	1040	104	292	99	18	4.8
16	1590	350	1500	886	101	242	90	32	7.8
17	1530	360	1490	729	89	175	80	24	5.2
18	1910	840	4330	674	96	175	74	18	3.6
19	1810	430	2100	622	82	138	73	18	3.5
20	1720	310	1440	658	67	119	58	20	3.1
21	1540	220	915	597	53	85	51	22	3.0
22	1610	330	1430	528	38	54	50	22	3.0
23	1940	610	3200	472	32	41	56	16	2.4
24	2160	550	3210	432	30	35	90	20	4.9
25	1790	290	1400	428	26	30	162	28	12
26	1430	210	811	400	28	30	116	20	6.3
27	1220	190	626	384	26	27	82	21	4.6
28	1170	310	979	384	23	24	74	16	3.2
29	1990	2720	14600	329	24	21	72	15	2.9
30	1900	695	3570	329	16	14	66	12	2.1
31	--	--	--	506	20	27	--	--	--
TOTAL	61830	--	149411	29018	--	15665	4040	--	376.8

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	61	25	4.1	9.3	26	.65	8.4	31	.70
2	51	25	3.4	8.8	26	.62	8.8	31	.74
3	47	25	3.2	8.4	26	.59	7.6	31	.64
4	47	25	3.2	8.0	26	.56	6.5	31	.54
5	44	25	3.0	8.4	26	.59	7.2	31	.60
6	45	25	3.0	7.2	26	.51	8.8	31	.74
7	44	25	3.0	7.6	26	.53	11	31	.92
8	45	25	3.0	6.2	26	.44	11	31	.92
9	42	25	2.8	6.9	26	.48	11	31	.92
10	34	25	2.3	8.0	26	.56	11	31	.92
11	31	25	2.1	6.2	26	.44	8.8	31	.74
12	24	25	1.6	6.2	26	.44	11	31	.92
13	22	25	1.5	6.5	26	.46	9.3	31	.78
14	20	25	1.4	5.0	26	.35	8.0	31	.67
15	19	25	1.3	5.6	26	.39	7.2	31	.60
16	22	25	1.5	5.0	26	.35	7.6	31	.64
17	23	25	1.6	6.5	26	.46	8.0	31	.67
18	22	25	1.5	8.0	26	.56	7.6	31	.64
19	20	25	1.4	8.4	26	.59	7.6	31	.64
20	18	20	.97	8.0	26	.56	16	24	1.0
21	16	20	.86	8.0	26	.56	35	13	1.2
22	13	20	.70	8.0	26	.56	37	13	1.3
23	15	20	.81	8.0	26	.56	35	6	.57
24	15	20	.81	7.6	26	.53	34	6	.55
25	15	20	.81	7.6	26	.53	35	6	.57
26	15	20	.81	8.4	26	.59	35	6	.57
27	16	20	.86	8.4	26	.59	36	6	.58
28	15	20	.81	8.8	26	.62	36	6	.58
29	13	20	.70	9.3	26	.65	30	6	.49
30	11	20	.59	7.6	26	.53	30	6	.49
31	10	20	.54	7.6	26	.53	--	--	--
TOTAL	835	--	54.17	233.5	--	16.38	525.4	--	21.84

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 281690.9
TOTAL LOAD FOR YEAR (TONS) 1592226.60

14019200 COLUMBIA RIVER AT MCNARY DAM, NEAR UMATILLA, OREG.

LOCATION.--Lat 45°56'05", long 119°17'45", in NE¼ sec.10, T.5 N., R.28 E., Umatilla County, at gaging station at McNary Dam, 2.5 miles northeast of Umatilla, 3.0 miles upstream from Umatilla River, and at mile 292.0.

DRAINAGE AREA.--214,000 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1969.
Water temperatures: October 1961 to September 1962.
Sediment records: May 1965 to September 1966.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available. Prior to October 1966, published as "below McNary Dam."

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
22...	112000	8.3	20	7.1	9.9	1.6	91	0	29
NOV.									
13...	127000	8.0	20	5.6	8.1	1.4	83	0	19
DEC.									
10...	114000	11	22	5.8	9.0	1.5	88	0	20
JAN.									
22...	190000	14	22	6.8	11	1.8	93	0	23
FEB.									
18...	180000	13	24	6.8	9.8	1.7	96	0	24
MAR.									
11...	156000	13	26	7.6	12	2.0	106	0	24
APR.									
15...	315000	14	21	5.8	6.4	1.7	83	0	17
MAY									
20...	443000	11	14	3.2	4.1	1.0	54	0	11
JUNE									
24...	280000	7.8	16	3.8	3.4	.9	62	0	12
JULY									
22...	195000	5.5	18	4.2	3.2	1.0	67	0	13
AUG.									
19...	111000	5.4	19	4.4	4.3	1.1	73	0	12
SEPT.									
23...	111000	6.9	20	5.6	6.6	1.4	83	0	16

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
22...	3.6	.3	.8	--	126	79	5	200	7.7
NOV.									
13...	3.0	.2	.8	--	102	73	5	180	7.7
DEC.									
10...	3.7	.2	1.0	--	121	79	7	192	7.8
JAN.									
22...	5.4	.2	1.9	20	141	83	7	215	7.7
FEB.									
18...	4.1	.3	1.4	--	136	88	10	222	7.9
MAR.									
11...	6.6	.3	1.6	--	152	97	10	245	7.9
APR.									
15...	2.8	.3	1.6	--	119	77	9	182	7.6
MAY									
20...	1.5	.2	.6	--	65	48	4	115	7.5
JUNE									
24...	.9	.1	.6	--	78	56	5	130	7.7
JULY									
22...	.9	.1	.2	--	89	63	8	137	7.6
AUG.									
19...	1.9	.2	.8	--	86	66	6	152	7.5
SEPT.									
23...	2.8	.2	.7	--	103	73	5	177	7.5

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
22...	0	10	10.1	30	--	--	--
NOV.							
13...	0	10	10.3	190	--	--	--
DEC.							
10...	10	6	9.5	200	--	--	--
JAN.							
22...	5	0	10.8	370	0	0	0
FEB.							
18...	5	3	12.4	22	--	--	--
MAR.							
11...	5	6	14.8	18	--	--	--
APR.							
15...	10	11	12.3	130	--	--	--
MAY							
20...	0	14	11.8	130	--	--	--
JUNE							
24...	0	18	10.2	26	--	--	--
JULY							
22...	0	23	12.1	100	0	0	0
AUG.							
19...	5	21	9.9	130	--	--	--
SEPT.							
23...	0	18	8.3	16	--	--	--

14020000 UMATILLA RIVER ABOVE MEACHAM CREEK, NEAR GIBBON, OREG.

LOCATION.--Lat 45°43'11", long 118°19'20", in SE¼SW¼ sec.21, T.3 N., R.36 E., Umatilla County, Umatilla Indian Reservation, temperature recorder at gaging station on right bank, 0.8 mile downstream from Ryan Creek, 2.2 miles upstream from Meacham Creek, 2.5 miles northeast of Gibbon, and at mile 83.1.

DRAINAGE AREA.--131 sq mi.

PERIOD OF RECORD.--Water temperatures: June 1959 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 23.0°C July 23; minimum, freezing point on several days in January.

Period of record:
Water temperatures: Maximum, 25.0°C July 13, 15, 21, 1961; minimum, freezing point on several days during winter periods.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	12	12	11	12	11	11	10	10	11	10	11	9	9	9	9	9	9	9	9	9	10	11	11	10	9	9	9	9	9	9	10
MINIMUM	11	9	8	9	8	9	9	8	8	9	9	9	8	7	8	8	7	8	7	8	8	8	9	9	8	8	7	8	8	8	7	8
NOVEMBER																																
MAXIMUM	7	8	8	8	7	6	6	7	7	6	6	6	6	6	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	5	--	6
MINIMUM	6	7	8	7	6	5	6	6	7	6	6	6	6	6	5	5	5	5	5	5	5	6	6	5	5	5	6	5	5	5	--	6
DECEMBER																																
MAXIMUM	5	4	5	5	5	5	5	6	6	6	6	5	4	5	5	5	5	4	4	4	4	4	4	4	4	4	4	3	2	2	1	4
MINIMUM	4	4	4	4	5	5	5	5	5	6	4	4	4	4	5	5	4	4	4	3	3	3	3	4	4	4	3	2	2	2	1	4
JANUARY																																
MAXIMUM	1	1	1	2	3	4	4	4	5	4	4	4	4	3	2	2	1	1	1	0	1	0	0	0	0	1	1	0	1	1	1	2
MINIMUM	1	0	0	2	3	3	4	4	4	4	4	4	4	3	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
FEBRUARY																																
MAXIMUM	2	2	2	2	3	3	3	4	3	4	4	4	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	5	--	--	--	4
MINIMUM	1	2	2	2	2	3	3	3	3	3	4	4	4	3	4	4	4	4	4	4	4	4	4	3	3	3	3	4	--	--	--	3
MARCH																																
MAXIMUM	5	5	4	5	4	4	5	4	4	4	4	4	5	5	6	5	6	4	6	6	6	6	4	5	6	6	6	6	7	7	6	5
MINIMUM	4	4	4	4	4	4	4	4	3	3	3	3	3	3	4	4	4	4	4	4	4	4	3	3	4	4	4	4	5	5	6	4
APRIL																																
MAXIMUM	7	7	7	8	8	7	8	9	10	8	9	9	8	8	8	9	8	8	8	9	10	9	7	7	7	9	9	7	7	7	--	8
MINIMUM	6	6	6	7	7	5	6	7	7	8	7	8	7	7	7	6	7	7	7	7	6	7	7	6	6	6	6	7	6	6	--	6
MAY																																
MAXIMUM	6	7	6	9	10	11	11	11	11	11	11	11	9	8	11	10	12	9	9	10	13	13	14	11	13	11	12	13	11	12	14	11
MINIMUM	5	6	5	5	6	6	6	7	7	7	7	7	7	7	7	7	8	8	8	8	7	8	8	9	8	9	9	8	9	9	8	7
JUNE																																
MAXIMUM	15	16	17	18	15	18	18	16	17	17	18	18	18	19	19	19	19	20	20	20	18	16	14	13	13	14	13	14	16	18	--	17
MINIMUM	9	9	10	11	12	12	12	12	13	13	11	12	13	12	12	12	12	13	13	14	13	13	13	12	11	11	11	11	11	11	--	12
JULY																																
MAXIMUM	19	17	17	17	18	17	20	21	22	21	19	19	20	19	19	20	21	21	22	22	21	22	23	21	21	21	21	22	21	21	22	20
MINIMUM	12	13	13	12	12	12	13	13	13	14	14	14	12	13	12	12	13	13	14	14	14	13	14	16	16	13	14	14	14	13	14	13
AUGUST																																
MAXIMUM	21	21	21	18	19	19	19	20	21	20	20	19	21	21	21	19	19	19	20	21	21	21	21	20	19	18	18	17	17	18	18	19
MINIMUM	14	14	13	14	13	12	13	13	14	14	14	14	14	14	15	14	13	14	14	14	14	14	15	15	13	13	13	13	12	13	12	14
SEPTEMBER																																
MAXIMUM	18	18	16	14	16	16	17	18	17	17	18	18	17	15	14	15	16	15	16	16	15	14	14	15	15	14	--	--	--	--	--	16
MINIMUM	13	13	13	12	11	11	12	13	14	13	14	14	13	12	10	12	12	13	13	13	12	12	13	12	13	12	--	--	--	--	--	12

14033500 UMATILLA RIVER NEAR UMATILLA, OREG.

LOCATION.--Lat 45°54'11", long 119°19'33", in SW¼NW¼ sec.21, T.5 N., R.28 E., Umatilla County, at gaging station on left bank, 1.2 miles southeast of Umatilla, 1.6 miles downstream from West Division main canal of Umatilla project, and at mile 2.1.

DRAINAGE AREA.--2,290 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: August 1911 to August 1912, August 1960 to July 1962.
Water temperatures: October 1962 to September 1965, October 1966 to September 1969.
Sediment records: October 1962 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 27.0°C Aug. 3; minimum, freezing point Jan. 3.
Sediment concentrations: Maximum daily, 5,730 mg/l Jan. 8; minimum daily, 1 mg/l Oct. 3, 4, Nov. 7, 8.
Sediment loads: Maximum daily, 86,600 tons Jan. 8; minimum daily, 0.01 ton Oct. 3, 4.

Period of record:
Water temperatures: Maximum (1968-69), 27.0°C Aug. 3, 1969; minimum (1962-65, 1967-69), freezing point Jan. 29, 1963, Dec. 16-20, 1964, Jan. 3, 1969.
Sediment concentrations: Maximum daily, 39,800 mg/l July 27, 1965; minimum daily, 1 mg/l Nov. 18, 22, 25, 26, Dec. 3, 1967, Oct. 3, 4, Nov. 7, 8, 1969.
Sediment loads: Maximum daily, 438,000 tons Jan. 30, 1965; minimum daily, less than 0.005 ton Apr. 15, 16, 1968.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	--	--	17	15	18	14	15	16	13	15	14	17	13	--	--	13	12	14	13	13	13	14	15	14	14	13	14	11	10	10	9	14
NOVEMBER.	6	11	10	9	9	9	9	9	9	10	9	13	8	7	7	7	8	8	8	9	8	9	9	8	8	7	7	8	8	4	--	8
DECEMBER.	6	6	7	8	7	5	6	7	6	7	7	7	5	7	7	6	8	4	4	4	4	--	4	--	5	--	4	2	--	--	--	5
JANUARY..	--	--	0	--	2	1	6	4	5	3	4	3	1	3	3	3	3	3	4	3	2	--	--	--	--	--	--	--	--	--	--	--
FEBRUARY.	1	2	2	1	2	2	2	3	4	4	5	4	5	4	4	5	6	5	--	5	6	5	4	3	5	5	6	5	--	--	--	4
MARCH....	8	7	7	8	7	7	7	6	7	4	7	8	--	--	--	10	--	10	--	8	--	9	--	9	6	11	9	12	10	13	14	--
APRIL....	9	9	10	11	8	9	8	9	11	13	12	10	9	9	10	9	12	11	11	11	14	14	12	12	12	12	12	13	9	10	--	11
MAY.....	10	10	11	14	14	14	16	15	16	14	14	16	15	13	13	14	17	17	14	15	17	19	19	18	18	14	14	21	18	23	--	15
JUNE.....	21	--	25	--	21	24	22	26	20	22	23	22	17	20	22	19	21	21	23	21	19	18	17	14	17	16	16	17	17	19	--	20
JULY.....	21	20	15	20	17	20	17	21	19	23	22	19	26	20	21	19	20	21	22	21	21	22	23	23	22	22	23	24	21	22	22	21
AUGUST...	23	25	27	22	21	21	22	23	26	25	24	18	23	24	23	24	21	22	21	20	22	21	23	21	20	19	19	18	19	22	21	22
SEPTEMBER	19	19	17	16	16	18	18	18	21	19	19	16	17	18	19	17	17	19	18	20	22	19	18	19	19	19	--	18	21	16	--	18

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(WHERE NO CONCENTRATIONS ARE REPORTED, LOADS ARE ESTIMATED)

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	5.0	--	.03	150	2	.81	409	13	14
2	7.6	--	.06	153	3	1.2	363	10	9.8
3	5.2	1	.01	149	3	1.2	318	12	10
4	2.1	1	.01	105	4	1.1	305	18	15
5	1.5	4	.02	80	4	.86	449	33	40
6	4.0	11	.12	76	2	.41	554	87	130
7	4.4	4	.05	75	1	.20	529	44	63
8	1.8	6	.03	79	1	.21	479	20	26
9	3.2	11	.10	105	2	.57	491	19	25
10	45	22	2.7	383	60	62	528	27	38
11	60	45	7.3	432	67	78	690	60	136
12	78	13	2.7	440	38	45	1170	315	995
13	75	16	3.2	656	210	370	981	142	376
14	78	16	3.4	600	135	219	782	52	110
15	92	14	3.5	460	45	56	651	31	54
16	93	4	1.0	365	29	25	573	24	37
17	86	7	1.6	307	16	13	530	22	31
18	100	3	.81	262	11	7.8	465	16	20
19	102	3	.83	252	10	6.8	434	18	21
20	116	3	.94	361	16	16	439	18	21
21	121	3	.98	422	28	32	391	14	15
22	126	4	1.4	403	20	22	344	--	15
23	143	2	.77	635	100	200	325	18	16
24	153	4	1.7	714	82	158	323	20	17
25	159	4	1.7	631	37	63	536	71	130
26	158	4	1.7	608	28	46	687	120	220
27	161	4	1.7	537	24	35	581	54	85
28	160	2	.86	562	22	33	450	35	43
29	151	1	.41	504	15	20	360	--	29
30	148	1	.40	458	14	17	270	--	18
31	150	2	.81	--	--	--	280	--	19
TOTAL	2589.8	--	40.84	10964	--	1531.16	15687	--	2778.8

14033500 UMATILLA RIVER NEAR UMATILLA, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	330	--	27	800	26	56	305	22	18
2	370	--	35	765	26	54	285	102	78
3	440	48	57	641	32	55	290	160	125
4	500	--	67	567	50	77	322	104	90
5	1200	364	755	517	64	89	328	112	99
6	5600	5730	86600	520	78	110	400	93	100
7	6400	2370	41000	500	46	62	454	340	420
8	4130	1830	20400	421	27	31	433	408	477
9	2890	1050	8190	616	154	280	398	158	170
10	2120	580	3320	541	616	971	357	83	80
11	1780	440	2110	510	392	540	326	41	36
12	1520	230	944	1550	2020	9180	312	24	20
13	1310	193	683	1530	1160	4790	319	--	22
14	1590	267	1150	1070	245	708	335	--	25
15	1510	235	958	832	107	240	376	--	30
16	1290	113	394	749	106	214	404	32	35
17	1120	102	308	743	550	1200	502	--	68
18	983	60	159	674	330	600	836	220	500
19	865	50	117	659	89	160	1210	390	1300
20	781	53	112	606	55	90	1130	230	700
21	707	46	88	528	43	61	1120	160	480
22	600	--	65	455	72	88	1160	144	451
23	520	--	42	422	43	49	1390	390	1500
24	450	--	24	385	26	27	1400	316	1190
25	500	--	34	350	45	43	1220	124	408
26	560	--	38	352	32	30	1260	122	415
27	520	--	28	329	20	18	1580	480	2200
28	500	--	27	314	15	13	1930	713	3720
29	500	--	27	--	--	--	2200	1000	5900
30	560	--	38	--	--	--	2420	1110	7250
31	660	--	45	--	--	--	2790	1790	13500
TOTAL	42806	--	167842	17946	--	19836	27792	--	41407

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	3010	1500	12200	2330	469	2950	59	--	6.4
2	2720	1020	7490	2180	339	2000	16	21	.91
3	2350	730	4630	1710	241	1110	7.0	19	.36
4	2050	542	3000	1460	185	729	7.2	18	.35
5	2180	650	3830	1190	124	398	6.3	10	.17
6	2840	1160	8890	980	76	201	6.8	29	.53
7	2750	976	7250	858	65	151	6.7	19	.34
8	2170	564	3300	1010	80	218	89	22	5.3
9	2070	555	3100	1180	82	261	134	27	9.8
10	2470	710	4800	1150	108	335	255	21	14
11	2820	837	6370	847	102	233	304	2080	1710
12	2420	636	4160	766	80	165	203	1080	592
13	2820	1050	8450	716	42	81	134	510	185
14	2930	769	6080	439	34	40	46	76	9.4
15	2410	491	3190	337	36	33	24	34	2.2
16	1920	334	1730	296	27	22	6.5	35	.61
17	1650	305	1360	290	20	16	3.8	32	.33
18	1820	340	1670	218	15	8.8	4.0	28	.30
19	1880	340	1730	176	12	5.7	3.6	26	.25
20	1780	265	1270	111	10	3.0	3.4	28	.26
21	1560	190	800	95	8	2.1	4.1	20	.22
22	1600	205	886	41	14	1.5	3.5	22	.21
23	2040	570	3300	8.9	8	.19	3.4	12	.11
24	2230	600	3600	24	8	.52	2.9	40	.31
25	2080	357	2000	47	7	.89	128	60	27
26	1770	265	1270	89	2	.48	106	28	8.0
27	1490	210	845	20	15	.81	32	18	1.6
28	1370	172	636	7.0	38	.72	13	19	.67
29	2060	1890	11300	14	17	.64	4.4	14	.17
30	2390	756	4880	42	64	7.3	5.0	15	.20
31	--	--	--	81	--	15	--	--	--
TOTAL	65650	--	124017	18712.9	--	8990.65	1621.6	--	2577.00

14033500 UMATILLA RIVER NEAR UMATILLA, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	4.2	10	.11	4.8	10	.13	6.5	7	.12
2	6.5	12	.21	9.8	8	.21	5.8	6	.09
3	28	14	1.1	18	6	.29	5.6	8	.12
4	33	6	.53	25	8	.54	5.4	7	.10
5	18	7	.34	31	9	.75	3.1	3	.03
6	16	6	.26	27	4	.29	4.8	6	.08
7	5.6	8	.12	17	6	.28	7.0	7	.13
8	3.8	7	.07	7.8	5	.11	6.9	6	.11
9	4.6	6	.07	8.9	8	.19	6.7	8	.14
10	2.9	8	.06	9.2	13	.32	20	12	.65
11	3.1	5	.04	8.3	11	.25	53	9	1.3
12	32	8	.69	7.9	9	.19	59	5	.80
13	51	7	.96	21	12	.68	42	4	.45
14	163	12	5.3	25	17	1.1	18	3	.15
15	172	6	2.8	20	17	.92	26	2	.14
16	161	6	2.6	14	15	.57	23	3	.19
17	27	10	.73	5.6	4	.06	25	2	.13
18	5.4	8	.12	11	6	.18	47	8	1.0
19	5.6	8	.12	5.2	6	.08	77	14	2.9
20	7.1	14	.27	4.8	4	.05	66	8	1.4
21	8.9	13	.31	4.6	6	.07	54	4	.58
22	5.0	9	.12	4.4	5	.06	56	24	3.6
23	4.4	20	.24	4.6	4	.05	76	10	2.1
24	4.2	10	.11	5.8	4	.06	54	25	3.6
25	4.2	8	.09	5.6	4	.06	47	8	1.0
26	4.4	16	.19	5.6	3	.05	48	8	1.0
27	4.2	8	.09	5.8	3	.05	47	8	1.0
28	4.2	10	.11	13	6	.21	44	8	.95
29	4.4	8	.10	23	6	.37	42	8	.91
30	5.0	10	.13	31	5	.42	38	8	.82
31	4.8	12	.16	11	3	.09	--	--	--
TOTAL	803.5	--	18.15	395.7	--	8.68	1013.8	--	25.59

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 205982.3
TOTAL LOAD FOR YEAR (TONS) 369072.87

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
JAN 6, 1969	1050	1	6560	6410	114000	16	24	39	66	90	94	98	100	--	--	--	VPWC
JAN 7.....	0940	5	7180	2760	53500	13	22	36	58	80	90	92	95	99	100	--	VPWC
APR 1.....	1400	9	3050	1540	12700	8	12	24	46	75	97	99	100	--	--	--	VPWC
MAY 1.....	0940	9	2330	472	2970	11	19	31	51	81	86	96	99	100	--	--	VPWC

14036000 WILLOW CREEK NEAR ARLINGTON, OREG.

LOCATION.--Lat 45°45'12", long 120°00'35", in NE¼SW¼ sec.12, T.3 N., R.22 E., Gilliam County, at gaging station on right bank at bridge on discontinued highway, 3.8 miles downstream from Eightmile Canyon, 10 miles east of Arlington, and at mile 3.7.

DRAINAGE AREA.--850 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1962 to September 1969.
Sediment records: October 1962 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 29.0°C July 22; minimum, freezing point Jan. 22.
Sediment concentrations: Maximum daily, 97,600 mg/l June 10; minimum daily, 0 mg/l on many days.
Sediment loads: Maximum daily, 608,000 tons June 10; minimum daily, 0 ton on many days.

Period of record:
Water temperatures: Maximum (1965-69), 29.0°C June 19, 1967, July 22, 1969; minimum (1962-64, 1966-69), freezing point on several days during winter periods.
Sediment concentrations: Maximum daily, 97,600 mg/l June 10, 1969; minimum daily, 0 mg/l for many days.
Sediment loads: Maximum daily, 980,000 tons (estimated) Dec. 22, 1964; minimum daily, 0 ton on many days.

REMARKS.--No flow Oct. 1 to Nov. 19, Nov. 22 to Dec. 11, Dec. 15 to Jan. 4, Sept. 1-17.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NOVEMBER.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	6	--	--	--	--	--	--	--	--	--	--	--
DECEMBER.	--	--	--	--	--	--	--	--	--	--	--	3	3	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JANUARY..	--	--	--	--	1	2	5	3	2	2	3	1	1	3	2	1	2	1	1	2	1	0	--	--	--	--	--	--	--	--	--	--
FEBRUARY.	--	--	--	--	--	--	--	3	1	2	2	4	5	4	3	3	4	4	4	3	6	6	3	4	5	6	7	7	--	--	--	--
MARCH....	9	7	9	8	9	8	8	8	7	3	6	8	10	8	12	11	11	8	7	9	10	11	8	9	9	12	10	13	12	13	12	9
APRIL....	10	9	10	11	11	8	11	14	13	13	14	11	13	12	9	14	11	13	13	10	10	18	14	13	14	9	12	13	9	9	--	12
MAY.....	9	14	13	17	17	18	17	15	22	17	23	22	17	16	12	13	14	15	13	13	17	15	17	17	14	16	14	14	19	20	20	16
JUNE.....	22	23	23	20	24	26	25	--	--	22	--	--	--	--	19	19	23	24	23	22	22	20	17	--	14	15	14	18	20	22	--	--
JULY.....	24	21	18	--	21	22	23	23	26	24	23	22	--	24	25	23	26	28	--	27	--	29	--	27	--	24	--	24	--	20	--	--
AUGUST...	26	--	24	--	--	23	--	24	25	--	22	21	25	--	24	--	24	--	22	--	26	--	27	--	23	--	21	--	--	--	--	--
SEPTEMBER	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	18	17	18	18	16	17	14	19	14	14	20	16	14	--	--

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(WHERE NO CONCENTRATIONS ARE REPORTED, LOADS ARE ESTIMATED)

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1				0	--	0	0	--	0
2				0	--	0	0	--	0
3				0	--	0	0	--	0
4				0	--	0	0	--	0
5				0	--	0	0	--	0
6				0	--	0	0	--	0
7				0	--	0	0	--	0
8				0	--	0	0	--	0
9				0	--	0	0	--	0
10				0	--	0	0	--	0
11				0	--	0	0	--	0
12				0	--	0	15	520	43
13				0	--	0	5.9	263	4.2
14				0	--	0	.45	130	.16
15				0	--	0	0	--	0
16				0	--	0	0	--	0
17				0	--	0	0	--	0
18				0	--	0	0	--	0
19				0	--	0	0	--	0
20				3.2	599	25	0	--	0
21				.87	461	2.9	0	--	0
22				0	--	0	0	--	0
23				0	--	0	0	--	0
24				0	--	0	0	--	0
25				0	--	0	0	--	0
26				0	--	0	0	--	0
27				0	--	0	0	--	0
28				0	--	0	0	--	0
29				0	--	0	0	--	0
30				0	--	0	0	--	0
31				--	--	--	0	--	0
TOTAL	0	--	0	4.07	--	27.9	21.35	--	47.36

14036000 WILLOW CREEK NEAR ARLINGTON, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	0	--	0	39	--	5.3	22	83	4.9
2	0	--	0	40	--	5.4	23	74	4.6
3	0	--	0	40	--	5.4	22	35	2.1
4	0	--	0	40	--	5.4	21	34	1.9
5	550	10900	28400	39	--	5.3	22	130	7.7
6	300	10600	4540	38	--	5.1	27	90	6.6
7	220	3490	2070	37	--	5.0	38	865	89
8	184	1800	894	37	90	9.0	42	580	66
9	145	920	360	80	1700	420	40	460	50
10	108	640	187	61	1390	255	41	165	18
11	81	470	103	82	1660	573	36	79	7.7
12	63	205	35	404	16900	21400	23	33	2.0
13	72	230	53	316	5990	5110	18	26	1.3
14	194	2640	1380	180	2400	1170	22	21	1.2
15	147	985	391	117	945	299	32	47	4.1
16	102	460	127	105	652	185	59	824	177
17	91	320	79	104	586	165	125	3980	1440
18	87	212	50	83	455	102	309	11400	10800
19	81	224	49	60	285	46	278	4100	3080
20	75	190	38	60	197	32	232	2100	1320
21	68	128	24	56	142	21	231	1900	1190
22	58	112	18	53	129	18	248	1800	1210
23	31	--	4.2	50	104	14	298	2950	2370
24	30	--	4.0	51	142	20	263	1570	1110
25	35	--	4.7	40	140	15	216	994	580
26	34	--	4.6	35	106	10	187	888	448
27	32	--	4.3	28	74	5.6	194	1220	639
28	35	--	4.7	22	36	2.1	213	1090	627
29	33	--	4.5	--	--	--	205	920	509
30	35	--	4.7	--	--	--	208	977	549
31	38	--	5.1	--	--	--	261	1610	1130
TOTAL	2409	--	38838.8	2297	--	29908.6	3956	--	27446.1

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	286	1920	1480	105	165	47	23	14	.87
2	265	1570	1120	94	102	26	18	17	.83
3	246	1410	937	82	58	13	12	14	.45
4	221	940	561	76	43	8.8	9.4	12	.30
5	218	865	509	68	22	4.0	9.5	8	.21
6	245	1040	688	45	10	1.2	7.6	8	.16
7	242	990	647	35	15	1.4	5.8	5	.08
8	224	760	460	27	17	1.2	29	12300	2180
9	201	652	354	21	14	.79	27	1130	82
10	195	569	300	13	14	.49	1510	97600	608000
11	190	490	251	14	9	.34	136	29000	10600
12	184	505	251	12	12	.39	77	3300	686
13	190	527	270	16	9	.39	59	870	139
14	167	396	179	21	17	.96	42	438	50
15	144	422	164	40	17	1.8	33	185	16
16	118	346	110	35	36	3.4	22	175	10
17	112	300	91	30	67	5.4	25	107	7.2
18	135	395	144	29	19	1.5	19	220	11
19	131	580	205	30	14	1.1	8.2	265	5.9
20	133	372	134	28	13	.98	5.9	190	3.0
21	116	301	94	39	13	1.4	4.5	98	1.2
22	85	168	39	37	12	1.2	4.1	70	.77
23	80	182	39	36	8	.78	4.4	66	.78
24	101	270	74	36	8	.78	12	--	6.5
25	101	253	69	29	5	.39	33	210	19
26	108	204	59	29	10	.78	30	715	58
27	108	202	59	33	7	.62	27	112	8.2
28	94	101	26	40	15	1.6	25	120	8.1
29	116	470	150	38	14	1.4	27	79	5.8
30	126	905	308	24	18	1.2	24	56	3.6
31	--	--	--	21	14	.79	--	--	--
TOTAL	4882	--	9772	1183	--	131.08	2269.4	--	621904.95

14036000 WILLOW CREEK NEAR ARLINGTON, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	13	34	1.2	.64	37	.06	0	--	0
2	8.9	34	.82	.67	37	.07	0	--	0
3	6.7	42	.76	.54	37	.05	0	--	0
4	6.7	--	.78	1.2	37	.12	0	--	0
5	14	44	1.7	1.8	37	.18	0	--	0
6	11	50	1.5	1.9	37	.19	0	--	0
7	9.7	59	1.5	1.9	37	.19	0	--	0
8	7.2	46	.89	1.9	37	.19	0	--	0
9	5.8	35	.55	.84	37	.08	0	--	0
10	4.9	27	.36	.77	37	.08	0	--	0
11	3.7	42	.42	1.2	37	.12	0	--	0
12	3.1	55	.46	.64	37	.06	0	--	0
13	3.2	--	.48	.80	37	.08	0	--	0
14	3.0	54	.44	.65	37	.06	0	--	0
15	1.8	94	.46	1.4	37	.14	0	--	0
16	1.6	74	.32	1.2	37	.12	0	--	0
17	1.4	72	.27	1.8	37	.18	0	--	0
18	1.1	88	.26	1.9	37	.19	12	468	74
19	.88	37	.09	2.1	37	.21	19	7600	390
20	.70	37	.07	2.0	37	.20	7.3	9600	189
21	.96	37	.10	2.4	37	.24	3.2	3920	34
22	1.3	37	.13	2.9	37	.29	2.4	1820	12
23	1.8	37	.18	2.6	37	.26	1.7	1000	4.6
24	1.5	37	.15	1.6	37	.16	1.4	567	2.1
25	.92	37	.09	1.3	37	.13	1.0	464	1.3
26	.90	37	.09	.23	--	.01	.27	356	.26
27	.71	37	.07	.06	8	0	.17	274	.13
28	1.1	37	.11	.19	--	.02	.13	250	.09
29	1.1	37	.11	.02	5	0	.09	214	.05
30	.72	37	.07	.12	--	.01	.01	257	0
31	.72	37	.07	.01	6	0	--	--	--
TOTAL	120.11	--	14.50	37.28	--	3.69	48.67	--	707.53

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 17747.88
TOTAL LOAD FOR YEAR (TONS) 728802.51

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEM-PERA-TURE (C)	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
MAR 27, 1969	1450	10	233	1750	1100	6	14	17	34	48	77	97	100	--	--	--	VPWC
MAR 27.....	1735	10	224	1850	1120	5	7	11	20	40	68	94	99	100	--	--	VPWC
JUN 10.....	1610	22	800	114000	246000	22	34	47	61	69	98	100	--	--	--	--	VPWC
SEP 23.....	1025	17	1.7	1080	5.0	37	47	59	72	88	100	--	--	--	--	--	PWC

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OREG.

LOCATION.--Lat 45°35'16", long 120°24'30", in NE¼NW¼ sec.11, T.1 N., R.19 E., Sherman County, at gaging station on left bank, at McDonald Ferry, 0.8 mile downstream from Rock Creek, 10 miles east of Klondike, and at mile 20.9.

DRAINAGE AREA.--7,580 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: August 1911 to August 1912, August 1960 to July 1962.
Water temperatures: October 1962 to September 1968.
Sediment records: October 1962 to September 1969.

EXTREMES.--1968-69:
Sediment concentrations: Maximum daily, 9,320 mg/l June 11; minimum daily, 2 mg/l Oct. 10, July 21-23, 25.
Sediment loads: Maximum daily, 147,000 tons June 11; minimum daily, 0.72 ton Oct. 10.

Period of record:
Sediment concentrations: Maximum daily, 69,200 mg/l Dec. 22, 1964; minimum daily, 1 mg/l June 18, 19, 27, 1968.
Sediment loads: Maximum daily, 3,800,000 tons Dec. 22, 1964; minimum daily, 0.11 ton Aug. 7, 1968.

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(WHERE NO CONCENTRATIONS ARE REPORTED, LOADS ARE ESTIMATED)

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	153	6	2.5	343	19	18	1220	41	135
2	145	7	2.7	355	19	18	1150	48	149
3	145	--	2.3	356	19	18	1080	46	134
4	133	--	1.8	361	19	19	1070	44	127
5	145	12	4.7	353	19	18	1110	26	78
6	130	10	3.5	349	19	18	1150	50	155
7	123	8	2.7	365	19	19	1400	51	193
8	130	4	1.4	404	19	21	1560	79	333
9	133	6	2.2	413	19	21	1360	68	250
10	133	2	.72	384	19	20	1350	46	168
11	137	6	2.2	460	--	62	1590	--	190
12	145	3	1.2	1380	1800	6710	1710	47	220
13	145	4	1.6	1130	650	2000	2410	120	780
14	165	5	2.2	1390	600	2300	2110	--	340
15	178	9	4.3	1420	370	1420	1770	--	190
16	368	24	31	1160	176	551	1620	23	101
17	508	23	32	991	121	324	1580	23	98
18	434	20	23	970	89	233	1530	23	95
19	389	14	15	969	124	324	1410	23	88
20	396	19	20	2220	1360	11800	1330	23	83
21	382	16	17	2780	845	6340	1230	23	76
22	368	20	20	2320	600	3760	1060	23	66
23	361	18	18	1970	297	1580	1030	23	64
24	375	26	26	1980	195	1040	1010	23	63
25	466	38	48	2010	167	906	1280	23	79
26	426	19	22	1740	93	437	1830	98	480
27	396	19	20	1620	81	354	2410	133	865
28	375	19	19	1470	45	179	2000	101	545
29	371	19	19	1360	45	165	1660	--	360
30	368	19	19	1290	38	132	1170	--	190
31	353	19	18	--	--	--	870	--	94
TOTAL	8476	--	403.02	34313	--	40807	45060	--	6789

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	679	--	37	1700	--	180	1600	--	190
2	920	--	75	1700	--	140	1590	--	190
3	870	--	47	1690	--	91	1600	--	190
4	1300	--	770	1560	--	84	1540	--	190
5	2000	--	2700	1510	--	82	1530	--	190
6	3500	960	9100	1440	--	78	1610	--	240
7	6430	2400	41700	1400	--	76	1710	--	280
8	8100	1500	32800	1330	--	72	1850	--	350
9	6230	510	8580	1460	70	280	1730	--	230
10	4740	227	2910	1560	160	670	1630	--	220
11	4150		1900	1700	300	1400	1550	--	190
12	3660		1100	3020	410	3300	1510	--	180
13	3330		630	3630	280	2700	1450	--	160
14	3240	82	780	3840	170	1800	1420	--	150
15	6260	310	5200	3140	--	850	1460	--	160
16	4490	160	1900	2800	--	680	1670	--	320
17	3360	105	953	2700	--	580	2120	--	570
18	2840	54	414	2710	--	620	2790	--	2300
19	2790	--	380	2650	--	570	3550	700	6710
20	2430	38	249	2500	--	470	3630	490	4800
21	2500	--	200	2370	--	380	3320	290	2600
22	2350	--	190	2170	--	290	3720	300	3000
23	2100	22	125	2090	--	280	4680	550	6900
24	1700	--	92	2000	--	270	6010	860	14000
25	1400	--	57	1930	--	230	5530	550	8200
26	1000	--	40	1780	--	220	5140	390	5400
27	1100	--	89	1690	--	210	6110	500	8260
28	1500	--	200	1470	--	200	7780	920	19500
29	1800	--	240	--	--	--	7450	930	19000
30	1600	--	170	--	--	--	8660	1200	28000
31	1600	--	130	--	--	--	10100	1600	44000
TOTAL	89969	--	113758	59740	--	16803	106040	--	176460

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	12400	2300	77000	7410	--	8000	3080	--	910
2	12000	2000	65000	6730	--	4500	2880	--	780
3	10800	1600	47000	6270	--	2500	2600	102	716
4	9230	--	30000	5650	--	1500	2400	105	680
5	8450	--	23000	5140	--	1000	2260	126	769
6	8880	--	29000	4750	--	710	2210	139	829
7	10200	--	41000	4590	--	620	2210	96	573
8	9760	--	26000	4820	76	989	2630	66	469
9	8940	--	22000	5580	100	1500	2470	359	3200
10	8510	--	14000	6610	140	2500	4680	6090	83800
11	8900	--	17000	7350	190	3800	5860	9320	147000
12	8630	--	12000	7820	220	4600	4740	3250	41600
13	8220	--	8900	7800	180	3800	3600	1150	11200
14	8490	--	10000	7450	--	2000	3030	332	2720
15	8220	--	8900	7700	--	1200	2670	222	1600
16	7370	--	6000	8740	--	4700	2390	167	1090
17	6600	--	4500	7340	--	3000	2170	152	891
18	6390	--	3500	6360	--	1700	2010	95	516
19	7140	--	6700	6030	--	1200	1810	--	290
20	7120	--	4800	6330	--	1500	1590	--	260
21	6500	--	3500	6350	--	1400	1430	--	250
22	6160	--	2500	6170	--	1200	1320	--	230
23	6530	--	3500	5320	--	1000	1310	--	250
24	8140	--	13000	4880	--	860	1270	--	240
25	9450	--	15000	4670	44	807	1250	70	236
26	9170	--	15000	4670	30	378	2270	138	846
27	7910	--	8500	4440	34	408	2320	112	702
28	6950	--	5600	4120	--	330	2290	85	526
29	6400	--	3500	3840	--	310	2260	117	714
30	7650	--	11000	3380	--	270	2520	120	816
31	--	--	--	3050	--	250	--	--	--
TOTAL	251110	--	537400	181360	--	58532	75530	--	304703

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	2420	64	418	215	28	16	60	11	1.8
2	2180	63	371	211	--	14	60	11	1.8
3	1980	103	551	197	--	8.0	60	11	1.8
4	1820	133	654	192	--	5.2	58	11	1.7
5	1740	400	1900	178	3	1.4	58	11	1.7
6	1560	225	948	178	6	2.9	58	11	1.7
7	1400	197	745	178	6	2.9	60	11	1.8
8	1290	79	275	173	4	1.9	78	11	2.3
9	1190	19	61	169	7	3.2	78	11	2.3
10	1090	71	209	157	12	5.1	71	11	2.1
11	998	15	40	137	10	3.7	69	11	2.0
12	897	16	39	133	4	1.4	69	11	2.0
13	809	38	83	133	5	1.8	69	11	2.0
14	742	8	16	137	23	8.5	76	11	2.3
15	697	5	9.4	123	20	6.6	81	11	2.4
16	643	8	14	126	4	1.4	89	11	2.6
17	598	4	6.5	120	4	1.3	100	11	3.0
18	553	4	6.0	110	14	4.2	110	11	3.3
19	526	10	14	110	12	3.6	103	11	3.1
20	482	8	10	103	13	3.6	120	18	5.8
21	442	2	2.4	100	14	3.8	120	18	5.8
22	410	2	2.2	95	18	4.6	126	18	6.1
23	375	2	2.0	92	17	4.2	126	18	6.1
24	340	36	33	92	3	.75	123	18	6.0
25	308	2	1.7	89	8	1.9	126	18	6.1
26	288	4	3.1	84	8	1.8	137	18	6.7
27	270	17	12	81	12	2.6	153	18	7.4
28	259	12	8.4	73	11	2.2	161	18	7.8
29	248	8	5.4	69	11	2.0	165	18	8.0
30	237	4	2.6	62	11	1.8	173	18	8.4
31	226	14	8.5	58	11	1.7	--	--	--
TOTAL	27018	--	6451.2	3975	--	124.05	2937	--	115.9

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 885528
TOTAL LOAD FOR YEAR (TONS) 1262346.17

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
JAN 7, 1969	0920		6260	2210	37400	7	12	18	32	51	79	88	99	100	--	--	VPWC
MAR 27.....	1430	12	6930	780	14600	14	20	25	26	53	69	84	96	100	--	--	VPWC
MAR 28.....	1400	11	8450	1180	26900	12	16	20	33	51	62	85	97	100	--	--	VPWC

14064500 DESCHUTES RIVER AT BENHAM FALLS, NEAR BEND, OREG.

LOCATION.--Lat 43°55'49", long 121°24'39", in SW¼NE¼ sec.16, T.19 S., R.11 E., Deschutes County, temperature recorder at gaging station on right bank, 0.5 mile upstream from Benham Falls, 10 miles southwest of Bend, and at mile 181.4.

DRAINAGE AREA.--1,759 sq mi.

PERIOD OF RECORD.--Water temperatures: November 1967 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 17.0°C Aug. 14-16, 18-25; minimum, freezing point Jan. 23, 26.

Period of record:
Water temperatures: Maximum, 17.0°C on many days during July and August 1968, August 1969; minimum, freezing point Jan. 23, 26, 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	10	10	9	9	9	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	7
MINIMUM	9	9	8	8	8	8	8	8	7	7	7	7	7	7	6	6	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	7
NOVEMBER																																
MAXIMUM	6	5	5	5	4	4	4	6	6	6	6	6	5	4	4	4	4	4	5	5	5	4	4	4	4	3	3	3	3	3	--	4
MINIMUM	4	4	4	4	4	4	4	4	6	6	6	5	4	4	3	3	3	4	4	5	4	4	4	4	3	3	3	3	3	2	--	4
DECEMBER																																
MAXIMUM	3	2	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2
MINIMUM	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	1	1	1	2	2	2	1	1	1	1	1	2
JANUARY																																
MAXIMUM	2	2	2	3	3	3	3	2	1	1	1	1	2	2	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1
MINIMUM	2	2	2	2	3	3	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	0	1	1	0	1	1	1	1	1	1
FEBRUARY																																
MAXIMUM	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	--	--	--	2
MINIMUM	1	1	2	1	2	1	2	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	2	2	2	2	2	2	--	--	--	2
MARCH																																
MAXIMUM	3	3	3	4	4	3	3	4	4	3	4	4	5	5	6	6	6	5	5	6	6	6	5	6	7	7	7	8	8	8	8	5
MINIMUM	3	3	2	3	3	3	3	3	3	2	3	3	3	3	3	4	4	4	4	4	4	4	3	4	5	6	6	6	7	7	7	4
APRIL																																
MAXIMUM	8	7	7	7	6	7	7	8	8	8	9	9	8	7	7	8	8	7	8	8	9	9	9	8	8	8	9	9	8	7	--	8
MINIMUM	7	6	6	6	6	6	6	6	7	7	7	8	7	7	6	7	7	6	7	7	8	8	8	6	7	7	8	8	7	7	--	7
MAY																																
MAXIMUM	7	8	8	8	9	11	11	12	12	13	13	12	12	10	11	12	13	13	13	12	13	13	14	14	14	13	12	12	13	13	14	12
MINIMUM	6	7	8	7	8	9	10	10	11	12	12	11	10	9	9	11	12	12	11	11	12	12	13	13	13	12	11	11	12	12	13	11
JUNE																																
MAXIMUM	14	14	15	15	14	14	14	14	13	13	14	16	16	16	16	16	16	16	16	16	16	15	14	14	14	13	13	13	14	14	--	15
MINIMUM	13	13	14	14	14	14	14	13	13	13	13	14	15	14	15	15	14	15	16	15	15	14	14	13	13	13	13	13	13	14	--	14
JULY																																
MAXIMUM	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	14	15	15	15	15	16	16	16	16	16	15
MINIMUM	14	14	14	14	14	14	13	13	14	13	14	14	14	14	13	13	14	14	14	14	14	14	14	14	14	14	15	15	15	16	16	14
AUGUST																																
MAXIMUM	16	16	16	16	16	16	16	16	16	16	16	16	16	17	17	17	16	17	17	17	17	17	17	17	17	16	16	16	16	16	16	16
MINIMUM	16	16	16	16	15	15	16	15	16	16	15	15	15	16	16	16	16	16	16	16	16	17	17	16	16	16	16	16	16	15	15	16
SEPTEMBER																																
MAXIMUM	16	16	16	16	15	14	14	14	14	15	15	15	16	16	15	14	14	14	13	13	12	12	12	13	13	13	13	13	13	13	--	14
MINIMUM	15	15	15	15	14	14	14	14	14	14	15	15	15	15	14	14	14	13	13	12	12	12	12	12	13	13	13	13	13	12	--	14

14076500 DESCHUTES RIVER NEAR CULVER, OREG.

LOCATION.--Lat 44°29'56", long 121°19'12", in NW¼SE¼ sec.29, T.12 S., R.12 E., Jefferson County, temperature recorder at gaging station on right bank, 2.5 miles downstream from Squaw Creek, 6.0 miles southwest of Culver, and at mile 120.6.

DRAINAGE AREA.--2,705 sq mi.

PERIOD OF RECORD.--Water temperatures: September 1952 to September 1957, January 1959 to August 1961, July 1962 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 16.0°C June 5, 6; minimum, 3.0°C Dec. 30 to Jan. 1, Jan. 26.

Period of record (1952-57, 1962-69):
Water temperatures: Maximum, 18.0°C July 13, 17, 1956; minimum, 1.5°C on several days during December 1964 and January 1965.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	12	12	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
MINIMUM	11	11	11	11	11	11	11	10	10	10	11	11	10	10	10	10	10	10	11	11	11	11	11	11	11	11	10	10	11	11	10	10
NOVEMBER																																
MAXIMUM	10	10	10	9	9	8	8	9	9	8	8	8	8	7	7	7	7	7	8	8	8	8	8	7	7	7	6	6	6	6	--	8
MINIMUM	9	9	9	9	8	8	8	8	8	7	7	8	7	7	7	7	7	7	7	8	8	8	7	7	7	6	6	6	6	6	--	7
DECEMBER																																
MAXIMUM	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	4	4	6	6	6	5	5	5	4	3	5
MINIMUM	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	4	4	4	4	6	5	5	5	4	3	3		5
JANUARY																																
MAXIMUM	4	4	6	6	7	7	7	7	6	6	6	6	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	5	5	5
MINIMUM	3	4	4	6	6	7	7	6	6	5	6	5	5	5	5	5	5	4	4	4	4	4	4	4	4	3	4	4	4	4	4	5
FEBRUARY																																
MAXIMUM	5	5	5	5	5	5	5	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	7	--	--	--	6
MINIMUM	5	4	4	4	5	5	5	5	6	6	7	7	6	7	7	7	7	7	7	7	7	6	7	6	6	6	6	6	--	--	--	6
MARCH																																
MAXIMUM	8	8	8	8	8	8	8	8	8	7	7	8	8	8	8	9	9	9	9	8	9	9	9	9	9	10	10	10	10	11	11	9
MINIMUM	7	7	7	7	8	7	7	7	7	7	7	7	7	7	7	8	9	8	8	8	8	9	9	8	8	9	9	9	10	10	11	8
APRIL																																
MAXIMUM	11	11	10	10	10	10	10	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	11	11	12	12	12	11	11	--	11
MINIMUM	11	10	9	10	9	9	9	9	10	10	11	11	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	--	10
MAY																																
MAXIMUM	11	11	11	12	12	12	12	12	12	12	12	13	13	12	12	12	13	13	12	13	13	13	13	13	13	14	13	13	13	14	14	13
MINIMUM	11	11	11	11	11	11	11	11	12	11	12	12	12	12	11	12	12	12	12	12	12	12	12	13	13	13	12	12	13	12	12	12
JUNE																																
MAXIMUM	14	14	15	15	16	16	15	15	15	14	15	15	15	14	14	14	14	14	15	14	14	14	13	13	13	13	13	12	12	12	--	14
MINIMUM	13	13	13	14	14	13	14	14	13	12	13	12	13	13	13	12	12	12	13	13	12	13	12	12	12	12	12	12	12	12	--	13
JULY																																
MAXIMUM	12	12	12	12	12	12	12	12	12	12	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
MINIMUM	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	11	12	12	11
AUGUST																																
MAXIMUM	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11
MINIMUM	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	12	12	11	11	11	11	11	11	11
SEPTEMBER																																
MAXIMUM	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	--	11
MINIMUM	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	11	12	12	12	--	11

14087400 CROOKED RIVER BELOW OPAL SPRINGS, NEAR CULVER, OREG.

LOCATION.--Lat 44°29'33", long 121°17'50", in NW¼NE¼ sec.33, T.12 S., R.12 E., Jefferson County, temperature recorder at gaging station on right bank, 0.2 mile downstream from Opal Springs, 4.8 miles southwest of Culver, and at mile 6.7.

DRAINAGE AREA.--4,300 sq mi, approximately, of which 500 sq mi is probably noncontributing.

PERIOD OF RECORD.--Water temperatures: October 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 15.0°C July 24-27; minimum, 9.0°C on several days during January and April.

Period of record:
Water temperatures: Maximum (1963-66, 1967-69), 15.0°C on many days during June and July 1964, July 24-27, 1969; minimum, 4.0°C Dec. 29, 30, 1964.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
MINIMUM	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
NOVEMBER																																
MAXIMUM	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	--	12
MINIMUM	13	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	--	12
DECEMBER																																
MAXIMUM	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
MINIMUM	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
JANUARY																																
MAXIMUM	11	11	11	11	11	11	11	11	11	10	10	10	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
MINIMUM	11	11	11	11	11	11	11	11	10	10	10	9	9	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
FEBRUARY																																
MAXIMUM	10	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	--	--	--	10
MINIMUM	10	10	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	--	--	--	10
MARCH																																
MAXIMUM	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	12	12	11	12	12	12	11
MINIMUM	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	11	12	12	11
APRIL																																
MAXIMUM	12	11	10	9	9	9	9	10	10	11	11	11	11	11	11	11	12	12	12	12	12	13	13	12	12	13	13	13	13	12	--	11
MINIMUM	11	10	9	9	9	9	9	9	10	10	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	13	12	12	--	11
MAY																																
MAXIMUM	12	12	12	13	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
MINIMUM	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
JUNE																																
MAXIMUM	13	13	13	13	13	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	14	14	--	14
MINIMUM	13	13	13	13	13	13	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	14	--	14
JULY																																
MAXIMUM	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	15	15	14	14	14	14	14
MINIMUM	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	14	14	14	14	14	14
AUGUST																																
MAXIMUM	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
MINIMUM	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
SEPTEMBER																																
MAXIMUM	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13	--	14
MINIMUM	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13	13	--	14

14091500 METOLIUS RIVER NEAR GRANDVIEW, OREG.

LOCATION.--Lat 44°37'33", long 121°28'55", in SE¼SW¼ sec.12, T.11 S., R.10 E., Jefferson County, temperature recorder at gaging station on right bank, 1.0 mile upstream from maximum controlled pool of Lake Billy Chinook, 15.0 miles northwest of Culver, and at mile 13.6.

DRAINAGE AREA.--316 sq mi at cableway 1.0 mile downstream, where all discharge measurements are made. Hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--Water temperatures: July 1952 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 13.0°C June 16; minimum, 3.0°C on several days during December and January.

Period of record:
Water temperatures: Maximum, 13.5°C July 5, 1957, June 16, 1969; minimum, 3.0°C Jan. 30, 31, 1963, Jan. 19-21, 1966, and on several days during December 1968 and January 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	9	8	8	8	8	9	8	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	7	7	7	7	8
MINIMUM	7	6	6	7	6	7	6	6	6	7	7	7	6	6	6	6	6	6	7	7	7	7	7	7	7	7	6	7	7	7	6	7
NOVEMBER																																
MAXIMUM	6	7	7	6	6	6	7	7	7	6	7	7	6	6	6	6	7	7	7	7	7	7	6	6	6	6	6	6	6	6	--	6
MINIMUM	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	5	--	6
DECEMBER																																
MAXIMUM	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	5	4	4	4	4	5	6	5	6	6	6	5	4	3	5
MINIMUM	5	6	6	3	3	5	5	6	6	6	5	6	5	6	6	6	4	4	4	4	3	3	4	5	4	5	6	5	4	3	3	5
JANUARY																																
MAXIMUM	6	6	6	7	7	7	6	5	5	6	5	6	6	6	6	6	6	6	6	6	6	5	5	5	4	5	5	5	6	6	6	6
MINIMUM	3	5	6	6	6	6	4	4	5	5	5	5	5	6	5	6	6	5	6	5	5	5	4	4	4	4	5	5	5	6	6	5
FEBRUARY																																
MAXIMUM	7	7	7	7	7	7	8	8	8	8	8	8	7	7	7	8	7	7	7	7	7	7	7	7	7	7	7	7	--	--	--	7
MINIMUM	6	6	7	6	7	7	7	7	7	7	8	7	6	7	7	7	7	7	7	7	6	6	7	6	6	6	6	6	--	--	--	6
MARCH																																
MAXIMUM	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	7	8	8	8	8	7
MINIMUM	7	6	6	6	7	6	6	6	6	5	6	6	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	6
APRIL																																
MAXIMUM	8	7	7	7	7	8	8	8	8	8	9	8	9	8	9	9	9	9	9	9	9	9	9	8	9	9	9	9	9	8	--	8
MINIMUM	6	6	6	7	7	6	6	6	6	6	7	7	7	7	7	7	8	7	7	7	7	8	8	7	7	7	7	8	7	7	--	7
MAY																																
MAXIMUM	9	9	8	9	10	11	11	11	11	11	10	11	9	9	9	10	11	10	9	11	11	11	10	11	10	9	9	11	11	11	11	10
MINIMUM	7	7	7	7	7	7	7	7	8	8	8	8	8	8	7	8	8	8	8	7	8	7	8	8	8	8	8	8	9	8	8	8
JUNE																																
MAXIMUM	11	12	12	12	12	12	12	11	10	11	12	12	12	12	12	13	12	12	12	12	12	11	9	10	10	10	10	10	11	12	--	11
MINIMUM	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	--	9
JULY																																
MAXIMUM	11	12	11	11	11	12	12	12	11	11	11	11	11	11	11	11	11	11	11	12	11	11	11	11	11	11	11	11	11	12	12	11
MINIMUM	8	9	8	8	8	8	8	8	8	9	9	8	8	8	8	8	8	8	8	9	8	8	8	9	8	8	8	8	8	8	8	8
AUGUST																																
MAXIMUM	11	11	11	11	11	11	11	11	11	11	11	11	11	12	11	11	11	11	11	11	11	11	11	11	11	11	11	9	10	11	11	11
MINIMUM	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	8	8	8	8	7	8	8	8
SEPTEMBER																																
MAXIMUM	11	11	10	9	9	9	9	9	9	9	9	9	9	8	9	9	8	9	9	8	8	8	8	9	9	8	8	9	9	8	--	9
MINIMUM	8	8	8	7	7	7	7	7	8	8	8	7	8	7	6	7	7	8	8	7	7	7	7	7	7	7	7	7	7	7	--	7

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OREG.

LOCATION.--Lat 45°37'20", long 120°54'05", in SE¼ sec.26, T.2 N., R.15 E., Sherman County, temperature recorder at gaging station on right bank, 4.0 miles southwest of Biggs and at mile 1.4.

DRAINAGE AREA.--10,500 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: August 1911 to July 1912, December 1952 to February 1954.
Water temperatures: December 1952 to February 1954, November 1954 to September 1958, June 1962 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C July 23; minimum, 1.0°C Dec. 30, 31, Jan. 29, 30.

Period of record (1952-58, 1962-69):
Water temperatures: Maximum, 22.0°C July 12, 13, 1964, July 6, 1968, July 23, 1969; minimum, 0.5°C Dec. 30, 1955.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	15	14	13	14	14	13	13	13	13	13	13	12	12	12	11	12	12	12	12	12	12	13	14	13	13	12	12	11	11	11	11	12
MINIMUM	14	13	12	12	13	13	12	12	12	12	12	12	11	11	11	11	11	11	11	11	12	12	12	12	12	11	11	11	11	11	11	11
NOVEMBER																																
MAXIMUM	10	10	11	11	9	9	9	9	11	10	10	10	10	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	--	9
MINIMUM	9	9	10	9	9	9	9	9	9	10	10	10	9	9	8	9	9	9	9	9	9	9	9	8	8	8	8	8	8	7	--	9
DECEMBER																																
MAXIMUM	7	8	8	8	7	7	7	7	7	7	8	7	7	7	7	7	7	7	7	7	6	6	6	7	7	6	6	6	4	3	2	6
MINIMUM	7	7	8	7	6	7	6	7	7	7	7	7	7	7	7	7	7	7	7	6	6	5	5	6	6	5	5	4	3	1	1	6
JANUARY																																
MAXIMUM	3	3	3	4	4	4	4	3	3	4	4	4	3	4	4	4	4	4	3	3	3	3	2	3	3	3	3	3	2	2	3	3
MINIMUM	2	3	3	3	3	4	3	3	3	3	4	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	1	1	2	3
FEBRUARY																																
MAXIMUM	3	4	4	4	4	4	4	4	5	5	4	5	4	4	5	6	6	5	6	5	5	5	5	5	4	6	6	5	--	--	--	5
MINIMUM	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	4
MARCH																																
MAXIMUM	6	6	7	6	7	7	6	6	6	6	6	7	7	7	8	8	8	8	7	8	8	8	8	8	8	9	9	9	9	10	11	8
MINIMUM	4	6	5	5	6	6	5	4	4	4	4	5	6	6	6	7	7	7	6	6	7	7	7	7	7	7	8	7	8	8	9	6
APRIL																																
MAXIMUM	10	9	8	9	8	9	9	10	11	11	11	11	10	10	10	11	11	11	11	12	12	13	12	11	12	12	13	12	11	11	--	11
MINIMUM	9	8	7	8	8	8	8	8	8	8	9	9	8	8	8	9	10	9	9	9	10	11	11	10	9	9	10	11	9	9	--	9
MAY																																
MAXIMUM	11	12	12	13	14	15	15	16	16	16	15	15	14	13	13	14	15	14	13	13	15	16	16	16	15	14	14	14	14	15	16	14
MINIMUM	9	9	9	9	11	12	13	13	13	13	13	13	13	12	11	12	12	13	12	11	13	13	13	14	13	13	12	12	13	13	13	12
JUNE																																
MAXIMUM	16	17	18	18	17	17	17	18	17	17	17	17	17	17	17	17	18	18	18	18	18	17	16	16	16	16	16	16	17	18	--	17
MINIMUM	13	14	14	15	16	15	15	15	16	15	14	14	14	14	14	14	15	15	16	16	15	16	14	14	14	13	13	13	14	14	--	14
JULY																																
MAXIMUM	19	18	18	18	18	18	18	19	20	19	19	18	18	18	19	19	19	20	21	21	20	21	22	21	20	20	19	20	21	20	20	19
MINIMUM	16	16	16	15	15	15	16	16	16	17	17	16	15	15	15	16	16	17	18	18	17	17	18	19	17	17	17	17	17	17	17	16
AUGUST																																
MAXIMUM	19	19	19	18	18	19	18	19	19	19	19	18	19	20	19	19	18	19	19	19	20	20	20	19	18	18	17	17	17	18	18	19
MINIMUM	17	17	17	17	16	16	16	16	17	17	16	16	16	17	18	16	16	16	17	17	17	17	18	17	16	16	15	14	14	15	16	16
SEPTEMBER																																
MAXIMUM	18	18	17	16	16	17	17	17	17	18	18	18	17	16	16	16	16	16	16	16	15	16	16	16	16	16	16	16	16	16	--	16
MINIMUM	16	16	14	14	14	14	14	15	15	16	16	16	16	14	13	14	14	15	15	14	14	14	15	14	14	14	14	14	15	14	--	15

14105700 COLUMBIA RIVER AT THE DALLES, OREG.
(Irrigation network station)

LOCATION.--Lat 45°36'10", long 121°10'40", in NW¼ sec.3, T.1 N., R.13 E., Wasco County, at The Dalles Dam, 2.6 miles northeast of The Dalles and 3.2 miles upstream from gaging station.
DRAINAGE AREA.--237,000 sq mi, approximately (at gaging station).
PERIOD OF RECORD.--Chamical analyses: December 1950 to September 1969.
Water temperatures: December 1950 to September 1969.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 140 mg/l Mar. 10 to Apr. 1; minimum, 57 mg/l May 25 to June 24.
Hardness: Maximum, 90 mg/l Mar. 10 to Apr. 1; minimum, 48 mg/l May 25 to June 24.
Specific conductance: Maximum daily, 242 micromhos Jan. 20; minimum daily, 110 micromhos June 3-5.
Water temperatures: Maximum, 21.0°C on many days during July and August; minimum, 1.0°C on several days during February.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
01-26	118000	--	20	5.4	7.8	--	84	0	--	--	--	--
27-31	125000	12	20	5.9	10	1.6	88	0	19	3.0	.2	.7
NOV.												
01-16	125000	12	20	5.9	10	1.6	88	0	19	3.0	.2	.7
17-30	135000	--	20	5.8	9.7	--	87	0	--	--	--	--
DEC.												
01-05	135000	--	20	5.8	9.7	--	87	0	--	--	--	--
06...	121000	--	--	--	--	--	74	0	--	--	--	--
07-20	138000	--	19	5.7	9.7	--	86	0	--	--	--	--
21-31	150000	--	20	6.0	9.6	--	88	0	--	--	--	--
JAN.												
01-03	150000	--	20	6.0	9.6	--	88	0	--	--	--	--
04...	141000	--	--	--	--	--	52	4	--	--	--	--
05-15	179000	--	21	5.8	9.4	--	85	4	--	--	--	--
16-20	175000	--	22	6.7	12	--	101	0	--	--	--	--
21...	177000	--	--	--	--	--	58	4	--	--	--	--
22-31	186001	--	19	5.7	9.2	--	85	0	--	--	--	--
FEB.												
01-02	186001	--	19	5.7	9.2	--	85	0	--	--	--	--
03-28	174000	8.5	22	6.3	9.0	1.5	80	6	20	4.0	.3	1.1
MAR.												
01-09	179000	--	22	6.3	8.8	--	95	0	--	--	--	--
10-31	194000	--	--	7.2	10	--	99	0	--	--	--	--
APR.												
01...	194000	--	--	7.2	10	--	99	0	--	--	--	--
02-18	326000	--	21	6.2	8.0	--	86	0	--	--	--	--
19-26	337000	--	--	5.4	6.3	--	80	0	--	--	--	--
27-30	317000	--	17	4.5	5.4	--	71	0	--	--	--	--
MAY												
01-06	317000	--	17	4.5	5.4	--	71	0	--	--	--	--
07-24	407000	--	--	4.2	4.9	--	64	0	--	--	--	--
25-31	343000	5.9	14	3.3	3.4	1.1	56	0	8.8	1.0	.2	.0
JUNE												
01-24	343000	5.9	14	3.3	3.4	1.1	56	0	8.8	1.0	.2	.0
25-30	274000	--	16	3.8	3.6	--	64	0	--	--	--	--
JULY												
01-08	274000	--	16	3.8	3.6	--	64	0	--	--	--	--
09-31	186000	--	--	4.2	3.4	--	68	0	--	--	--	--
AUG.												
01-07	186000	--	--	4.2	3.4	--	68	0	--	--	--	--
08-31	123000	6.5	18	4.5	4.0	1.1	75	0	10	1.0	.2	.0
SEPT.												
06-30	102000	--	20	5.0	5.7	--	80	0	--	--	--	--
WTD. AVG.	--	--	--	5.0	6.5	--	76	1	--	--	--	--
WTD. AVG. TIME	A205800	--	--	5.3	7.0	--	79	1	--	--	--	--
TONS PER DAY	--	--	--	2760	3580	--	41300	279	--	--	--	--

A MEAN DISCHARGE BASED ON 365 DAYS; MEAN DISCHARGE FOR 360 DAYS OF CHEMICAL ANALYSES, 202000 CFS.

14105700 COLUMBIA RIVER AT THE DALLES, OREG.--Continued

Period of record:
Dissolved solids: Maximum, 163 mg/l Dec. 2-11, 14, 1955; minimum, 57 mg/l May 25 to June 24, 1969.
Hardness: Maximum, 116 mg/l Feb. 25-26, 1968; minimum, 38 mg/l May 18-31, 1958.
Specific conductance: Maximum daily, 324 micromhos Dec. 7, 1955; minimum daily, 97 micromhos June 11, 1964.
Water temperatures: Maximum (1950-64, 1966-69), 27.5°C Aug. 12, 13, 1958; minimum, freezing point on several days during winter periods of most years.

REMARKS.--No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	SODIUM AD-SORP-TION RATIO	ALKA-LINITY AS CACO3 (MG/L)	PERCENT SODIUM	COLOR (PLAT-INUM COBALT UNITS)	PH (UNITS)
OCT.												
01-26	--	119	.16	37900	72	3	182	.4	69	19	--	8.0
27-31	0	126	.17	42500	74	2	198	.5	72	22	5	8.0
NOV.												
01-16	0	126	.17	42500	74	2	198	.5	72	22	5	8.0
17-30	--	122	.17	44500	74	3	194	.5	71	22	--	8.0
DEC.												
01-05	--	122	.17	44500	74	3	194	.5	71	22	--	8.0
06...	--	--	--	--	--	--	163	--	61	--	--	8.1
07-20	--	108	.15	40200	71	0	184	.5	71	23	--	8.2
21-31	--	114	.16	46200	74	2	191	.5	72	22	--	8.2
JAN.												
01-03	--	114	.16	46200	74	2	191	.5	72	22	--	8.2
04...	--	--	--	--	--	--	156	--	49	--	--	8.5
05-15	--	123	.17	59400	76	0	199	.5	76	21	--	8.5
16-20	--	118	.16	55800	82	0	225	.6	83	24	--	8.0
21...	--	--	--	--	--	--	167	--	54	--	--	8.6
22-31	--	111	.15	55700	71	0	188	.5	70	22	--	8.2
FEB.												
01-02	--	111	.15	55700	71	0	188	.5	70	22	--	8.2
03-28	--	115	.16	54000	81	6	205	.4	75	19	10	8.7
MAR.												
01-09	--	120	.16	58000	81	3	206	.4	78	19	--	7.9
10-31	--	140	.19	73300	90	8	224	.4	81	15	--	8.0
APR.												
01...	--	140	.19	73300	90	8	224	.4	81	15	--	8.0
02-18	--	168	.23	147900	78	8	190	.4	71	18	--	7.9
19-26	--	161	.22	146500	70	4	171	.3	66	13	--	7.8
27-30	--	101	.14	86400	61	3	148	.3	58	16	--	7.8
MAY												
01-06	--	101	.14	86400	61	3	148	.3	58	16	--	7.8
07-24	--	91	.12	100000	58	5	140	.2	52	12	--	7.8
25-31	2	57	.08	52800	48	2	116	.2	46	13	0	7.6
JUNE												
01-24	2	57	.08	52800	48	2	116	.2	46	13	0	7.6
25-30	--	74	.10	54700	56	3	133	.2	52	12	--	7.7
JULY												
01-08	--	74	.10	54700	56	3	133	.2	52	12	--	7.7
09-31	--	70	.10	35200	62	7	142	.2	56	9	--	7.6
AUG.												
01-07	--	70	.10	35200	62	7	142	.2	56	9	--	7.6
08-31	3	81	.11	26900	64	2	150	.2	62	12	0	7.7
SEPT.												
06-30	--	79	.11	21800	--	--	160	.3	66	15	--	7.9
WTD. AVG. TIME	--	103	.14	66300	67	4	166	--	63	--	--	7.9
WTD. AVG. TONS PER DAY	--	--	--	--	--	--	--	--	34400	--	--	--

14105700 COLUMBIA RIVER AT THE DALLES, OREG.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	NITRATE (NO3) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (NO3) (MG/L)	PHOS-PHATE (PO4) (MG/L)
ANALYSES OF ADDITIONAL SAMPLES							
OCT.							
01...	130000	17	.6	.00	.00	.6	.08
NOV.							
01...	145000	13	.7	--	.00	.7	.11
DEC.							
01...	125000	8	.9	.00	.00	.9	7.0
JAN.							
01...	144000	3	.9	.00	.00	.9	.19
FEB.							
01...	179000	--	--	--	--	--	.10
MAR.							
01...	156000	3	--	--	--	--	.15
APR.							
01...	351000	--	.0	--	--	1.0	.02
MAY							
01...	336000	--	.1	.10	.06	.8	.02
JUNE							
01...	348000	14	.1	10	.00	.5	.02
JULY							
01...	295000	--	.1	.30	.08	1.8	.01
AUG.							
01...	148000	--	.0	.00	.23	1.0	3.0

DATE	TOTAL IRON (FE) (UG/L)	TOTAL ALUM-INUM (AL) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	NICKEL (NI) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.							
05...	80	100	10	0	10	10	10
JUNE							
26...	212	200	31	2	20	0	0

DATE	LEAD (PB) (UG/L)	ARSENIC (AS) (UG/L)	COBALT (CO) (UG/L)	BARIUM (BA) (UG/L)	CAD-MIUM (CD) (UG/L)	SILVER (AG) (UG/L)	STRON-TIUM (SR) (UG/L)
NOV.							
05...	--	0	--	--	--	--	--
JUNE							
26...	60	0	6	100	4	2	114

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	ALDRIN (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
NOV.												
05...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
DEC.												
09...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
JAN.												
22...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAR.												
18...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAY												
07...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUNE												
26...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AUG.												
06...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP.												
16...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

14105700 COLUMBIA RIVER AT THE DALLES, OREG.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	JUL	SEP
1	185	199	--	--	189	204	216	149	112	137	145	--
2	185	202	192	193	191	206	204	146	111	137	143	--
3	188	202	183	--	195	204	198	143	110	135	143	--
4	188	202	183	156	195	208	195	141	110	134	144	--
5	190	202	183	190	192	211	201	139	110	134	144	--
6	187	201	163	198	194	212	199	139	111	135	146	162
7	186	198	177	205	197	210	194	146	113	137	145	159
8	187	198	188	--	205	199	191	145	113	138	149	159
9	188	200	193	--	210	197	190	150	112	142	147	160
10	186	200	193	205	211	204	189	149	114	140	147	162
11	184	196	190	205	211	215	188	150	114	140	148	166
12	182	196	159	201	212	229	187	147	114	140	148	167
13	182	195	190	--	206	239	185	140	114	141	151	163
14	181	193	187	158	208	232	184	141	113	142	148	159
15	179	192	186	194	210	227	182	142	112	141	151	159
16	177	194	184	219	210	223	180	138	113	141	150	158
17	167	200	183	225	206	221	180	135	111	143	151	159
18	173	196	167	227	210	223	180	131	111	141	153	160
19	178	192	185	--	217	224	176	128	113	142	151	163
20	175	189	191	242	218	224	174	126	115	142	151	161
21	178	187	196	167	211	218	172	126	120	142	150	162
22	182	185	199	183	213	215	171	129	119	142	155	163
23	187	187	200	192	207	218	170	126	121	144	151	165
24	184	191	175	178	205	223	169	125	123	142	151	172
25	185	201	192	181	205	226	168	124	126	141	154	170
26	189	202	195	185	206	224	164	126	128	141	155	172
27	192	207	--	186	205	223	160	123	132	142	154	175
28	198	208	198	190	205	221	155	121	133	146	154	175
29	197	206	--	194	--	218	152	120	133	142	154	180
30	202	199	--	194	--	214	152	120	137	142	156	179
31	200	--	193	190	--	214	--	114	--	--	157	--
AVG	185	197	186	194	205	216	180	134	117	140	149	165

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	13.0	--	--	1.0	3.0	7.0	11.0	14.0	18.0	21.0	--
2	17.0	13.0	8.0	3.0	1.0	3.0	8.0	11.0	14.0	18.0	21.0	--
3	17.0	13.0	8.0	--	1.0	3.0	8.0	11.0	14.0	18.0	21.0	--
4	17.0	12.0	8.0	3.0	1.0	3.0	8.0	11.0	15.0	18.0	21.0	--
5	17.0	12.0	8.0	3.0	1.0	3.0	8.0	10.0	15.0	18.0	21.0	--
6	16.0	12.0	8.0	3.0	1.0	3.0	8.0	10.0	15.0	18.0	21.0	20.0
7	16.0	12.0	8.0	2.0	1.0	3.0	8.0	11.0	15.0	18.0	21.0	20.0
8	16.0	12.0	8.0	--	1.0	3.0	8.0	11.0	16.0	18.0	21.0	20.0
9	16.0	12.0	8.0	--	1.0	4.0	8.0	11.0	16.0	18.0	21.0	20.0
10	16.0	12.0	8.0	2.0	1.0	4.0	8.0	12.0	17.0	18.0	21.0	20.0
11	16.0	12.0	8.0	2.0	1.0	4.0	8.0	12.0	17.0	18.0	21.0	20.0
12	16.0	12.0	8.0	2.0	1.0	4.0	8.0	12.0	17.0	19.0	21.0	20.0
13	16.0	12.0	8.0	--	1.0	4.0	9.0	12.0	18.0	18.0	21.0	20.0
14	16.0	11.0	8.0	2.0	1.0	4.0	9.0	13.0	18.0	18.0	21.0	19.0
15	15.0	11.0	7.0	2.0	1.0	4.0	9.0	13.0	18.0	18.0	21.0	19.0
16	15.0	11.0	7.0	2.0	2.0	4.0	9.0	13.0	18.0	19.0	20.0	19.0
17	15.0	11.0	7.0	2.0	2.0	4.0	9.0	13.0	18.0	19.0	20.0	19.0
18	15.0	10.0	7.0	2.0	2.0	4.0	9.0	13.0	18.0	19.0	20.0	19.0
19	14.0	10.0	7.0	--	2.0	5.0	9.0	13.0	18.0	19.0	20.0	19.0
20	14.0	10.0	7.0	2.0	2.0	5.0	9.0	13.0	18.0	19.0	20.0	19.0
21	14.0	10.0	7.0	2.0	2.0	6.0	9.0	13.0	18.0	19.0	20.0	19.0
22	14.0	9.0	6.0	2.0	3.0	6.0	9.0	13.0	18.0	19.0	21.0	19.0
23	14.0	9.0	6.0	2.0	3.0	6.0	9.0	13.0	18.0	19.0	21.0	19.0
24	14.0	9.0	6.0	2.0	3.0	6.0	11.0	14.0	18.0	19.0	21.0	19.0
25	14.0	9.0	6.0	2.0	3.0	6.0	11.0	14.0	17.0	20.0	21.0	19.0
26	14.0	9.0	6.0	2.0	3.0	7.0	11.0	14.0	17.0	20.0	21.0	19.0
27	13.0	9.0	--	2.0	3.0	7.0	11.0	14.0	17.0	20.0	21.0	19.0
28	16.0	9.0	5.0	2.0	3.0	7.0	11.0	14.0	17.0	21.0	21.0	19.0
29	13.0	9.0	--	2.0	--	7.0	11.0	14.0	17.0	21.0	21.0	19.0
30	18.0	9.0	--	1.0	--	7.0	11.0	14.0	17.0	21.0	21.0	19.0
31	13.0	--	4.0	1.0	--	7.0	--	14.0	--	21.0	21.0	--
AVG	15.2	10.8	7.1	2.0	1.7	4.7	9.0	12.4	16.7	18.9	20.8	19.3

14113000 KLICKITAT RIVER NEAR PITT, WASH.

LOCATION (revised).--Lat 45°45'24", long 121°12'32", in SW¼ sec.8, T.3 N., R.13 E., Klickitat County, at footbridge 250 ft upstream from gaging station, 3.5 miles south of Pitt, 5.3 miles upstream from Silvias Creek, and at mile 7.0.

DRAINAGE AREA.--1,297 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1958 to September 1959, October 1966 to September 1969.
Water temperatures: August 1950 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 17.0°C on many days during July and August; minimum, 1.0°C Dec. 29-Jan. 4.

Period of record:
Water temperatures: Maximum, 20.5°C July 28, 29, 1958, July 18, 1960; minimum, freezing point Jan. 31 to Feb. 4, 1956, Jan. 3-7, 1959, Dec. 11, 12, 1961, Dec. 21, 22, 1964.

REMARKS.--Coliform and dissolved oxygen data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
21...	876	27	6.2	3.3	4.1	1.6	46	0	2.2
NOV.									
13...	1860	20	4.5	2.1	2.8	1.2	29	0	1.4
DEC.									
11...	1720	26	6.0	3.0	3.9	1.3	41	0	1.6
JAN.									
22...	1380	27	6.5	3.3	4.0	1.3	45	0	2.2
FEB.									
17...	1440	28	7.4	3.9	4.7	1.5	50	0	2.2
MAR.									
11...	1730	29	7.6	3.9	4.5	1.6	50	0	2.2
APR.									
15...	3250	26	5.6	2.9	3.5	1.0	41	0	.0
MAY									
20...	4180	21	4.6	1.9	3.1	1.0	28	0	.2
JUNE									
24...	1830	23	4.9	2.4	3.2	1.2	35	0	3.4
JULY									
22...	1000	26	5.7	3.0	4.1	1.5	41	0	3.6
AUG.									
19...	814	28	6.1	3.0	4.3	1.6	45	0	1.8
SEPT.									
24...	898	27	6.1	3.1	3.9	1.6	43	0	3.2

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
21...	.4	.1	.0	--	73	29	0	80	7.5
NOV.									
13...	.4	.1	.3	--	54	20	0	54	7.3
DEC.									
11...	.4	.1	.6	--	70	28	0	72	7.2
JAN.									
22...	.5	.1	.6	20	75	30	0	78	7.6
FEB.									
17...	.8	.1	.9	--	75	35	0	93	7.6
MAR.									
11...	1.2	.1	2.4	--	88	35	0	93	7.7
APR.									
15...	.4	.0	.9	--	66	26	0	67	7.5
MAY									
20...	1.5	.1	.0	--	69	20	0	49	6.3
JUNE									
24...	.3	.1	.2	--	57	22	0	60	7.7
JULY									
22...	.4	.0	.1	--	61	27	0	71	7.4
AUG.									
19...	.6	.1	.0	--	76	28	0	76	7.9
SEPT.									
24...	.5	.1	.1	--	70	28	0	76	7.5

14113000 KLICKITAT RIVER NEAR PITT, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
21...	5	9	11.8	1500	--	--	--
NOV.							
13...	20	4	11.8	430	--	--	--
DEC.							
11...	30	5	10.5	3400	--	--	--
JAN.							
22...	5	0	11.4	690	0	0	0
FEB.							
17...	10	5	12.4	3300	--	--	--
MAR.							
11...	10	6	14.2	80	--	--	--
APR.							
15...	0	8	12.0	250	--	--	--
MAY							
20...	10	14	10.8	210	--	--	--
JUNE							
24...	0	14	10.1	640	0	0	0
JULY							
22...	0	20	9.4	760	--	--	--
AUG.							
19...	0	18	9.8	650	--	--	--
SEPT.							
24...	0	11	10.8	1300	--	--	--

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	10.0	7.0	5.0	4.0	4.0	1.0	1.0	2.0	2.0	6.0	4.0
2	10.0	8.0	6.0	5.0	4.0	4.0	1.0	1.0	3.0	2.0	6.0	5.0
3	9.0	7.0	7.0	6.0	6.0	4.0	1.0	1.0	3.0	3.0	6.0	5.0
4	9.0	8.0	7.0	6.0	6.0	4.0	2.0	1.0	3.0	3.0	6.0	4.0
5	9.0	8.0	6.0	5.0	4.0	4.0	2.0	2.0	3.0	3.0	6.0	5.0
6	9.0	9.0	6.0	6.0	4.0	4.0	2.0	2.0	3.0	3.0	6.0	4.0
7	9.0	7.0	6.0	6.0	4.0	4.0	2.0	2.0	3.0	3.0	6.0	5.0
8	8.0	7.0	6.0	6.0	4.0	4.0	2.0	2.0	3.0	3.0	6.0	4.0
9	7.0	7.0	6.0	6.0	4.0	4.0	2.0	2.0	3.0	3.0	5.0	4.0
10	8.0	7.0	6.0	6.0	5.0	4.0	2.0	2.0	3.0	3.0	5.0	3.0
11	8.0	8.0	6.0	6.0	5.0	5.0	2.0	2.0	3.0	3.0	5.0	3.0
12	8.0	8.0	6.0	6.0	5.0	4.0	2.0	2.0	4.0	3.0	5.0	4.0
13	8.0	7.0	6.0	6.0	4.0	4.0	2.0	2.0	4.0	3.0	6.0	4.0
14	8.0	7.0	6.0	5.0	4.0	4.0	2.0	2.0	4.0	3.0	6.0	5.0
15	7.0	7.0	5.0	4.0	4.0	4.0	2.0	2.0	4.0	4.0	7.0	6.0
16	7.0	7.0	4.0	4.0	4.0	4.0	3.0	2.0	4.0	4.0	7.0	6.0
17	7.0	7.0	5.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	7.0	7.0
18	8.0	7.0	6.0	5.0	4.0	4.0	3.0	3.0	4.0	4.0	7.0	6.0
19	8.0	7.0	6.0	5.0	4.0	3.0	3.0	3.0	4.0	4.0	7.0	6.0
20	8.0	7.0	6.0	6.0	3.0	3.0	3.0	3.0	4.0	4.0	7.0	6.0
21	8.0	8.0	6.0	6.0	3.0	2.0	3.0	3.0	4.0	4.0	7.0	6.0
22	8.0	8.0	6.0	6.0	2.0	2.0	3.0	2.0	4.0	4.0	7.0	6.0
23	9.0	8.0	6.0	6.0	2.0	2.0	3.0	2.0	4.0	4.0	7.0	6.0
24	9.0	8.0	6.0	6.0	3.0	2.0	2.0	2.0	4.0	3.0	7.0	6.0
25	9.0	8.0	6.0	5.0	3.0	3.8	2.0	2.0	4.0	3.0	7.0	6.0
26	8.0	7.0	6.0	5.0	3.0	3.0	2.0	2.0	4.0	4.0	7.0	6.0
27	7.0	7.0	6.0	5.0	3.0	3.0	2.0	2.0	4.0	4.0	7.0	7.0
28	7.0	7.0	6.0	6.0	3.0	2.0	2.0	2.0	4.0	4.0	7.0	6.0
29	7.0	7.0	6.0	5.0	2.0	1.0	2.0	2.0	--	--	7.0	6.0
30	8.0	7.0	6.0	4.0	1.0	1.0	2.0	2.0	--	--	7.0	7.0
31	8.0	7.0	--	--	1.0	1.0	2.0	2.0	--	--	7.0	7.0
AVG	8.2	7.4	5.9	5.4	3.6	3.2	2.1	2.0	3.5	3.3	6.4	5.3

14113000 KLICKITAT RIVER NEAR PITT, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	7.0	8.0	8.0	11.0	10.0	16.0	13.0	17.0	14.0	15.0	13.0
2	7.0	7.0	8.0	7.0	13.0	11.0	16.0	14.0	17.0	14.0	16.0	14.0
3	7.0	6.0	8.0	7.0	13.0	12.0	16.0	14.0	17.0	14.0	16.0	12.0
4	7.0	6.0	9.0	7.0	13.0	12.0	16.0	13.0	17.0	14.0	13.0	11.0
5	7.0	7.0	10.0	8.0	13.0	13.0	16.0	13.0	15.0	13.0	13.0	11.0
6	7.0	7.0	11.0	9.0	13.0	12.0	16.0	13.0	15.0	12.0	13.0	11.0
7	7.0	6.0	11.0	9.0	13.0	13.0	17.0	13.0	16.0	13.0	14.0	11.0
8	7.0	7.0	11.0	9.0	14.0	12.0	17.0	14.0	16.0	13.0	14.0	12.0
9	7.0	7.0	11.0	9.0	13.0	13.0	17.0	14.0	16.0	13.0	15.0	13.0
10	8.0	7.0	11.0	9.0	14.0	12.0	17.0	16.0	16.0	14.0	15.0	13.0
11	8.0	7.0	10.0	9.0	14.0	12.0	16.0	14.0	16.0	14.0	16.0	14.0
12	8.0	8.0	9.0	9.0	14.0	13.0	16.0	14.0	16.0	14.0	16.0	13.0
13	8.0	7.0	9.0	9.0	14.0	13.0	16.0	13.0	16.0	13.0	16.0	13.0
14	8.0	7.0	9.0	9.0	14.0	12.0	16.0	13.0	17.0	14.0	14.0	12.0
15	8.0	7.0	9.0	8.0	14.0	13.0	16.0	13.0	17.0	15.0	13.0	10.0
16	8.0	7.0	9.0	8.0	15.0	13.0	16.0	13.0	17.0	14.0	12.0	11.0
17	7.0	7.0	10.0	8.0	15.0	13.0	16.0	13.0	16.0	13.0	12.0	12.0
18	7.0	7.0	10.0	9.0	15.0	13.0	17.0	14.0	16.0	13.0	13.0	12.0
19	7.0	7.0	9.0	8.0	16.0	14.0	17.0	14.0	16.0	14.0	13.0	12.0
20	7.0	7.0	9.0	8.0	16.0	14.0	17.0	15.0	16.0	13.0	12.0	11.0
21	9.0	7.0	10.0	9.0	16.0	13.0	17.0	15.0	17.0	14.0	12.0	11.0
22	9.0	8.0	11.0	9.0	15.0	13.0	17.0	14.0	17.0	14.0	12.0	11.0
23	9.0	8.0	11.0	10.0	13.0	12.0	17.0	15.0	17.0	14.0	12.0	12.0
24	8.0	8.0	11.0	10.0	13.0	12.0	17.0	16.0	17.0	14.0	12.0	11.0
25	8.0	7.0	10.0	9.0	13.0	12.0	17.0	14.0	16.0	13.0	13.0	11.0
26	8.0	7.0	9.0	9.0	13.0	11.0	17.0	14.0	16.0	13.0	13.0	10.0
27	8.0	8.0	9.0	8.0	14.0	12.0	17.0	13.0	14.0	13.0	12.0	10.0
28	8.0	8.0	9.0	8.0	14.0	11.0	17.0	14.0	14.0	12.0	12.0	10.0
29	8.0	7.0	10.0	9.0	15.0	12.0	17.0	14.0	14.0	12.0	12.0	11.0
30	8.0	6.0	11.0	9.0	16.0	12.0	17.0	14.0	15.0	12.0	12.0	11.0
31	--	--	11.0	9.0	--	--	17.0	14.0	15.0	13.0	--	--
AVG	7.6	7.0	9.7	8.5	13.9	12.3	16.5	13.8	16.0	13.3	13.4	11.6

14123500 WHITE SALMON RIVER NEAR UNDERWOOD, WASH.

LOCATION.--Lat 45°45'08", long 121°31'33", in NW¼NW¼ sec.14, T.3 N., R.10 E., Skamania County, at gaging station on right bank, 300 ft downstream from bridge, 1,000 ft downstream from Pacific Power and Light Co.'s Conduit powerplant, 1.7 miles north of Underwood, and at mile 1.9.

DRAINAGE AREA.--386 sq mi.

PERIOD OF RECORD.--Chemical analyses (revised): August 1960 to September 1961, October 1967 to September 1969 (monthly, October 1963 to September 1966 (miscellaneous).
Water temperature: July 1968 to September 1969.

Period of record:
Water temperatures: Maximum, 13.0°C on several days during June to August 1969; minimum, 1.0°C Jan. 1, 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
21...	800	24	4.4	1.9	3.2	1.1	29	0	3.6
NOV.									
12...	2220	18	3.4	1.5	2.4	.9	22	0	.8
DEC.									
11...	1540	23	4.4	1.9	3.2	1.0	30	0	2.4
JAN.									
22...	1140	26	4.8	2.3	3.5	1.2	34	0	3.4
FEB.									
17...	1140	29	5.0	2.4	3.7	1.2	35	0	2.8
MAR.									
11...	1070	27	5.1	2.5	3.7	1.3	36	0	2.4
APR.									
15...	1610	24	4.5	2.0	3.1	1.0	32	0	1.2
MAY									
20...	2490	18	3.4	1.4	2.3	.7	22	0	2.9
JUNE									
24...	1310	23	4.5	2.2	3.2	1.6	30	0	5.4
JULY									
22...	959	27	4.9	2.6	4.0	1.6	35	0	5.4
AUG.									
19...	779	28	5.1	2.6	3.7	1.4	36	0	3.4
SEPT.									
24...	788	27	5.1	2.5	3.5	1.5	31	0	5.2

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONDU-CTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
21...	.2	.1	.1	--	59	19	0	56	7.6
NOV.									
12...	.4	.1	.2	--	45	15	0	41	7.0
DEC.									
11...	.3	.1	.1	--	51	19	0	53	7.3
JAN.									
22...	.2	.1	.0	0	58	22	0	59	7.4
FEB.									
17...	.2	.1	.1	--	--	23	0	63	7.4
MAR.									
11...	.2	.1	.1	--	63	23	0	64	7.6
APR.									
15...	.4	.0	.3	--	53	19	0	56	7.0
MAY									
20...	.6	.0	.0	--	43	15	0	40	7.1
JUNE									
24...	.5	.1	.1	--	56	20	0	59	7.6
JULY									
22...	.6	.1	.2	--	63	23	0	66	7.0
AUG.									
19...	.6	.1	.3	--	61	23	0	68	7.4
SEPT.									
24...	.6	.1	.2	--	68	23	0	66	7.1

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
21...	5	8	12.0	100	--	--	--
NOV.							
12...	20	6	12.0	470	--	--	--
DEC.							
11...	5	5	11.0	1300	--	--	--
JAN.							
22...	5	3	10.8	96	0	0	0
FEB.							
17...	5	7	12.7	220	--	--	--
MAR.							
11...	0	7	13.0	28	--	--	--
APR.							
15...	5	9	12.5	90	--	--	--
MAY							
20...	5	10	11.6	176	--	--	--
JUNE							
24...	0	10	11.5	65	0	0	0
JULY							
22...	0	11	11.5	750	--	--	--
AUG.							
19...	0	10	11.5	140	--	--	--
SEPT.							
24...	0	9	11.7	--	--	--	--

14123500 *WHITE SALMON RIVER NEAR UNDERWOOD, WASH.*--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	7.0	6.0	6.0	6.0	3.0	1.0	4.0	4.0	6.0	6.0
2	--	--	6.0	6.0	6.0	6.0	3.0	3.0	4.0	4.0	6.0	6.0
3	--	--	7.0	6.0	7.0	6.0	3.0	3.0	5.0	4.0	6.0	4.0
4	--	--	6.0	6.0	7.0	6.0	4.0	3.0	5.0	5.0	6.0	6.0
5	--	--	6.0	6.0	6.0	6.0	4.0	4.0	5.0	4.0	6.0	6.0
6	--	--	6.0	6.0	6.0	5.0	4.0	4.0	5.0	4.0	6.0	6.0
7	--	--	6.0	6.0	6.0	5.0	4.0	3.0	5.0	4.0	6.0	6.0
8	--	--	6.0	6.0	6.0	6.0	4.0	3.0	5.0	4.0	6.0	6.0
9	--	--	6.0	6.0	6.0	5.0	4.0	3.0	5.0	5.0	6.0	5.0
10	--	--	7.0	6.0	6.0	6.0	4.0	3.0	5.0	5.0	6.0	4.0
11	--	--	7.0	6.0	6.0	6.0	4.0	3.0	5.0	5.0	6.0	5.0
12	--	--	7.0	7.0	6.0	5.0	4.0	4.0	6.0	5.0	6.0	5.0
13	--	--	7.0	6.0	6.0	5.0	4.0	4.0	6.0	5.0	6.0	5.0
14	--	--	7.0	7.0	6.0	6.0	4.0	4.0	6.0	5.0	6.0	5.0
15	--	--	7.0	6.0	6.0	6.0	4.0	4.0	6.0	5.0	6.0	5.0
16	--	--	7.0	7.0	6.0	5.0	4.0	4.0	6.0	5.0	6.0	6.0
17	--	--	7.0	7.0	6.0	5.0	4.0	4.0	6.0	5.0	6.0	6.0
18	--	--	7.0	7.0	6.0	5.0	4.0	4.0	6.0	5.0	6.0	5.0
19	--	--	7.0	7.0	5.0	4.0	4.0	4.0	6.0	5.0	6.0	5.0
20	--	--	7.0	7.0	4.0	3.0	4.0	4.0	6.0	5.0	6.0	5.0
21	--	--	7.0	7.0	4.0	4.0	4.0	4.0	6.0	5.0	6.0	5.0
22	--	--	8.0	7.0	4.0	3.0	4.0	4.0	6.0	5.0	6.0	6.0
23	8.0	7.0	8.0	7.0	4.0	3.0	4.0	3.0	6.0	5.0	6.0	6.0
24	8.0	8.0	7.0	7.0	5.0	4.0	3.0	3.0	6.0	5.0	6.0	6.0
25	8.0	8.0	7.0	7.0	5.0	4.0	3.0	3.0	6.0	4.0	6.0	6.0
26	8.0	7.0	7.0	7.0	6.0	5.0	3.0	3.0	6.0	5.0	7.0	6.0
27	8.0	7.0	7.0	7.0	6.0	5.0	3.0	3.0	6.0	5.0	7.0	6.0
28	7.0	7.0	7.0	7.0	5.0	4.0	3.0	3.0	6.0	6.0	7.0	6.0
29	7.0	7.0	7.0	7.0	4.0	3.0	4.0	3.0	--	--	7.0	6.0
30	7.0	7.0	7.0	6.0	3.0	2.0	3.0	3.0	--	--	7.0	7.0
31	7.0	6.0	--	--	3.0	--	4.0	3.0	--	--	7.0	7.0
AVG	--	--	6.8	6.5	5.4	4.8	3.7	3.3	5.5	4.7	6.1	5.6

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	6.0	7.0	7.0	10.0	9.0	12.0	10.0	12.0	11.0	11.0	9.0
2	7.0	6.0	8.0	7.0	11.0	10.0	11.0	11.0	12.0	11.0	11.0	10.0
3	6.0	6.0	8.0	7.0	11.0	11.0	11.0	10.0	11.0	10.0	11.0	11.0
4	6.0	6.0	8.0	7.0	12.0	11.0	11.0	10.0	10.0	9.0	12.0	10.0
5	6.0	6.0	9.0	8.0	12.0	11.0	11.0	10.0	10.0	9.0	12.0	8.0
6	7.0	6.0	9.0	8.0	12.0	11.0	11.0	11.0	10.0	9.0	11.0	7.0
7	7.0	6.0	9.0	8.0	12.0	11.0	11.0	11.0	11.0	10.0	11.0	9.0
8	7.0	6.0	--	--	12.0	12.0	12.0	10.0	11.0	8.0	10.0	9.0
9	7.0	7.0	--	--	12.0	11.0	12.0	11.0	12.0	9.0	11.0	9.0
10	7.0	7.0	9.0	8.0	12.0	11.0	12.0	11.0	12.0	10.0	11.0	10.0
11	7.0	7.0	9.0	8.0	12.0	11.0	11.0	11.0	12.0	10.0	11.0	10.0
12	8.0	7.0	9.0	8.0	13.0	12.0	11.0	11.0	11.0	10.0	11.0	10.0
13	7.0	7.0	9.0	8.0	13.0	12.0	11.0	10.0	11.0	10.0	11.0	10.0
14	7.0	7.0	9.0	9.0	12.0	11.0	11.0	10.0	12.0	11.0	11.0	9.0
15	7.0	7.0	9.0	8.0	12.0	11.0	11.0	10.0	12.0	11.0	10.0	9.0
16	7.0	7.0	8.0	8.0	12.0	11.0	11.0	8.0	12.0	9.0	10.0	9.0
17	7.0	7.0	9.0	8.0	12.0	11.0	11.0	10.0	11.0	8.0	10.0	9.0
18	7.0	7.0	9.0	8.0	12.0	11.0	12.0	10.0	13.0	10.0	10.0	9.0
19	7.0	7.0	8.0	8.0	12.0	11.0	12.0	10.0	12.0	10.0	10.0	10.0
20	7.0	7.0	9.0	7.0	12.0	12.0	12.0	11.0	11.0	10.0	10.0	10.0
21	8.0	7.0	9.0	8.0	12.0	10.0	12.0	10.0	11.0	10.0	10.0	10.0
22	8.0	8.0	9.0	9.0	12.0	11.0	12.0	10.0	11.0	10.0	10.0	10.0
23	8.0	7.0	9.0	9.0	11.0	10.0	13.0	10.0	11.0	10.0	10.0	10.0
24	7.0	7.0	9.0	9.0	11.0	10.0	12.0	10.0	13.0	11.0	11.0	10.0
25	7.0	7.0	9.0	8.0	11.0	10.0	12.0	10.0	11.0	10.0	11.0	10.0
26	7.0	7.0	9.0	8.0	11.0	10.0	12.0	8.0	--	10.0	11.0	10.0
27	8.0	7.0	8.0	8.0	11.0	9.0	12.0	10.0	11.0	10.0	11.0	10.0
28	8.0	8.0	8.0	8.0	11.0	9.0	--	--	11.0	9.0	11.0	10.0
29	8.0	7.0	9.0	8.0	11.0	9.0	12.0	10.0	11.0	9.0	11.0	10.0
30	7.0	7.0	9.0	8.0	11.0	9.0	12.0	8.0	11.0	9.0	10.0	10.0
31	--	--	9.0	8.0	--	--	12.0	11.0	11.0	9.0	--	--
AVG	7.1	6.8	8.6	7.9	11.6	10.6	11.6	10.1	11.3	9.7	10.7	9.5

14128910 COLUMBIA RIVER AT WARRENDALE, OREG.

LOCATION.--Lat 45°36'45", long 122°01'35", in NW¼SE¼ sec.35, T.2 N., R.6 E., Multnomah County, temperature recorder on left bank 0.1 mile downstream from Tumalt Creek, 1.0 mile west of Warrendale, 5.1 miles downstream from Bonneville Dam, and at mile 141.0.

DRAINAGE AREA.--240,400 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: August 1967 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C on many days during July to September.

Period of record:
Water temperatures: Maximum, 22.0°C on several days in August 1967; minimum (1967-68), 3.0°C Feb. 17, 1968.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	18	17	16	17	17	17	16	16	16	16	16	15	15	15	15	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	15
MINIMUM	17	16	16	16	16	16	16	16	16	15	15	15	15	15	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	12	15
NOVEMBER																																
MAXIMUM	12	12	12	12	12	12	12	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	--	10
MINIMUM	12	12	12	12	12	12	11	11	11	11	10	11	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	8	--	10
DECEMBER																																
MAXIMUM	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	5	5	5	5	5	5	--	--	--	7
MINIMUM	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	5	5	5	5	5	5	5	--	--	--	7
JANUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	--
FEBRUARY																																
MAXIMUM	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	--	--	--	2
MINIMUM	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	--	--	--	2
MARCH																																
MAXIMUM	3	3	3	3	3	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7	7	7	5
MINIMUM	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	5	5	6	5	6	6	6	6	6	6	7	7	7	7	5
APRIL																																
MAXIMUM	7	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10	10	10	10	11	11	11	11	11	11	11	11	10	--	9
MINIMUM	7	7	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10	10	10	10	11	10	10	10	10	11	10	10	--	9
MAY																																
MAXIMUM	10	11	10	10	10	11	11	12	12	12	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	15	15	15	15	13
MINIMUM	10	10	10	10	10	10	11	11	12	12	12	13	13	13	14	14	14	14	13	13	14	14	14	14	14	14	14	14	15	15	15	13
JUNE																																
MAXIMUM	16	16	16	16	16	16	16	16	17	17	18	18	18	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	17	--	17
MINIMUM	15	16	16	16	16	16	16	16	16	17	17	17	18	18	18	18	18	18	18	18	18	18	17	17	17	17	17	17	17	17	--	17
JULY																																
MAXIMUM	18	18	18	18	18	18	18	18	18	19	19	18	18	19	19	19	19	19	20	20	20	20	20	20	20	20	20	20	20	20	21	19
MINIMUM	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	20	20	20	20	20	20	20	20	20	20	19
AUGUST																																
MAXIMUM	20	20	20	20	20	20	20	20	21	21	21	20	20	21	21	20	20	20	21	21	21	21	21	21	21	21	21	21	20	20	20	20
MINIMUM	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	21	21	21	21	20	21	21	20	20	20	20	20
SEPTEMBER																																
MAXIMUM	20	20	20	20	20	20	20	20	21	21	21	21	21	20	20	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	--	19
MINIMUM	20	20	20	20	20	20	20	20	20	21	21	20	20	20	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	18	--	19

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OREG.

LOCATION.--Lat 45°29'50", long 122°00'50", near center of sec.12, T.1 S., R.6 E., Multnomah County, Mount Hood National Forest, at gaging station on right bank, 1.2 miles upstream from North Fork, 7.0 miles southeast of Multnomah Falls, and at mile 14.8.

DRAINAGE AREA.--47.9 sq mi.

PERIOD OF RECORD.--Sediment records: October 1966 to September 1969.

EXTREMES.--1968-69:
Sediment concentrations: Maximum daily, 93 mg/l (estimated) Jan. 5; minimum daily, 1 mg/l on many days during year.
Sediment loads: Maximum daily, 1,100 tons (estimated) Jan. 5; minimum daily, not determined.

Period of record:
Sediment concentrations: Maximum daily, 93 mg/l (estimated) Jan. 5, 1969; minimum daily (1966-67), less than 1 mg/l on several days in December 1966.
Sediment loads: maximum daily, 1,100 tons (estimated) Jan. 5, 1969; minimum daily, less than 0.05 ton on many days in December 1966.

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(WHERE NO CONCENTRATIONS ARE REPORTED, LOADS ARE ESTIMATED)

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	112	4	1.3	379	3	2.9	395	--	3.0
2	105	4	1.2	567	3	5.0	391	--	2.9
3	99	4	1.0	654	3	5.1	970	--	11
4	150	4	1.6	481	3	4.0	1390	5	19
5	117	4	1.3	373	3	2.9	952	--	12
								--	
6	187	4	1.9	306	3	2.2	640	--	8.2
7	240	4	2.4	277	3	1.9	476	--	6.5
8	198	3	1.7	2330	12	75	831	--	16
9	168	3	1.3	3180	22	190	898	--	21
10	240	3	1.8	1460	6	22	1110	11	33
11	665	3	5.4	2080	9	53	1010	--	28
12	945	4	11	1660	6	29	698	--	16
13	1110	5	14	1070	4	13	522	--	11
14	815	4	8.6	719	4	6.8	510	--	10
15	1650	7	30	552	3	4.6	511	--	10
16	950	4	11	701	3	6.5	478	--	9.5
17	560	3	5.0	575	3	5.0	396	--	7.5
18	430	3	3.6	813	4	8.2	413	--	8.0
19	344	3	2.6	841	4	8.8	358	--	6.3
20	796	4	8.6	862	4	8.8	305	--	5.3
21	629	3	5.7	1060	4	12	273	--	4.3
22	820	4	8.4	1870	8	41	252	--	3.8
23	600	3	5.3	995	4	11	507	--	10
24	441	3	3.4	691	3	6.4	1050	--	30
25	356	3	2.7	575	3	4.8	866	--	22
26	290	3	2.1	482	3	3.8	559	--	11
27	248	3	1.7	592	3	5.0	509	--	10
28	218	3	1.5	592	3	5.0	434	--	8.3
29	220	3	1.5	505	3	4.0	345	--	6.1
30	537	3	4.6	440	3	3.4	270	--	4.6
31	522	3	4.3	--	--	--	352	--	6.3
TOTAL	14762	--	156.5	27682	--	551.1	18671	--	368.6

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	1100	11	33	117	5	1.6	132	5	1.8
2	955	10	25	118	5	1.6	129	5	1.8
3	735	9	17	122	5	1.7	129	5	1.8
4	1880	20	100	118	5	1.6	129	5	1.8
5	4370	93	1100	118	5	1.6	215	6	3.5
6	2970	46	370	118	5	1.6	258	6	4.5
7	2820	42	320	118	5	1.6	215	6	3.5
8	1080	11	32	129	5	1.8	200	6	3.2
9	728	9	17	185	6	2.8	187	6	2.8
10	568	8	12	202	6	3.2	170	6	2.7
11	458	7	8.8	338	7	6.1	162	6	2.6
12	377	7	7.0	356	7	6.5	152	6	2.4
13	335	6	5.8	308	6	5.3	154	6	2.5
14	299	6	5.0	262	6	4.5	154	6	2.5
15	275	6	4.5	235	6	3.7	162	6	2.6
16	253	6	4.0	230	6	3.7	189	5	2.8
17	230	6	3.7	230	6	3.7	751	9	18
18	218	6	3.3	220	6	3.5	940	9	24
19	205	6	3.2	210	6	3.3	643	8	14
20	191	5	2.8	198	6	3.0	479	7	9.2
21	178	6	2.7	189	5	2.8	437	7	8.0
22	166	6	2.5	176	6	2.7	458	7	8.6
23	156	5	2.2	168	6	2.5	486	7	9.2
24	160	5	2.3	158	5	2.3	420	7	7.6
25	150	5	2.2	150	5	2.2	392	7	6.9
26	150	5	2.2	144	5	2.0	444	7	8.0
27	140	5	2.0	134	5	1.8	564	7	11
28	133	5	1.8	133	5	1.8	634	7	12
29	129	5	1.8	--	--	--	683	8	14
30	120	5	1.7	--	--	--	769	8	17
31	117	5	1.6	--	--	--	1070	9	27
TOTAL	21646	--	2097.1	5184	--	80.5	11907	--	237.3

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	875	9	21	479	6	7.2	710	5	9.6
2	665	7	13	406	5	5.7	634	5	8.1
3	512	7	9.2	356	5	4.7	596	5	7.3
4	451	6	7.8	335	5	4.4	568	4	6.8
5	479	6	8.4	374	5	5.0	516	4	6.0
6	479	6	8.3	560	6	8.4	451	4	4.9
7	427	6	7.3	975	7	19	395	4	4.1
8	409	6	6.6	1390	9	34	374	4	3.8
9	434	6	7.2	1370	9	33	365	4	3.6
10	479	6	8.2	1280	9	30	344	4	3.3
11	500	6	8.5	1170	8	26	323	4	3.1
12	701	7	14	1100	8	23	302	4	2.9
13	733	7	14	950	7	17	278	3	2.5
14	572	6	9.3	880	7	16	262	3	2.3
15	458	5	7.3	782	6	13	245	3	2.0
16	416	6	6.8	697	6	11	232	3	1.9
17	572	6	10	746	5	11	220	3	1.8
18	1040	9	24	920	6	16	210	3	1.6
19	1110	9	27	1710	11	52	196	3	1.5
20	950	8	20	1020	7	18	180	3	1.3
21	755	7	15	920	6	15	166	3	1.2
22	815	7	16	905	6	15	202	3	1.5
23	950	8	20	920	6	15	553	4	5.4
24	820	7	16	796	6	13	678	4	7.1
25	629	6	11	642	5	8.7	755	4	7.8
26	512	6	8.1	629	5	8.5	656	4	6.6
27	508	6	7.9	556	5	7.0	688	4	7.1
28	746	6	13	465	4	5.6	679	4	6.9
29	805	7	15	1310	7	26	661	4	6.5
30	608	6	10	1880	12	60	497	3	4.4
31	--	--	--	910	6	14	--	--	--
TOTAL	19410	--	369.9	27433	--	542.2	12936	--	132.9

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	392	3	3.1	82	1	.29	144	2	.77
2	332	3	2.5	81	1	.29	140	2	.77
3	302	3	2.2	80	1	.28	134	2	.73
4	270	3	1.9	81	1	.28	131	2	.73
5	242	2	1.6	90	1	.30	129	2	.72
6	228	2	1.5	81	1	.26	124	2	.70
7	212	2	1.4	77	1	.23	118	2	.69
8	198	2	1.2	75	1	.22	113	2	.69
9	182	2	1.1	73	1	.22	108	2	.65
10	172	2	.99	71	1	.20	105	2	.64
11	202	2	1.2	70	1	.20	100	2	.62
12	180	2	1.0	70	1	.19	96	2	.60
13	162	2	.87	69	1	.19	125	2	.82
14	154	2	.81	68	1	.19	136	3	.92
15	144	2	.72	65	1	.18	138	3	1.0
16	138	2	.72	62	1	.18	136	3	.96
17	129	2	.66	61	1	.18	134	3	.96
18	125	2	.64	60	1	.18	170	3	1.4
19	122	2	.58	60	1	.18	193	3	1.7
20	118	2	.53	59	1	.18	174	3	1.4
21	113	2	.52	59	1	.18	134	3	1.1
22	110	2	.48	58	1	.18	127	3	.98
23	108	2	.46	58	1	.18	413	6	6.9
24	103	2	.44	57	1	.18	210	4	2.0
25	98	2	.40	54	1	.18	170	3	1.5
26	96	2	.39	82	1	.33	127	3	1.0
27	91	1	.36	127	2	.54	100	3	.85
28	91	1	.36	142	2	.67	87	3	.71
29	90	1	.34	150	2	.73	77	3	.63
30	87	1	.32	150	2	.75	144	3	1.3
31	84	1	.29	148	2	.78	--	--	--
TOTAL	5075	--	29.58	2520	--	9.12	4237	--	34.44

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 171463
TOTAL LOAD FOR YEAR (TONS) 4609.24

14143500 WASHOUGAL RIVER NEAR WASHOUGAL, WASH.

LOCATION.--Lat 45°37'30", long 122°16'55", in NE¼SW¼ sec.26, T.2 N., R.4 E., Clark County, at county road bridge 0.8 mile upstream from gaging station, 4.4 miles northeast of Washougal, and at mile 10.0.

DRAINAGE AREA.--108 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses (revised): November 1961 to September 1966 (miscellaneous), October 1966 to September 1969 (monthly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
21...	1470	8.8	2.0	.5	1.6	.2	11	0	.0
NOV.									
12...	3610	7.8	1.7	.5	1.4	.2	10	0	.0
DEC.									
11...	2930	7.8	1.7	.4	1.4	.2	9	0	.6
JAN.									
22...	420	11	2.2	.7	1.8	.2	13	0	1.0
FEB.									
17...	962	9.5	2.1	.6	1.6	.2	11	0	.2
MAR.									
11...	633	9.3	2.1	.6	1.5	.2	12	0	.0
APR.									
15...	885	7.7	2.3	.3	1.5	.2	10	0	.2
MAY									
20...	690	7.2	1.8	.4	1.3	.1	9	0	.2
JUNE									
24...	684	7.9	2.0	.5	1.7	.3	12	0	.4
JULY									
22...	169	12	2.6	.7	2.2	.4	16	0	.2
AUG.									
19...	94	13	3.0	.8	2.4	.4	18	0	.2
SEPT.									
24...	702	7.5	2.0	.4	1.4	.3	11	0	.0

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
21...	.7	.1	.7	--	27	7	0	22	7.1
NOV.									
12...	.7	.1	.4	--	18	6	0	19	7.0
DEC.									
11...	.6	.0	.6	--	22	6	0	19	7.0
JAN.									
22...	.4	.0	5.0	0	23	9	0	27	7.1
FEB.									
17...	.7	.0	1.0	--	26	8	0	25	6.9
MAR.									
11...	.7	.0	.5	--	23	8	0	24	7.2
APR.									
15...	.8	.0	.5	--	21	7	0	21	6.8
MAY									
20...	.6	.0	.0	--	16	6	0	19	7.0
JUNE									
24...	.4	.0	.7	--	21	7	0	23	6.9
JULY									
22...	.8	.1	.7	--	35	10	0	31	7.0
AUG.									
19...	1.1	.0	.5	--	22	11	0	35	7.4
SEPT.									
24...	1.0	.1	.6	--	20	7	0	23	7.1

DATE	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
21...	5	10	11.4	230	--	--	--
NOV.							
12...	0	8	10.5	180	--	--	--
DEC.							
11...	5	4	10.4	410	--	--	--
JAN.							
22...	5	2	10.6	70	0	0	10
FEB.							
17...	5	7	13.0	2800	--	--	--
MAR.							
11...	0	6	13.3	50	--	--	--
APR.							
15...	5	9	12.1	390	--	--	--
MAY							
20...	5	13	10.6	310	--	--	--
JUNE							
24...	0	12	10.2	230	0	0	0
JULY							
22...	0	21	9.4	1400	--	--	--
AUG.							
19...	0	20	9.1	700	--	--	--
SEPT.							
24...	0	12	11.1	2000	--	--	--

14144700 COLUMBIA RIVER AT VANCOUVER, WASH.

LOCATION.--Lat 45°37'15", long 122°40'20", in NE¼NW¼ sec.34, T.2 N., R.1 E., Clark County, at gaging station near right bank, in control house of Interstate Highway 5 bridge at south edge of Vancouver, 5.0 miles upstream from Willamette River and at mile 106.5.

DRAINAGE AREA.--241,000 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: February 1964 to September 1965.
Water temperatures: August 1967 to September 1969.
Sediment records: October 1963 to September 1969.

EXTREMES.--1967-68:
Sediment concentrations: Maximum daily, 88 mg/l May 24; minimum daily, 4 mg/l Dec. 27.
Sediment loads: Maximum daily, 73,600 tons June 14; minimum daily, 1,570 tons Dec. 27.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C Aug. 22, 23; minimum, 1.0°C Jan. 24-28, and sometime during period Jan. 29 to Feb. 3.
Sediment concentrations: Maximum daily, 92 mg/l May 16; minimum daily, 3 mg/l on several days during December.
Sediment loads: Maximum daily, 114,000 tons May 16; minimum daily, 1,120 tons Dec. 24.

Period of record:
Water temperatures: Maximum, 23.0°C Aug. 20-24, 1967; minimum, 1.0°C Jan. 24-28, and sometime during Jan. 29 to Feb. 3, 1969.
Sediment concentrations: Maximum daily, 2,660 mg/l Dec. 25, 1964; minimum daily, 3 mg/l on several days during December 1968.
Sediment loads: Maximum daily, 3,510,000 tons Dec. 25, 1964; minimum daily, 1,120 tons Dec. 24, 1968.

REMARKS.--Temperature recorder stopped Jan. 29 to Feb. 3; range in temperature, 1.0°C to 2.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	17.0	16.0	13.0	12.0	9.0	8.0	2.0	2.0	--	--	4.0	3.0
2	17.0	16.0	12.0	12.0	8.0	8.0	3.0	2.0	--	--	4.0	4.0
3	16.0	16.0	12.0	11.0	9.0	8.0	3.0	3.0	--	--	4.0	4.0
4	16.0	16.0	11.0	11.0	8.0	8.0	4.0	3.0	2.0	2.0	4.0	4.0
5	16.0	16.0	11.0	11.0	8.0	8.0	5.0	4.0	2.0	2.0	4.0	4.0
6	16.0	16.0	11.0	11.0	8.0	8.0	6.0	5.0	2.0	2.0	4.0	4.0
7	16.0	16.0	11.0	11.0	8.0	8.0	5.0	4.0	2.0	2.0	4.0	4.0
8	16.0	15.0	11.0	11.0	8.0	8.0	4.0	4.0	2.0	2.0	5.0	4.0
9	16.0	15.0	11.0	11.0	8.0	8.0	4.0	4.0	2.0	2.0	4.0	4.0
10	16.0	15.0	11.0	11.0	8.0	8.0	4.0	4.0	2.0	2.0	4.0	4.0
11	15.0	14.0	11.0	10.0	8.0	8.0	4.0	3.0	2.0	2.0	4.0	4.0
12	14.0	14.0	11.0	10.0	8.0	8.0	3.0	3.0	2.0	2.0	4.0	4.0
13	14.0	14.0	10.0	10.0	8.0	7.0	3.0	3.0	2.0	2.0	5.0	4.0
14	14.0	14.0	11.0	10.0	7.0	7.0	3.0	3.0	2.0	2.0	5.0	4.0
15	14.0	13.0	10.0	9.0	7.0	7.0	3.0	3.0	2.0	2.0	5.0	4.0
16	14.0	13.0	10.0	9.0	7.0	7.0	3.0	3.0	3.0	2.0	6.0	5.0
17	14.0	14.0	10.0	9.0	8.0	7.0	3.0	3.0	3.0	3.0	6.0	5.0
18	14.0	14.0	10.0	9.0	7.0	7.0	3.0	3.0	3.0	3.0	6.0	5.0
19	14.0	14.0	10.0	9.0	7.0	7.0	3.0	3.0	3.0	3.0	6.0	6.0
20	14.0	14.0	10.0	9.0	7.0	7.0	3.0	3.0	3.0	3.0	6.0	6.0
21	14.0	14.0	10.0	10.0	7.0	7.0	3.0	3.0	3.0	3.0	7.0	6.0
22	14.0	13.0	11.0	10.0	7.0	7.0	3.0	2.0	3.0	3.0	6.0	6.0
23	14.0	14.0	11.0	10.0	7.0	6.0	2.0	2.0	3.0	3.0	7.0	6.0
24	14.0	14.0	10.0	10.0	7.0	6.0	2.0	1.0	3.0	3.0	6.0	6.0
25	14.0	13.0	10.0	9.0	7.0	6.0	1.0	1.0	3.0	3.0	7.0	6.0
26	14.0	13.0	10.0	9.0	7.0	6.0	2.0	1.0	3.0	3.0	7.0	6.0
27	13.0	13.0	9.0	9.0	7.0	7.0	1.0	1.0	4.0	3.0	7.0	7.0
28	13.0	13.0	9.0	9.0	7.0	6.0	1.0	1.0	4.0	3.0	8.0	7.0
29	13.0	13.0	9.0	9.0	6.0	5.0	--	--	--	--	8.0	7.0
30	13.0	13.0	9.0	8.0	5.0	3.0	--	--	--	--	8.0	7.0
31	13.0	12.0	--	--	3.0	2.0	--	--	--	--	8.0	7.0
AVG	14.5	14.1	10.5	9.9	7.2	6.8	3.0	2.7	2.6	2.4	5.5	5.0

14144700 COLUMBIA RIVER AT VANCOUVER, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	7.0	11.0	10.0	16.0	16.0	18.0	17.0	20.0	19.0	21.0	20.0
2	7.0	7.0	11.0	10.0	16.0	16.0	18.0	18.0	20.0	19.0	21.0	20.0
3	8.0	7.0	11.0	8.0	16.0	16.0	18.0	17.0	20.0	19.0	20.0	19.0
4	8.0	7.0	11.0	9.0	16.0	16.0	18.0	17.0	20.0	19.0	20.0	19.0
5	8.0	8.0	11.0	10.0	16.0	16.0	18.0	18.0	19.0	19.0	20.0	19.0
6	8.0	8.0	11.0	10.0	16.0	16.0	18.0	18.0	20.0	19.0	20.0	19.0
7	8.0	8.0	11.0	11.0	17.0	16.0	18.0	18.0	20.0	19.0	20.0	19.0
8	8.0	8.0	12.0	11.0	17.0	16.0	18.0	18.0	20.0	19.0	20.0	19.0
9	8.0	8.0	12.0	12.0	17.0	17.0	19.0	18.0	21.0	20.0	20.0	19.0
10	8.0	8.0	13.0	12.0	17.0	17.0	18.0	18.0	21.0	20.0	19.0	19.0
11	9.0	8.0	13.0	12.0	18.0	17.0	18.0	18.0	21.0	20.0	20.0	19.0
12	8.0	8.0	13.0	12.0	18.0	18.0	18.0	18.0	21.0	20.0	20.0	19.0
13	8.0	8.0	13.0	12.0	18.0	18.0	18.0	18.0	21.0	20.0	19.0	19.0
14	9.0	8.0	13.0	13.0	18.0	18.0	19.0	18.0	21.0	21.0	19.0	19.0
15	9.0	8.0	13.0	13.0	18.0	18.0	19.0	18.0	21.0	20.0	19.0	19.0
16	9.0	8.0	14.0	13.0	19.0	18.0	19.0	18.0	20.0	19.0	19.0	18.0
17	9.0	9.0	14.0	14.0	19.0	18.0	19.0	18.0	21.0	20.0	18.0	18.0
18	9.0	9.0	14.0	14.0	19.0	18.0	19.0	19.0	21.0	20.0	18.0	18.0
19	9.0	9.0	14.0	13.0	19.0	18.0	19.0	19.0	21.0	21.0	18.0	18.0
20	10.0	9.0	14.0	13.0	19.0	18.0	19.0	19.0	21.0	21.0	18.0	18.0
21	11.0	9.0	14.0	13.0	18.0	18.0	19.0	19.0	21.0	21.0	18.0	18.0
22	11.0	10.0	14.0	14.0	18.0	18.0	19.0	19.0	22.0	21.0	18.0	18.0
23	11.0	10.0	14.0	14.0	18.0	18.0	20.0	19.0	22.0	21.0	18.0	18.0
24	11.0	11.0	14.0	14.0	18.0	18.0	20.0	19.0	21.0	21.0	18.0	18.0
25	11.0	10.0	14.0	14.0	18.0	18.0	20.0	19.0	21.0	21.0	18.0	18.0
26	11.0	10.0	14.0	14.0	18.0	18.0	20.0	19.0	21.0	21.0	18.0	18.0
27	11.0	11.0	14.0	14.0	18.0	18.0	20.0	19.0	21.0	21.0	18.0	18.0
28	11.0	11.0	14.0	14.0	18.0	17.0	20.0	19.0	21.0	21.0	18.0	18.0
29	11.0	11.0	14.0	14.0	18.0	17.0	20.0	19.0	21.0	20.0	18.0	18.0
30	11.0	10.0	15.0	14.0	18.0	17.0	20.0	19.0	21.0	20.0	18.0	18.0
31	--	--	16.0	15.0	--	--	20.0	19.0	21.0	20.0	--	--
AVG	9.2	8.7	13.0	12.4	17.6	17.2	18.9	18.3	20.7	20.0	18.9	18.5

14144700 COLUMBIA RIVER AT VANCOUVER, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	115	10	3100	115	10	3100	129	6	2090
2	120	11	3560	115	10	3100	132	6	2140
3	110	11	3270	115	10	3100	140	6	2270
4	110	11	3270	120	10	3240	134	6	2170
5	110	11	3270	120	10	3240	119	6	1930
6	115	11	3420	110	9	2670	124	6	2010
7	110	11	3270	115	9	2790	131	6	2120
8	105	10	2830	120	9	2920	150	6	2430
9	115	10	3100	130	9	3160	150	6	2430
10	120	9	2920	135	9	3280	129	6	2090
11	115	8	2480	140	9	3400	144	6	2330
12	115	8	2480	125	8	2700	145	6	2350
13	115	8	2480	115	8	2480	134	8	2890
14	117	8	2530	110	8	2380	133	8	2870
15	122	7	2310	127	8	2740	155	8	3350
16	119	7	2250	136	8	2940	154	8	3330
17	117	6	1900	141	8	3050	145	8	3130
18	124	6	2010	130	7	2460	140	8	3020
19	136	6	2200	128	7	2420	135	8	2920
20	128	6	2070	105	7	1980	136	8	2940
21	115	7	2170	115	6	1860	141	8	3050
22	110	7	2080	115	6	1860	164	8	3540
23	125	8	2700	125	6	2020	169	8	3650
24	125	8	2700	121	6	1960	162	8	3500
25	115	8	2480	124	6	2010	141	8	3050
26	115	8	2480	116	6	1880	145	8	3130
27	130	8	2810	108	6	1750	145	4	1570
28	145	9	3520	116	6	1880	155	6	2510
29	140	9	3400	123	6	1990	173	8	3740
30	120	9	2920	132	6	2140	177	9	4300
31	110	10	2970	--	--	--	170	9	4130
TOTAL	3688	--	84950	3647	--	76500	4501	--	86980

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEM-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	157	9	3820	151	10	4080	187	62	31300
2	149	10	4020	162	10	4370	179	50	24200
3	147	10	3970	178	12	5770	183	40	19800
4	130	10	3510	175	12	5670	158	35	14900
5	137	10	3700	172	12	5570	160	28	12100
6	140	12	4540	164	14	6200	169	28	12800
7	142	14	5370	166	14	6270	185	28	14000
8	140	16	6050	160	14	6050	188	28	14200
9	148	18	7190	153	14	5780	212	26	14900
10	153	18	7440	148	10	4000	226	24	14600
11	136	18	6610	151	8	3260	229	24	14800
12	139	18	6760	138	8	2980	190	22	11300
13	146	16	6310	133	5	1800	189	22	11200
14	145	14	5480	138	5	1860	207	22	12300
15	143	12	4630	145	5	1960	231	22	13700
16	138	10	3730	147	5	1980	212	20	11400
17	137	7	2590	157	5	2120	195	17	8950
18	143	7	2700	154	5	2080	199	15	8060
19	150	7	2830	210	30	17000	205	12	6640
20	154	7	2910	225	35	21300	205	12	6640
21	155	6	2510	240	35	22700	185	12	5990
22	127	6	2060	265	35	25000	165	12	5350
23	133	6	2150	280	35	26500	154	12	4990
24	140	6	2270	270	40	29200	153	13	5370
25	145	6	2350	235	50	31700	164	13	5760
26	158	6	2560	215	55	31900	191	14	7220
27	161	7	3040	210	62	35200	198	14	7480
28	149	8	3220	170	62	28500	195	14	7370
29	148	9	3600	170	62	28500	178	14	6730
30	118	10	3190	--	--	--	164	14	6200
31	106	10	2860	--	--	--	161	14	6090
TOTAL	4414	--	123970	5282	--	369300	5817	--	346340

K CFS EXPRESSED IN THOUSANDS.

14144700 COLUMBIA RIVER AT VANCOUVER, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	176	14	6650	140	12	4540	306	46	38000
2	180	14	6800	147	12	4760	310	46	38500
3	175	14	6610	140	12	4540	315	50	42500
4	190	14	7180	144	14	5440	313	61	51600
5	193	14	7300	142	14	5370	343	68	63000
6	186	14	7030	145	14	5480	352	55	52300
7	177	14	6690	162	16	7000	364	50	49100
8	151	14	5710	158	16	6830	392	55	58200
9	147	13	5160	146	16	6310	392	50	52900
10	149	13	5230	149	16	6440	391	53	56000
11	152	13	5340	156	17	7160	401	56	60600
12	151	13	5300	158	17	7250	412	44	48900
13	150	13	5260	162	17	7440	416	50	56200
14	149	12	4830	162	18	7870	407	67	73600
15	136	12	4410	161	18	7820	415	60	67200
16	134	12	4340	171	18	8310	414	58	64800
17	95	12	3090	196	18	9530	410	55	60900
18	92	12	3000	175	20	9450	406	50	54800
19	92	12	2980	188	25	12700	391	49	51700
20	88	13	3110	194	30	15700	400	48	51800
21	87	13	3080	228	32	19700	396	47	50300
22	106	13	3720	271	74	54100	400	45	48600
23	122	14	4610	288	80	62200	398	40	43000
24	139	14	5250	300	88	71300	388	35	36700
25	163	14	6160	285	80	61600	374	37	37400
26	158	14	5970	281	70	53100	346	34	31800
27	149	14	5630	291	55	43200	336	28	25400
28	113	13	3970	318	61	52400	321	24	20800
29	117	13	4110	307	50	41400	323	26	22700
30	133	12	4310	307	48	39800	322	26	22600
31	--	--	--	306	48	39700	--	--	--
TOTAL	4252	--	152830	6378	--	688440	11154	--	1431900

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	321	28	24300	155	8	3350	133	10	3590
2	313	32	27000	142	8	3070	120	8	2590
3	301	23	18700	158	9	3840	119	6	1930
4	296	23	18400	147	9	3570	122	6	1980
5	299	23	18600	140	10	3780	125	6	2020
6	312	24	20200	168	10	4540	128	6	2070
7	299	25	20200	187	11	5550	133	6	2150
8	309	27	22500	189	12	6120	127	6	2060
9	307	28	23200	184	13	6460	134	7	2530
10	325	26	22800	159	12	5150	138	7	2610
11	348	40	37600	144	11	4280	132	7	2490
12	367	33	32700	145	10	3910	128	7	2420
13	336	30	27200	166	8	3590	144	8	3110
14	329	28	24900	154	12	4990	138	8	2980
15	322	25	21700	136	12	4410	110	8	2380
16	291	24	18900	127	12	4410	108	8	2330
17	288	25	19400	99	11	2960	115	8	2480
18	283	20	15300	92	11	2750	98	8	2140
19	260	18	12600	109	10	2940	118	8	2550
20	232	18	11300	113	13	3970	125	8	2700
21	231	17	10600	109	14	4120	127	8	2740
22	257	17	11800	134	16	5790	115	8	2480
23	213	17	9780	149	12	4830	141	8	3050
24	213	16	9200	168	12	5440	150	8	3240
25	230	15	9310	152	12	4920	141	8	3050
26	188	14	7110	142	11	4220	164	8	3540
27	179	14	6770	175	11	5200	155	8	3350
28	165	14	6240	179	12	5800	134	8	2890
29	143	12	4630	147	14	5560	104	8	2250
30	167	12	5410	173	12	5610	103	8	2220
31	153	10	4130	161	10	4350	--	--	--
TOTAL	8277	--	522480	4604	--	139480	3829	--	77920

TOTAL DISCHARGE FOR YEAR (K CFS DAYS) 65845
TOTAL LOAD FOR YEAR (TONS) 4101090

14144700 COLUMBIA RIVER AT VANCOUVER, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	118	8	2550	136	8	2940	145	7	2740
2	139	8	3000	133	8	2870	136	6	2200
3	142	8	3070	114	8	2460	141	6	2280
4	131	8	2830	122	8	2640	159	6	2580
5	127	8	2740	126	8	2720	184	6	2980
6	121	8	2610	132	8	2850	166	6	2690
7	124	8	2680	117	8	2530	145	6	2350
8	125	8	2700	134	8	2890	150	7	2830
9	132	8	2850	157	10	4240	144	7	2720
10	133	8	2870	149	10	4020	151	7	2850
11	136	8	2940	135	10	3640	171	7	3230
12	142	8	3070	157	12	5090	180	7	3400
13	141	8	3050	160	12	5180	167	7	3160
14	131	8	2830	155	10	4180	169	6	2740
15	137	8	2960	149	14	5630	167	6	2710
16	128	8	2760	162	13	5690	158	4	1710
17	107	8	2310	160	13	5620	165	3	1340
18	118	8	2550	119	13	4180	169	3	1370
19	106	8	2290	124	12	4020	160	3	1300
20	113	7	2140	145	12	4700	182	3	1470
21	116	7	2190	155	12	5020	188	3	1520
22	129	7	2440	171	12	5540	180	3	1460
23	131	6	2120	164	10	4430	154	3	1250
24	139	6	2250	144	10	3890	138	3	1120
25	130	6	2110	142	8	3070	141	5	1900
26	130	6	2110	154	7	2910	157	10	4240
27	110	7	2080	167	7	3160	172	25	11600
28	107	7	2020	173	7	3270	184	30	14900
29	109	7	2060	160	7	3020	182	35	17200
30	129	8	2790	143	7	2700	176	38	18100
31	137	10	3700	--	--	--	168	30	13600
TOTAL	3918	--	80670	4359	--	115100	5049	--	135540

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	170	25	11500	189	14	7140	171	10	4620
2	150	22	8910	195	14	7370	153	8	3300
3	150	20	8100	187	12	6060	162	8	3500
4	155	30	12600	191	12	6190	168	8	3630
5	170	40	18400	218	12	7060	187	8	4040
6	200	50	27000	218	11	6470	178	10	4810
7	252	45	30600	205	7	3870	217	16	9370
8	242	35	22900	192	8	4150	220	18	10700
9	245	28	18500	175	8	3780	214	18	10400
10	250	37	25000	144	9	3500	194	20	10500
11	236	35	22300	150	10	4050	184	20	9940
12	213	33	19000	199	8	4300	183	26	12800
13	184	30	14900	207	7	3910	179	20	9670
14	182	24	11800	225	16	9720	152	22	9030
15	203	20	11000	211	18	10300	150	24	9720
16	223	18	10800	168	18	8160	161	25	10900
17	219	22	13000	190	20	10300	160	28	12100
18	207	25	14000	191	25	12900	180	28	13600
19	182	30	14700	200	17	9180	181	30	14700
20	177	33	15800	233	35	22000	235	35	22200
21	194	36	18900	200	25	13500	230	29	18000
22	193	40	20800	195	20	10500	233	30	18900
23	201	41	22300	188	15	7610	229	25	15500
24	216	67	39100	169	10	4560	214	20	11600
25	219	50	29600	162	6	2620	221	23	13700
26	188	35	17800	161	7	3040	230	20	12400
27	157	25	10600	156	8	3370	231	15	9360
28	158	20	8530	164	10	4430	204	16	8810
29	193	18	9380	--	--	--	220	30	17800
30	226	15	9150	--	--	--	243	45	29500
31	198	15	8020	--	--	--	274	60	44400
TOTAL	6153	--	524990	5283	--	200040	6158	--	389500

K CFS EXPRESSED IN THOUSANDS.

14144700 COLUMBIA RIVER AT VANCOUVER, WASH.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	323	73	63700	334	45	40600	373	28	28200
2	360	75	72900	333	40	36000	386	25	26100
3	389	70	73500	332	38	34100	390	21	22100
4	381	60	61700	320	34	29400	391	30	31700
5	272	65	47700	310	30	25100	385	35	36400
6	206	70	38900	307	33	27400	380	29	29800
7	291	73	57400	317	36	30800	380	25	25600
8	362	37	36200	341	40	36800	380	20	20500
9	365	36	35500	370	41	41000	380	20	20500
10	368	36	35800	400	45	48600	375	25	25300
11	362	35	34200	420	50	56700	370	29	29000
12	371	35	35100	440	54	64200	375	40	40500
13	378	35	35700	440	55	65300	380	64	65700
14	371	35	35100	450	70	85000	382	50	51600
15	351	35	33200	460	85	106000	372	42	42200
16	376	40	40600	460	92	114000	373	35	35200
17	360	52	50500	464	89	111000	355	28	26800
18	331	40	35700	462	75	93600	336	26	23600
19	339	40	36600	466	66	83000	328	25	22100
20	346	38	35500	466	60	75500	300	23	18600
21	336	36	32700	468	60	75800	254	20	13700
22	349	43	40500	460	55	68300	245	25	16500
23	341	45	41400	460	50	62100	247	30	20000
24	347	50	46800	460	48	59600	261	35	24700
25	390	75	79000	460	45	55900	270	40	29200
26	393	70	74300	460	40	49700	285	30	23100
27	387	65	67900	460	32	39700	281	20	15200
28	367	63	62400	434	30	35200	283	24	18300
29	331	55	49200	371	27	27000	297	29	23300
30	322	50	43500	366	25	24700	317	34	29100
31	--	--	--	360	30	29200	--	--	--
TOTAL	10465	--	1433200	12651	--	1731300	10131	--	834600

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (K CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	331	37	33100	147	14	5560	93	12	3010
2	320	47	40600	134	14	5070	102	12	3300
3	313	41	34600	124	12	4020	106	12	3430
4	310	38	31800	136	12	4410	106	12	3430
5	310	33	27600	139	12	4500	114	12	3690
6	304	28	23000	129	12	4180	116	12	3760
7	311	25	21000	134	12	4340	105	10	2830
8	303	23	18800	129	12	4180	105	10	2830
9	316	35	29900	128	12	4150	98	10	2660
10	321	52	45100	128	11	3800	110	10	2970
11	298	45	36200	129	11	3830	115	10	3100
12	261	40	28200	142	10	3830	118	10	3190
13	250	33	22300	132	10	3560	116	9	2820
14	246	25	16600	124	10	3350	95	9	2330
15	244	21	13800	146	10	3940	96	8	2090
16	244	18	11900	148	10	4000	93	8	2030
17	216	20	11700	141	10	3810	95	8	2060
18	207	21	11700	139	8	3000	105	8	2270
19	196	20	10600	146	8	3150	111	8	2400
20	191	20	10300	137	8	2960	118	8	2550
21	189	18	9190	124	8	2680	93	8	2030
22	193	18	9380	123	8	2660	108	8	2330
23	195	16	8420	123	10	3320	111	8	2400
24	197	33	17600	119	10	3210	125	8	2700
25	191	28	14400	121	12	3920	108	8	2330
26	158	25	10700	121	12	3920	125	8	2700
27	154	22	9150	122	12	3950	114	8	2460
28	141	17	6470	121	12	3920	110	8	2380
29	166	17	7620	111	12	3600	116	6	1880
30	166	17	7620	99	12	3240	124	6	2010
31	142	16	6130	93	12	3040	--	--	--
TOTAL	7384	--	585480	3990	--	117100	3254	--	79970

TOTAL DISCHARGE FOR YEAR (K CFS DAYS) 78797
TOTAL LOAD FOR YEAR (TONS) 6227490

14144800 MIDDLE FORK WILLAMETTE RIVER NEAR OAKRIDGE, OREG.

LOCATION.--Lat 43°35'50", long 122°27'20", in NE¼ sec.9, T.23 S., R.3 E., Lane County, temperature recorder at gaging station on right bank, 0.2 mile upstream from Windfall Creek, 8.3 miles upstream from Hills Creek Dam, 10 miles south of Oakridge, and at mile 240.8.

DRAINAGE AREA.--258 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1958 to January 1959, September 1959 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 20.0°C July 9, 10, 26, 27; minimum, freezing point on several days during December to February.

Period of record (1958-64, 1965-69):
Water temperatures: Maximum, 21.0°C Aug. 1-3, 1966, July 11, Aug. 16, 17, 1967, Aug. 7, 9, 1968; minimum, freezing point on many days during winter periods.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	14	14	14	11	13	12	12	12	9	11	9	9	10	8	9	11	11	11	9	9	10	10	11	11	10	11	11	10	9	9	9	11
MINIMUM	10	8	7	9	8	9	8	6	7	9	9	8	7	6	7	7	7	8	6	8	7	8	7	7	7	8	7	7	7	8	7	7
NOVEMBER																																
MAXIMUM	7	8	8	7	7	7	9	9	9	8	9	8	6	6	6	6	7	8	8	8	8	8	8	7	6	6	6	6	6	4	--	7
MINIMUM	4	7	7	6	6	6	7	8	8	7	8	6	6	4	4	4	5	7	7	7	6	7	6	5	4	4	4	4	4	3	--	6
DECEMBER																																
MAXIMUM	4	4	4	6	6	5	6	7	6	7	6	5	5	5	5	3	3	3	2	2	2	2	4	5	4	4	4	3	3	3	3	4
MINIMUM	3	3	3	4	5	4	4	6	5	6	4	3	3	4	3	3	2	2	2	0	0	0	2	4	3	3	3	3	2	2	2	3
JANUARY																																
MAXIMUM	4	5	6	6	7	7	6	4	3	3	3	3	4	3	2	3	3	3	3	3	2	2	1	1	1	1	1	1	0	1	0	3
MINIMUM	3	4	4	5	6	6	3	3	2	2	3	2	3	1	1	2	1	1	2	1	1	1	0	0	0	0	0	0	0	0	0	2
FEBRUARY																																
MAXIMUM	2	3	3	3	4	3	4	4	4	4	4	4	4	4	5	5	4	5	6	5	5	5	6	5	4	5	4	6	--	--	--	4
MINIMUM	0	1	2	2	2	2	2	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	2	2	2	3	2	3	--	--	--	2
MARCH																																
MAXIMUM	7	4	4	7	6	5	7	7	6	7	7	7	8	7	8	7	7	6	7	8	9	8	8	9	9	10	9	9	8	9	8	7
MINIMUM	3	3	3	3	3	3	3	3	3	2	2	3	2	2	2	3	4	4	4	3	3	4	4	3	3	4	4	4	5	6	6	3
APRIL																																
MAXIMUM	8	7	8	9	8	8	9	9	6	9	9	7	7	7	9	9	7	8	7	9	9	9	7	7	8	10	11	7	7	6	--	8
MINIMUM	5	5	4	6	6	5	4	4	4	4	3	4	3	4	4	3	5	4	4	4	4	6	4	3	3	3	4	4	3	2	--	4
MAY																																
MAXIMUM	6	8	8	11	12	13	13	12	12	12	11	11	9	7	11	12	13	9	8	13	14	14	13	12	12	9	11	13	13	15	14	11
MINIMUM	3	3	4	4	4	6	6	6	6	6	6	6	7	6	4	6	7	7	6	7	7	7	8	8	8	8	7	6	8	9	8	6
JUNE																																
MAXIMUM	16	17	18	17	17	17	14	13	12	14	17	18	18	18	19	19	19	19	19	19	19	16	13	13	11	11	11	11	15	17	--	16
MINIMUM	8	9	10	11	11	11	11	11	11	11	11	12	12	12	12	12	11	12	13	13	12	12	12	10	9	8	8	8	8	9	--	11
JULY																																
MAXIMUM	18	16	17	17	17	18	18	19	20	20	19	18	18	17	18	18	18	19	19	19	19	19	19	17	19	20	20	19	19	19	19	18
MINIMUM	10	11	10	11	11	11	11	11	12	13	13	12	11	10	9	9	9	11	11	11	11	11	12	13	12	11	12	12	12	11	12	11
AUGUST																																
MAXIMUM	19	19	18	15	17	17	17	18	18	18	17	17	18	18	18	17	17	17	18	18	18	18	18	17	17	17	17	16	16	16	17	17
MINIMUM	11	11	11	10	9	9	10	9	10	11	11	10	10	11	11	11	9	10	11	10	11	11	11	11	10	10	11	10	8	9	9	10
SEPTEMBER																																
MAXIMUM	18	17	16	15	14	16	17	16	17	17	17	17	14	14	14	14	12	14	12	13	13	14	13	16	16	16	15	16	13	13	--	15
MINIMUM	10	10	9	8	7	8	9	11	11	11	11	11	11	8	7	8	9	11	11	10	10	9	11	11	11	11	11	9	9	9	11	--	10

14144900 HILLS CREEK ABOVE HILLS CREEK RESERVOIR, NEAR OAKRIDGE, OREG.

LOCATION.--Lat 43°40'50", long 122°22'10", in NW¼NW¼ sec.8, T.22 S., R.4 E., Lane County, Willamette National Forest, temperature recorder at gaging station on right bank, 0.2 mile downstream from Tufti Creek, 0.7 mile upstream from Hills Creek Reservoir, 6.5 miles southeast of Oakridge, and at mile 4.1.

DRAINAGE AREA.--52.7 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1958 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C July 26, 27, Aug. 23; minimum, 1.0°C on several days during January and February.

Period of record:
Water temperatures: Maximum, 21.0°C July 28, 1960, July 30, 1965, July 6-8, 1968; minimum (1958-64, 1965-69), freezing point Jan. 19-25, 1962.

REMARKS.--Recorder stopped Oct. 10 to Nov. 11; range in temperature, 6.0°C to 11.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	12	12	12	11	11	11	10	9	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	11	9	8	10	8	10	9	7	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NOVEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	8	7	6	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	6	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	7	6	6	6	6	6	6	7	7	7	7	7	6	6	6	6	6	6	5	--	--
DECEMBER																																
MAXIMUM	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	5	5	4	3	3	2	2	3	4	4	4	4	4	3	3	3	5
MINIMUM	4	5	5	5	6	6	6	6	6	6	6	5	5	6	5	5	4	3	3	2	2	2	2	3	4	3	3	3	3	3	3	4
JANUARY																																
MAXIMUM	4	4	4	4	5	5	5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	1	1	1	1	2	1	2	2	3
MINIMUM	3	4	4	4	4	4	3	3	2	2	3	3	3	3	2	3	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2
FEBRUARY																																
MAXIMUM	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	3	3	3	3	4	--	--	3
MINIMUM	1	2	2	2	2	2	2	2	2	2	3	3	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	--	--	--	2
MARCH																																
MAXIMUM	4	3	3	4	3	3	4	4	4	4	4	4	4	4	4	4	4	4	5	5	6	5	6	6	6	7	6	7	6	7	6	5
MINIMUM	2	3	2	3	3	2	3	3	3	2	2	3	2	2	2	3	3	3	3	3	4	4	4	3	4	4	4	4	5	5	5	3
APRIL																																
MAXIMUM	6	6	6	7	6	6	7	7	6	7	8	7	6	6	8	8	7	7	7	8	8	9	7	7	8	9	9	7	6	6	--	7
MINIMUM	4	4	4	5	5	4	4	4	5	5	5	6	5	5	6	5	6	6	6	6	6	7	6	6	5	5	6	6	5	4	--	5
MAY																																
MAXIMUM	6	8	6	9	11	11	11	10	10	11	9	10	8	8	10	11	12	9	8	11	12	12	12	11	11	10	10	12	11	13	13	10
MINIMUM	5	5	5	6	6	6	6	7	7	7	7	7	7	7	6	7	8	7	7	7	8	8	8	8	8	8	8	8	9	10	9	7
JUNE																																
MAXIMUM	14	14	15	15	14	14	12	12	11	12	15	16	16	17	17	17	17	17	17	17	17	14	13	12	10	9	9	9	12	13	--	14
MINIMUM	9	10	10	11	11	11	11	11	11	10	10	11	12	12	12	11	11	12	13	13	12	12	12	10	9	8	8	8	8	8	--	10
JULY																																
MAXIMUM	14	12	13	14	14	14	15	16	17	17	17	17	17	16	16	16	17	17	18	18	18	18	18	18	18	19	19	18	18	18	18	17
MINIMUM	9	11	9	9	11	11	10	10	11	13	13	12	12	11	11	11	11	12	12	13	12	12	13	15	15	13	14	14	14	13	13	12
AUGUST																																
MAXIMUM	18	18	17	16	16	16	16	17	17	17	17	17	18	18	17	17	17	17	17	18	18	18	19	18	17	16	16	15	15	16	17	17
MINIMUM	13	13	13	13	11	12	12	12	13	13	13	13	13	14	14	14	13	13	14	13	14	14	14	14	13	13	14	13	11	12	12	13
SEPTEMBER																																
MAXIMUM	17	16	15	14	14	15	16	16	16	17	17	16	16	13	13	14	14	14	13	13	14	14	13	14	14	14	14	14	14	14	--	15
MINIMUM	13	13	12	11	11	11	12	13	13	13	14	13	13	11	10	12	12	13	12	11	12	11	12	12	12	12	12	12	12	12	--	12

14145500 MIDDLE FORK WILLAMETTE RIVER ABOVE SALT CREEK, NEAR OAKRIDGE, OREG.

LOCATION.--Lat 43°43'20", long 122°26'15", in NW¼NE¼ sec.27, T.21 S., R.3 E., Lane County, Willamette National Forest, temperature recorder at gaging station on right bank, 90 ft upstream from highway bridge, 0.4 mile upstream from Salt Creek, 1.1 miles downstream from Hills Creek Dam, 2.3 miles southeast of Oakridge, and at mile 231.4.

DRAINAGE AREA.--392 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1960 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 14.0°C on several days during October, and September; minimum, 3.0°C on several days during January and February.

Period of record:
Water temperatures: Maximum, 25.0°C Sept. 4, 1960; minimum (1960-61, 1962-66, 1967-69), 1.5 °C Jan. 4, 1961.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	11	11	12	11	12	11	14	14	14	14	14	14	14	14	14	13	13	14	14	14	14	14	13	13	13	13	13	13	13	13	13	13
MINIMUM	11	9	10	11	11	11	11	12	14	11	12	14	14	14	12	12	12	13	14	14	14	13	13	13	13	13	13	13	13	12	13	12
NOVEMBER																																
MAXIMUM	13	13	12	12	12	12	12	12	12	12	12	11	11	11	11	10	10	10	10	9	9	9	9	9	9	8	8	9	9	8	--	10
MINIMUM	12	12	12	12	12	12	12	12	12	12	11	11	11	11	10	10	10	10	9	9	9	9	9	9	8	8	8	8	8	8	--	10
DECEMBER																																
MAXIMUM	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6	7
MINIMUM	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
JANUARY																																
MAXIMUM	6	7	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	4	4	4	4	4	4	3	3	5
MINIMUM	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	4	4	4	4	4	4	3	3	3	5
FEBRUARY																																
MAXIMUM	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	5	5	6	--	--	--	4
MINIMUM	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	4
MARCH																																
MAXIMUM	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	8	8	8	8	7	7	7	6
MINIMUM	4	4	4	4	5	5	6	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5
APRIL																																
MAXIMUM	7	7	7	7	7	7	8	8	7	8	7	7	7	7	8	8	7	7	7	8	7	8	8	8	8	8	8	7	8	8	--	7
MINIMUM	6	6	6	7	7	7	6	7	7	7	6	6	6	6	6	6	7	7	7	6	6	7	7	7	7	7	7	7	7	7	--	6
MAY																																
MAXIMUM	7	8	8	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	9	8	9	8	9	9	9	8	9	9	9	9	9	9
MINIMUM	7	7	7	8	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	7	7	8	8	8	8	8	9	8	8	8	8
JUNE																																
MAXIMUM	9	10	9	9	9	9	9	9	9	9	9	10	9	9	9	9	9	9	9	9	9	8	8	9	9	9	9	9	9	9	--	9
MINIMUM	8	8	8	8	8	8	8	8	8	8	8	9	8	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	--	8
JULY																																
MAXIMUM	9	10	10	10	10	10	10	10	10	10	9	10	10	10	10	10	10	10	10	10	10	11	11	11	13	11	10	11	12	12	11	10
MINIMUM	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	9	9	9	8	8	11	11	9	9	9	9	11	11	11	9
AUGUST																																
MAXIMUM	11	11	12	9	10	9	9	9	9	9	9	9	10	10	10	11	10	9	10	11	11	11	11	11	11	11	11	10	11	10	11	10
MINIMUM	11	11	8	8	8	8	8	8	8	8	8	8	8	8	9	8	9	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9
SEPTEMBER																																
MAXIMUM	11	14	11	10	10	10	10	10	11	11	11	11	12	12	12	12	12	13	12	13	13	13	13	13	13	13	13	13	13	13	--	12
MINIMUM	9	9	9	9	9	9	9	9	9	9	9	9	10	12	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13	13	--	11

14148000 MIDDLE FORK WILLAMETTE RIVER BELOW NORTH FORK, NEAR OAKRIDGE, OREG.

LOCATION.--Lat 43°48'05", long 122°33'35", in SW¼ sec.27, T.20 S., R.2 E., Lane County, temperature recorder at gaging station on left bank, 0.5 mile downstream from Whitehead Creek, 4.2 miles downstream from North Fork of Middle Fork Willamette River, 7 miles northwest of Oakridge, and at mile 220.2

DRAINAGE AREA.--924 sq mi.

PERIOD OF RECORD.--Water temperatures: September 1950 to October 1960, June 1961 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C on several days during July and August; minimum, 2.0°C Feb. 1.

Period of record:
Water temperatures: Maximum, 23.5°C Aug. 3, 1961; minimum, freezing point Jan. 20-22, 1962.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	13	13	11	12	12	12	13	13	13	12	12	13	13	12	11	11	12	12	12	12	12	12	12	12	12	12	12	12	11	11	12
MINIMUM	12	10	9	11	9	11	9	12	12	12	11	12	12	12	10	10	10	11	12	11	11	11	11	11	11	11	11	11	11	11	11	11
NOVEMBER																																
MAXIMUM	11	11	10	10	9	9	10	10	9	9	9	9	9	9	8	8	8	8	8	9	8	8	8	8	7	7	7	7	7	7	--	9
MINIMUM	10	10	10	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	--	8
DECEMBER																																
MAXIMUM	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	5	5	6	6	6	6	6	6	5	5	6
MINIMUM	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	5	4	4	5	6	6	6	6	5	5	5	6
JANUARY																																
MAXIMUM	5	6	--	--	--	--	--	--	--	5	5	5	6	6	6	5	5	5	4	4	5	4	4	4	3	3	3	3	3	3	3	--
MINIMUM	5	5	--	--	--	--	--	--	--	5	5	5	5	6	5	5	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	--
FEBRUARY																																
MAXIMUM	3	3	4	4	4	4	4	4	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	--	--	--	5
MINIMUM	2	3	3	4	4	4	4	4	4	4	5	5	4	5	5	6	5	5	5	6	6	5	5	5	5	5	5	6	--	--	--	5
MARCH																																
MAXIMUM	7	6	6	7	7	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	6	7	7	7	8	7	8	7	8	7	7
MINIMUM	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	6	6	6	6	6	6	6	6	6	6	6	7	6
APRIL																																
MAXIMUM	7	7	7	7	7	7	8	8	7	9	8	8	8	8	8	8	8	7	7	8	8	8	8	7	8	9	9	8	7	7	--	8
MINIMUM	6	7	6	7	7	7	7	6	7	6	7	7	7	7	7	7	7	7	7	6	7	7	7	6	6	6	7	7	6	6	--	6
MAY																																
MAXIMUM	7	8	8	9	9	10	10	10	10	10	10	10	8	8	9	10	11	10	8	10	10	11	10	10	9	9	9	10	10	11	11	10
MINIMUM	6	6	7	7	7	8	7	7	7	7	7	7	7	7	7	7	8	8	7	7	8	8	8	8	8	8	8	8	9	9	9	8
JUNE																																
MAXIMUM	11	12	12	12	12	11	11	11	10	12	13	13	13	14	14	14	14	15	15	14	15	14	12	12	11	11	11	11	13	13	--	12
MINIMUM	9	9	10	10	11	11	10	10	10	11	11	11	12	12	12	12	11	12	12	12	12	12	12	11	11	10	10	10	11	11	--	11
JULY																																
MAXIMUM	14	13	13	14	14	14	14	15	16	16	14	14	15	15	15	15	16	16	16	16	16	18	14	14	17	17	17	18	15	15	14	15
MINIMUM	12	12	12	12	12	12	12	12	13	13	13	13	12	12	12	12	12	13	13	13	13	13	13	13	12	13	14	14	13	13	13	13
AUGUST																																
MAXIMUM	14	14	14	13	15	16	16	16	17	16	16	16	17	18	17	17	16	17	17	17	18	18	18	17	17	16	17	16	16	16	17	16
MINIMUM	12	12	12	12	11	11	12	12	13	13	13	13	13	13	14	13	13	13	13	13	13	14	14	14	13	13	14	13	12	13	13	13
SEPTEMBER																																
MAXIMUM	17	17	16	16	15	16	16	16	17	17	17	17	14	14	14	13	13	14	13	13	14	14	13	14	14	15	14	14	14	14	--	15
MINIMUM	13	13	13	12	12	12	12	13	13	13	14	13	13	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13	--	13

14150000 MIDDLE FORK WILLAMETTE RIVER NEAR DEXTER, OREG.

LOCATION.--Lat 43°56'45", long 122°50'10", near center of sec.5, T.19 S., R.1 W., Lane County, temperature recorder at gaging station on right bank, 0.6 mile upstream from Lost Creek, 2 miles northwest of Dexter, 2.6 miles downstream from Dexter Dam, and at mile 201.2.

DRAINAGE AREA.--1,001 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1955 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 16.0°C July to September; minimum, 3.0°C on several days during January and February.

Period of record:
Water temperatures: Maximum, 18.5°C on several days during September 1961; minimum, 3.5°C on several days during January and February in 1957 and 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	16	15	16	15	15	15	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	14
MINIMUM	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13	13	13	13	14
NOVEMBER																																
MAXIMUM	13	12	12	12	12	12	12	12	12	12	12	11	11	11	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	--	11
MINIMUM	13	12	12	12	12	12	12	12	12	12	11	11	11	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	9	--	10
DECEMBER																																
MAXIMUM	9	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	5	5	7
MINIMUM	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	5	5	5	7
JANUARY																																
MAXIMUM	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	4	4	4	4	4	4	3	3	5
MINIMUM	4	4	5	5	5	5	6	5	5	6	6	6	6	6	6	6	5	5	5	5	5	5	4	4	4	4	4	4	3	3	3	5
FEBRUARY																																
MAXIMUM	3	3	4	3	4	4	4	4	4	4	4	4	5	4	5	5	4	4	5	5	5	5	5	6	5	5	5	6	--	--	--	4
MINIMUM	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	--	--	--	4
MARCH																																
MAXIMUM	6	6	6	7	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	10	9	8
MINIMUM	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	6
APRIL																																
MAXIMUM	10	9	9	9	9	9	10	10	9	11	11	9	11	11	11	11	10	11	11	11	11	11	11	11	12	12	12	10	12	10	--	10
MINIMUM	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	9	9	9	--	9
MAY																																
MAXIMUM	11	11	10	11	11	11	12	11	11	11	11	11	10	10	12	12	12	11	11	11	10	11	9	9	9	9	9	9	9	10	10	10
MINIMUM	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	9	9	9	9	9	8	8	8	9	9	9	9
JUNE																																
MAXIMUM	11	11	11	11	10	10	10	10	9	9	11	11	11	11	11	12	13	12	12	11	13	12	12	12	12	12	12	11	12	12	--	11
MINIMUM	9	9	10	10	10	10	10	9	9	9	9	9	10	10	10	10	10	11	11	11	11	11	12	12	12	12	11	11	11	11	--	10
JULY																																
MAXIMUM	12	12	13	13	13	12	13	14	14	14	13	14	14	14	14	14	14	14	15	15	15	15	15	14	15	16	16	14	15	15	14	14
MINIMUM	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	13	13	13	12	13	13	14	13	13	13	13	13	14	14	12
AUGUST																																
MAXIMUM	15	15	15	14	15	15	15	16	16	15	14	16	16	16	14	16	16	14	16	16	15	16	16	15	15	15	15	15	15	15	16	15
MINIMUM	14	13	13	13	14	13	13	13	13	13	13	13	13	13	14	14	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
SEPTEMBER																																
MAXIMUM	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	15	15	15	16	15	16	16	16	16	15	--	15
MINIMUM	14	14	14	14	14	14	14	14	14	15	15	15	15	14	14	15	15	15	15	15	14	14	14	14	15	15	15	15	15	15	--	15

14150300 FALL CREEK NEAR LOWELL, OREG.

LOCATION.--Lat 43°58'15", long 122°38'15", in SW¼ sec.25, T.18 S., R.1 E., Lane County, temperature recorder at gaging station on right bank, 0.1 mile downstream from North Fork, 8.0 miles northeast of Lowell, and at mile 14.4.

DRAINAGE AREA.--118 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C July 23; minimum, 1.0°C Jan. 25-28.

Period of record:
Water temperatures: Maximum, 23.0°C July 3, 1967; minimum, 0.5°C Dec. 17-21, 1965.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
OCTOBER																																
MAXIMUM	13	12	11	11	11	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	9	9	9	9	9	10
MINIMUM	12	11	10	10	10	10	9	8	8	9	9	9	9	9	9	9	9	9	8	9	9	9	9	9	9	9	9	9	9	9	8	9
NOVEMBER																																
MAXIMUM	8	9	9	8	8	8	8	10	10	9	10	10	9	8	8	8	8	9	9	9	9	9	9	8	8	7	7	7	7	7	--	8
MINIMUM	7	8	8	7	7	7	8	8	9	9	9	9	8	7	8	8	8	8	9	9	8	9	8	8	7	7	7	7	7	6	--	8
DECEMBER																																
MAXIMUM	6	6	7	8	8	8	8	8	8	8	8	7	7	7	7	7	6	6	6	6	4	4	6	7	7	6	6	6	6	6	5	6
MINIMUM	6	6	6	7	8	8	7	8	8	8	7	7	7	7	7	5	5	6	6	4	4	4	4	6	6	6	6	6	6	5	5	6
JANUARY																																
MAXIMUM	6	6	7	7	7	8	8	6	6	5	5	5	6	6	6	5	5	5	4	4	4	4	3	2	2	1	1	2	2	2	2	4
MINIMUM	5	6	6	7	7	7	6	6	5	5	4	4	5	6	5	5	5	4	4	4	4	3	2	2	1	1	1	1	2	2	2	4
FEBRUARY																																
MAXIMUM	2	3	3	3	3	3	3	3	4	4	4	5	5	4	5	5	5	5	5	5	5	5	4	4	4	4	4	4	--	--	--	4
MINIMUM	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	5	5	4	4	4	4	4	4	4	--	--	--	4
MARCH																																
MAXIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	6	6	6	6	6	6	6	6	6	6	6	6	7	6	7	7	5
MINIMUM	4	4	4	4	4	4	4	4	4	3	3	4	3	4	4	4	6	6	5	5	5	5	5	4	4	5	5	5	6	6	6	5
APRIL																																
MAXIMUM	7	7	6	7	7	7	7	7	7	7	8	8	7	7	7	8	8	7	7	7	8	8	8	8	7	8	9	9	7	7	--	7
MINIMUM	6	6	5	6	6	6	6	6	6	6	6	7	6	6	7	6	7	7	7	6	7	7	8	7	6	6	7	7	6	6	--	6
MAY																																
MAXIMUM	7	7	7	9	10	11	12	12	13	13	13	13	13	11	12	13	14	14	12	13	14	14	14	14	13	12	12	12	12	13	13	12
MINIMUM	6	6	7	7	8	9	9	10	11	11	12	12	11	11	10	11	12	12	11	11	12	12	13	13	12	12	11	11	12	12	11	10
JUNE																																
MAXIMUM	14	15	16	17	17	15	14	13	13	13	14	14	15	16	16	17	17	17	17	17	16	16	15	13	12	11	11	11	13	13	--	15
MINIMUM	12	13	14	14	15	14	13	13	13	12	12	13	14	15	15	15	15	16	15	15	14	15	13	12	11	11	11	11	11	12	--	13
JULY																																
MAXIMUM	14	14	14	14	14	14	14	15	16	17	17	15	16	16	16	16	16	17	17	18	17	18	19	18	18	18	18	17	18	18	17	16
MINIMUM	13	13	13	12	13	13	13	13	14	15	15	14	13	13	13	13	13	14	14	15	14	14	16	17	16	15	16	16	16	15	16	14
AUGUST																																
MAXIMUM	17	17	17	16	16	16	16	17	17	16	16	17	17	18	18	17	17	17	18	18	18	18	18	17	17	17	17	16	15	16	16	17
MINIMUM	14	14	14	14	13	13	13	14	14	15	15	14	14	16	17	15	14	14	16	15	16	16	16	16	15	14	15	14	13	13	14	15
SEPTEMBER																																
MAXIMUM	17	17	16	14	14	14	15	16	16	17	17	17	16	15	13	12	13	13	13	13	13	13	13	13	13	14	14	14	14	13	--	14
MINIMUM	14	14	14	12	12	12	13	14	14	14	15	15	15	13	11	11	12	13	13	13	13	12	13	13	13	13	13	13	13	13	--	13

14150800 WINBERRY CREEK NEAR LOWELL, OREG.

LOCATION.--Lat 43°54'50", long 122°41'15", in NE¼SE¼ sec.16, T.19 S., R.1 E., Lane County, temperature recorder at gaging station on right bank, 0.9 mile upstream from Nelson Creek, 4.6 miles east of Lowell, and at mile 4.4.

DRAINAGE AREA.--43.9 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 23.0°C July 23; minimum, 1.0°C on several days during January and February.

Period of record:
Water temperatures: Maximum, 26.5°C July 3, 1967; minimum, freezing point on several days during December 1965.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	12	12	12	12	12	11	10	9	10	10	10	9	9	9	9	9	9	9	9	9	10	10	10	11	11	9	10	10	10	9	10
MINIMUM	12	9	9	11	9	11	9	8	8	9	10	9	8	8	8	9	9	9	8	9	9	9	9	9	10	9	9	9	9	9	8	9
NOVEMBER																																
MAXIMUM	8	8	8	7	7	7	8	9	9	9	9	9	8	7	7	7	7	8	8	8	8	8	8	7	7	7	7	7	7	6	--	8
MINIMUM	6	7	7	6	6	6	7	8	9	8	9	8	7	7	7	7	7	7	8	8	7	8	7	7	7	7	7	6	6	6	--	7
DECEMBER																																
MAXIMUM	6	7	7	7	7	7	7	7	7	8	7	7	7	7	7	6	6	6	6	6	4	4	6	7	6	6	6	6	6	6	5	6
MINIMUM	6	6	7	7	7	7	7	7	7	7	7	6	6	7	6	6	6	5	6	4	4	4	4	6	6	6	6	6	6	5	5	6
JANUARY																																
MAXIMUM	6	7	7	7	8	8	8	5	5	6	6	6	6	6	6	5	5	5	4	4	4	4	3	2	1	1	1	1	1	1	2	4
MINIMUM	5	6	7	7	7	8	4	5	5	5	5	6	6	6	5	5	5	4	4	4	4	3	2	1	1	1	1	1	1	1	1	4
FEBRUARY																																
MAXIMUM	2	3	3	3	3	3	3	4	4	4	4	5	5	5	5	5	6	5	5	5	6	5	5	5	4	5	4	5	--	--	--	4
MINIMUM	1	2	3	2	2	3	3	3	3	4	4	4	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	4	--	--	--	4
MARCH																																
MAXIMUM	5	5	5	6	6	4	5	5	5	5	5	5	5	6	6	6	6	6	6	7	7	6	6	7	7	7	7	7	7	8	7	6
MINIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	6	6	5	5	5	6	5	4	5	5	6	6	6	7	7	5
APRIL																																
MAXIMUM	7	7	6	7	7	7	8	8	7	9	9	8	8	7	9	9	8	7	7	8	10	9	8	7	8	10	11	10	7	7	--	8
MINIMUM	6	6	6	6	7	6	6	6	7	6	6	7	6	6	7	6	7	7	7	6	7	8	7	6	6	6	7	7	6	6	--	6
MAY																																
MAXIMUM	7	8	7	10	12	13	13	13	13	13	14	14	12	10	12	13	15	14	11	12	14	16	15	14	12	12	11	12	12	14	14	12
MINIMUM	6	6	6	6	7	8	9	9	9	9	10	11	10	9	8	9	10	11	10	9	10	11	12	12	11	10	10	9	11	11	11	9
JUNE																																
MAXIMUM	16	18	19	18	17	15	14	13	13	12	13	16	15	16	14	18	19	19	20	18	19	17	16	13	11	11	11	11	12	13	--	15
MINIMUM	11	12	14	14	15	14	13	13	12	12	12	12	13	14	13	13	13	14	16	15	14	15	13	11	11	11	10	10	10	11	--	13
JULY																																
MAXIMUM	15	14	14	16	16	13	16	17	18	19	18	17	18	18	18	18	19	20	21	21	21	21	23	21	22	22	21	19	21	21	19	18
MINIMUM	12	12	12	12	13	12	12	13	13	16	16	14	13	13	13	13	13	14	15	16	14	15	16	18	17	16	17	17	16	16	16	14
AUGUST																																
MAXIMUM	21	21	20	18	18	19	19	19	20	18	17	19	20	21	19	20	19	20	20	21	21	21	21	20	19	19	19	18	17	18	18	19
MINIMUM	14	15	15	16	13	13	14	14	14	16	15	14	14	16	17	16	14	16	17	16	16	16	17	16	16	14	16	14	13	13	14	15
SEPTEMBER																																
MAXIMUM	19	18	17	16	15	16	17	17	18	18	18	18	17	16	14	14	14	14	14	14	14	14	14	15	15	16	14	15	14	13	--	16
MINIMUM	15	15	14	12	11	11	12	14	14	14	15	15	16	12	11	12	13	13	13	13	13	12	13	13	14	14	12	12	13	12	--	13

14151000 FALL CREEK BELOW WINBERRY CREEK, NEAR FALL CREEK, OREG.

LOCATION.--Lat 43°56'40", long 122°46'25", in NW¼SE¼ sec.2, T.19 S., R.1 W., Lane County, temperature recorder at gaging station on left bank, 10 ft upstream from highway bridge, 1.1 miles downstream from Fall Creek Dam, 2.3 miles southeast of town of Fall Creek, and at mile 6.1.

DRAINAGE AREA.--186 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1950 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C on several days in September; minimum, 3.0°C on several days during January and February.

Period of record:
Water temperatures: Maximum, 26.0°C July 28, 1958; minimum, 0.5°C Jan. 23, 24, 1962, and on several days during December 1965.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	16	16	15	15	16	15	15	15	14	14	14	14	13	13	13	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	13
MINIMUM	15	15	15	15	15	15	15	14	14	14	14	13	13	13	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12
NOVEMBER																																
MAXIMUM	11	11	11	10	10	9	9	9	10	10	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	--	9
MINIMUM	11	11	10	10	9	9	9	9	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	--	9
DECEMBER																																
MAXIMUM	8	7	7	7	7	7	7	7	7	8	8	8	8	8	7	7	7	7	7	5	6	6	5	6	6	6	6	6	6	6	5	7
MINIMUM	7	7	7	7	7	7	7	7	7	7	8	8	8	7	7	7	7	7	6	6	6	4	4	5	6	6	6	6	6	4	4	6
JANUARY																																
MAXIMUM	6	6	7	7	7	8	8	7	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	4	4	4	3	3	3	3	3	5
MINIMUM	5	6	6	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	4	4	4	3	3	3	3	3	3	5
FEBRUARY																																
MAXIMUM	3	3	3	3	3	3	3	3	3	3	3	3	4	4	5	5	5	5	5	5	5	5	5	6	5	6	6	6	--	--	--	4
MINIMUM	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	--	--	--	4
MARCH																																
MAXIMUM	6	5	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	5	6	6	6	6	6	6	6	6	6
MINIMUM	5	5	5	5	6	6	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	6	6	5
APRIL																																
MAXIMUM	6	6	6	6	6	6	6	7	7	8	9	9	10	9	10	11	9	9	9	11	11	9	9	8	9	9	9	9	9	9	--	8
MINIMUM	6	6	6	6	6	6	6	6	6	6	6	7	7	8	8	8	9	8	8	8	8	8	8	8	8	8	8	8	8	8	--	7
MAY																																
MAXIMUM	9	10	10	11	11	12	13	12	12	10	11	10	9	9	9	11	11	11	10	8	10	11	11	11	11	11	12	12	12	12	12	11
MINIMUM	8	8	9	8	9	9	9	9	9	9	9	8	8	8	8	9	10	9	8	8	8	8	8	11	11	11	11	11	11	11	12	9
JUNE																																
MAXIMUM	12	13	13	13	12	12	12	12	12	12	9	13	13	13	12	13	13	14	14	13	14	13	13	9	8	8	8	8	9	9	--	12
MINIMUM	12	12	12	12	12	12	12	12	12	9	9	9	12	12	12	12	13	13	13	13	13	13	9	8	8	8	8	8	8	9	--	11
JULY																																
MAXIMUM	9	9	10	8	8	7	14	14	14	14	14	14	14	14	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	10
MINIMUM	9	9	7	7	7	7	7	14	14	14	14	14	14	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9
AUGUST																																
MAXIMUM	8	8	9	9	9	9	11	10	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	14	11
MINIMUM	8	8	8	9	9	9	9	10	10	10	10	11	11	11	11	11	12	12	12	12	13	12	12	12	13	13	13	13	13	13	13	11
SEPTEMBER																																
MAXIMUM	14	14	14	14	14	15	15	16	16	16	17	17	17	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	--	17
MINIMUM	13	14	14	14	14	14	15	15	16	16	16	17	17	17	17	18	18	18	18	18	18	18	18	18	18	17	17	17	18	18	--	17

14152000 MIDDLE FORK WILLAMETTE RIVER AT JASPER, OREG.

LOCATION.--Lat 43°59'55", long 122°54'20", in SW¼SW¼ sec.14, T.18 S., R.2 W., Lane County, temperature recorder at gaging station on right bank, 25 ft downstream from highway bridge at Jasper, 0.1 mile downstream from Hills Creek, and at mile 195.0.

DRAINAGE AREA.--1,340 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1953 to December 1962, October 1963 to September 1969.

EXTREMES.--1966-69:
Water temperatures: Maximum, 17.0°C July 8-10, 12, 13; minimum, 2.0°C on several days during January and February.

Period of record:
Water temperatures: Maximum, 20.5°C July 27, 28, 1958; minimum, 2.0°C Feb. 1-3, 16, 1956, and on several days during January and February 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	DAY																														
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	16	16	16	16	16	15	15	14	14	14	14	13	13	13	13	13	13	13	13	12	12	12	13	13	13	13	13	13	13	13	12	13
MINIMUM	15	14	14	14	14	14	14	13	13	14	13	13	12	13	12	12	12	12	12	12	12	12	12	12	12	12	12	12	13	12	12	13
NOVEMBER																																
MAXIMUM	12	12	12	12	12	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	--	10
MINIMUM	12	12	12	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	8	--	10
DECEMBER																																
MAXIMUM	8	8	8	8	8	8	7	7	7	8	8	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	4	7
MINIMUM	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	4	4	6
JANUARY																																
MAXIMUM	5	6	6	6	7	7	7	6	6	6	6	6	6	6	6	6	5	5	5	5	5	4	4	4	3	2	2	3	2	2	2	5
MINIMUM	4	5	6	6	6	7	6	6	6	6	6	6	6	6	5	5	5	5	5	5	4	4	4	3	2	2	2	2	2	2	2	4
FEBRUARY																																
MAXIMUM	2	3	4	3	3	3	3	3	4	4	4	5	5	6	6	6	6	5	6	5	5	6	6	6	4	5	4	6	--	--	--	5
MINIMUM	2	2	3	3	3	3	3	3	3	4	4	4	4	5	5	5	4	4	4	4	4	4	5	4	4	4	4	4	--	--	--	4
MARCH																																
MAXIMUM	6	5	6	6	6	6	7	6	6	6	6	7	7	7	8	7	7	7	7	7	8	7	8	8	9	9	8	9	7	9	8	7
MINIMUM	5	5	5	5	6	5	5	4	4	4	4	4	4	4	5	6	7	6	6	6	6	6	6	6	6	6	6	6	7	7	7	5
APRIL																																
MAXIMUM	8	7	8	8	9	9	11	11	9	12	12	10	11	11	11	12	9	11	10	12	12	11	11	11	12	12	13	11	11	9	--	10
MINIMUM	7	7	7	7	7	7	7	7	8	7	8	9	8	8	9	8	9	8	9	8	9	9	9	8	8	8	9	9	8	8	--	8
MAY																																
MAXIMUM	10	12	10	13	13	14	14	15	14	14	14	14	11	10	13	14	15	13	12	12	12	12	11	10	10	9	9	11	11	12	12	12
MINIMUM	8	8	9	8	9	9	10	11	11	10	10	11	9	9	9	9	10	11	11	9	9	9	9	9	9	9	9	8	9	9	9	9
JUNE																																
MAXIMUM	13	13	13	13	11	11	11	11	11	11	13	13	12	14	12	15	16	15	15	13	16	14	13	12	11	11	11	11	12	13	--	12
MINIMUM	9	10	11	11	11	10	10	10	11	11	11	11	11	12	12	11	12	12	12	12	12	12	12	11	11	10	10	10	10	11	--	11
JULY																																
MAXIMUM	13	12	14	14	14	13	14	17	17	17	16	17	17	16	15	15	14	14	15	15	15	14	14	13	14	14	14	12	14	14	13	15
MINIMUM	11	12	12	11	12	12	12	13	13	14	14	14	13	13	11	10	10	10	11	11	10	10	11	12	11	10	10	11	11	11	12	11
AUGUST																																
MAXIMUM	14	14	14	13	14	14	16	14	14	13	12	14	14	15	13	14	15	15	15	15	15	16	15	14	15	15	15	14	15	15	16	14
MINIMUM	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	13	13	13	13	14	14	14	13	13	13	13	13	13	12
SEPTEMBER																																
MAXIMUM	16	16	15	15	15	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	15	--	15
MINIMUM	14	14	13	13	13	14	14	14	14	14	15	15	15	14	14	15	15	15	15	15	15	15	15	15	15	14	14	14	14	14	--	14

14152500 COAST FORK WILLAMETTE RIVER AT LONDON, OREG.

LOCATION.—Lat 43°38'30", long 123°05'05", in SW¼ sec.20, T.22 S., R.3 W., Lane County, temperature recorder on left bank 700 ft upstream from gaging station, 0.6 mile north of London, 11 miles south of Cottage Grove, and at mile 35.9.

DRAINAGE AREA.—72.1 sq mi.

PERIOD OF RECORD.—Water temperatures: July 1960 to September 1965, June 1967 to September 1969.

EXTREMES.—1968-69:
Water temperatures: Maximum, 21.0°C July 23; minimum, 3.0°C on several days during January and March.

Period of record:
Water temperatures: Maximum, 26.0°C July 7, 1968; minimum (1960-63, 1967-69), 2.0°C on several days during January and February 1963.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	14	13	13	13	12	12	12	11	9	11	11	11	9	9	9	9	9	9	9	9	9	10	10	9	10	11	10	9	9	9	9	10
MINIMUM	13	11	11	11	10	11	10	9	8	9	11	9	8	8	9	9	9	9	8	8	8	9	9	9	10	8	9	9	9	8		9
NOVEMBER																																
MAXIMUM	8	9	9	8	9	9	9	11	11	11	11	11	9	9	9	9	9	10	10	10	11	11	10	9	9	9	8	8	8	7	--	9
MINIMUM	8	8	8	7	8	8	8	9	10	9	11	9	9	8	8	8	9	9	9	9	10	10	9	9	9	8	8	8	7	7	--	9
DECEMBER																																
MAXIMUM	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	6	6	7	7	7	7	7	7	7	7	7	7	7
MINIMUM	7	7	7	8	8	7	7	8	8	8	8	7	7	8	7	7	7	7	6	6	6	6	7	7	7	7	7	7	7	6	6	7
JANUARY																																
MAXIMUM	7	8	9	9	9	9	9	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	4	4	3	3	4	4	4	4	6
MINIMUM	7	7	8	9	9	9	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	4	4	3	3	3	3	4	4	4	6
FEBRUARY																																
MAXIMUM	4	5	5	4	4	4	4	5	6	7	7	7	7	7	7	7	7	6	6	6	6	6	6	5	5	6	5	6	--	--	--	6
MINIMUM	4	4	4	4	4	4	4	4	5	6	7	7	6	6	6	6	6	6	6	6	6	5	5	4	4	4	4	4	--	--	--	5
MARCH																																
MAXIMUM	6	5	5	6	6	5	6	5	5	4	4	4	4	5	5	6	6	6	6	6	6	6	6	6	7	8	8	8	8	9	8	6
MINIMUM	4	4	5	5	5	5	5	4	4	4	4	4	3	3	4	4	6	5	4	4	4	5	4	4	4	6	6	6	7	8	8	5
APRIL																																
MAXIMUM	8	8	8	8	8	8	9	9	9	9	10	10	9	9	11	10	9	9	9	9	11	11	9	9	8	11	11	11	8	8	--	9
MINIMUM	7	7	7	8	8	8	7	7	8	7	8	9	8	8	8	8	9	8	8	7	8	8	9	8	7	7	8	8	7	7	--	8
MAY																																
MAXIMUM	7	8	9	10	11	12	13	13	14	14	14	16	16	12	13	14	16	16	12	13	14	16	16	14	13	12	12	12	13	13	13	13
MINIMUM	7	7	8	8	8	9	10	11	11	12	12	12	12	9	10	9	12	12	11	10	11	12	12	12	11	11	9	9	11	12	10	10
JUNE																																
MAXIMUM	16	17	18	18	17	15	14	14	13	12	14	15	15	15	15	18	18	19	18	17	17	16	16	13	12	11	11	11	12	13	--	15
MINIMUM	11	12	14	15	14	13	13	13	12	12	12	13	14	14	14	13	14	15	15	14	13	14	13	12	11	10	10	10	10	10	--	13
JULY																																
MAXIMUM	14	14	13	14	14	14	15	16	18	18	17	16	16	16	16	17	17	18	19	19	18	19	21	19	19	19	19	18	18	18	17	17
MINIMUM	11	12	12	11	13	12	12	13	13	15	14	13	12	12	12	12	13	13	14	15	14	14	16	18	16	14	16	16	15	14	15	14
AUGUST																																
MAXIMUM	18	18	18	17	16	17	17	17	17	17	16	17	18	20	19	18	18	19	19	19	19	20	20	19	18	18	18	17	16	17	18	18
MINIMUM	14	14	14	15	12	12	13	14	14	15	14	13	14	15	16	14	13	14	16	14	14	14	15	14	13	13	15	14	12	13	13	14
SEPTEMBER																																
MAXIMUM	19	18	17	15	15	16	17	19	18	18	18	18	17	16	14	14	15	15	14	15	14	14	15	15	15	16	16	16	16	14	--	16
MINIMUM	14	14	13	11	11	11	12	15	14	14	15	14	16	12	10	12	13	14	14	13	13	13	14	13	14	14	13	13	14	14	--	13

14157500 COAST FORK WILLAMETTE RIVER NEAR GOSHEN, OREG.

LOCATION.--Lat 43°58'50", long 122°57'55", in NW¼ sec.29, T.18 S., R.2 W., Lane County, temperature recorder at gaging station on right bank, 2.5 miles southeast of Goshen and at mile 6.4.

DRAINAGE AREA.--642 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1961 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 23.0°C July 23; minimum, 2.0°C Jan. 25, 26.

Period of record:
Water temperatures: Maximum (1961-64, 1965-69), 26.5°C July 24, 1962; minimum, freezing point Jan. 12, 1963.

REMARKS.--Recorder stopped Sept. 2-30; range in temperature, 16.0°C to 20.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	16	16	14	14	14	13	13	13	13	13	13	12	12	11	11	12	12	12	11	11	11	11	12	12	12	12	11	11	11	11	11	12
MINIMUM	15	14	13	14	13	13	13	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12
NOVEMBER																																
MAXIMUM	11	10	10	9	8	8	9	9	10	10	10	10	9	9	8	9	8	8	8	9	9	9	9	9	9	9	8	8	8	8	--	9
MINIMUM	10	10	9	8	8	8	8	9	9	9	10	9	9	8	8	8	8	8	8	8	9	9	9	9	9	8	8	8	8	7	--	9
DECEMBER																																
MAXIMUM	7	7	7	7	8	8	8	8	8	9	8	8	8	8	8	8	7	7	7	7	6	6	6	7	7	7	7	7	7	6	6	7
MINIMUM	7	7	7	7	7	8	8	8	8	8	8	8	7	8	8	7	7	7	7	6	6	6	6	6	7	7	7	7	6	6	5	7
JANUARY																																
MAXIMUM	6	7	7	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	5	4	3	3	3	3	3	3	6
MINIMUM	5	6	7	7	8	8	8	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	5	4	2	2	3	3	3	3	3	6
FEBRUARY																																
MAXIMUM	3	3	4	4	4	4	4	4	4	5	5	6	6	6	6	6	6	6	7	7	6	6	6	6	6	7	7	7	--	--	--	5
MINIMUM	3	3	3	4	4	4	4	4	3	4	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	--	--	--	5
MARCH																																
MAXIMUM	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	8
MINIMUM	7	7	7	6	7	7	7	7	6	6	6	6	6	6	6	7	7	7	7	7	7	8	7	7	7	8	8	8	8	8	9	7
APRIL																																
MAXIMUM	9	9	9	9	9	10	9	10	10	11	11	11	11	11	10	9	10	10	10	9	10	11	11	11	10	10	12	12	12	10	--	10
MINIMUM	8	8	8	8	9	9	9	9	9	9	10	11	9	8	9	9	9	10	9	8	9	10	11	9	8	9	10	11	10	9	--	9
MAY																																
MAXIMUM	10	10	10	11	12	14	16	16	16	16	16	16	16	12	13	14	16	16	14	14	14	14	15	15	13	13	13	13	14	14	14	14
MINIMUM	9	9	9	9	10	12	13	14	14	14	14	14	12	12	11	13	14	14	13	13	12	12	14	13	12	13	13	12	13	13	13	12
JUNE																																
MAXIMUM	16	17	18	18	18	17	15	14	14	14	14	15	15	17	17	18	21	21	20	19	18	18	18	17	14	13	13	13	15	15	--	16
MINIMUM	13	14	16	17	17	15	14	14	14	14	13	14	15	14	16	16	17	18	17	17	16	17	17	14	13	13	13	13	13	13	--	15
JULY																																
MAXIMUM	16	16	17	17	17	17	16	19	21	21	20	18	19	19	19	20	20	20	21	21	21	22	23	22	21	21	21	20	19	20	20	19
MINIMUM	14	15	14	16	16	15	14	16	17	18	18	17	16	16	17	17	18	18	18	19	18	18	20	21	19	18	19	18	17	17	18	17
AUGUST																																
MAXIMUM	19	19	20	19	18	18	18	19	18	17	16	16	18	18	18	17	17	18	18	18	18	19	19	19	18	18	19	18	18	18	19	18
MINIMUM	17	17	17	17	16	16	16	17	17	16	15	14	16	17	17	16	16	16	17	17	17	17	18	18	17	17	17	17	16	17	17	16
SEPTEMBER																																
MAXIMUM	19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

14159100 HORSE CREEK NEAR MCKENZIE BRIDGE, OREG.

LOCATION.--Lat 44°09'45", long 122°09'05", in SW¼ sec.24, T.16 S., R.5 E., Lane County, temperature recorder at gaging station on right bank, 450 ft upstream from bridge on Horse Creek road, 1.0 mile southeast of McKenzie Bridge, and at mile 3.4.

DRAINAGE AREA.--149 sq mi.

PERIOD OF RECORD.--Water temperatures: February 1963 to September 1969 (discontinued).

EXTREMES.--1968-69:
Water temperatures: Maximum, 14.0°C July 20; minimum, 1.0°C Jan. 31, Feb. 1.

Period of record:
Water temperatures: Maximum, 17.0°C July 4-8, 27-29, 1968; minimum, 1.0°C Jan. 31, Feb. 1, 1969.

REMARKS.--Recorder stopped Apr. 13-29; range in temperature, 5.0°C to 7.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	9	9	8	8	8	8	8	7	7	8	8	8	8	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8
MINIMUM	9	8	7	8	7	8	7	6	7	7	8	8	7	7	7	7	7	7	7	7	7	7	8	8	8	7	7	8	8	8	7	7
NOVEMBER																																
MAXIMUM	7	7	7	7	6	6	7	8	8	8	8	8	7	7	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	6	--	7
MINIMUM	6	6	7	6	6	6	6	7	8	8	8	7	7	6	6	6	6	6	6	6	7	7	7	7	6	6	6	6	6	5	--	6
DECEMBER																																
MAXIMUM	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	4
MINIMUM	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	4	4	4	4	3	3	2	2	3	3	3	3	3	3	3	3	4
JANUARY																																
MAXIMUM	3	3	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	3
MINIMUM	3	3	3	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	1	3
FEBRUARY																																
MAXIMUM	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	4
MINIMUM	1	2	2	2	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	3
MARCH																																
MAXIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	6	6	5	6	6	6	6	6	6	6	6	6	5
MINIMUM	4	4	4	4	3	3	3	4	4	3	3	4	4	4	4	4	5	4	4	4	4	5	5	4	5	5	5	5	5	5	6	4
APRIL																																
MAXIMUM	6	6	6	6	6	6	6	6	6	7	7	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	--	--
MINIMUM	6	6	5	6	6	6	5	5	6	6	5	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	--	--
MAY																																
MAXIMUM	5	6	6	7	8	8	8	8	7	7	7	7	7	6	7	8	8	8	7	8	8	8	8	8	8	8	7	8	8	9	9	7
MINIMUM	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	7	7	7	7	7	6	6	7	7	7	6
JUNE																																
MAXIMUM	9	11	11	11	11	11	11	10	10	9	11	12	12	12	12	12	12	12	12	12	12	11	10	9	9	8	8	8	11	11	--	11
MINIMUM	7	8	8	9	9	9	9	9	9	9	9	9	9	10	10	9	9	9	11	10	10	10	9	9	8	8	8	8	8	9	--	9
JULY																																
MAXIMUM	12	11	11	12	12	12	12	12	13	13	13	12	12	12	12	12	12	13	13	14	13	13	13	12	13	13	13	13	13	13	13	12
MINIMUM	9	10	9	9	9	10	10	10	11	11	11	11	10	9	9	9	9	10	11	11	11	11	11	12	11	11	11	11	10	11	11	10
AUGUST																																
MAXIMUM	13	13	13	11	11	12	12	12	13	13	11	12	13	13	13	13	12	12	13	13	13	13	13	12	12	12	12	11	11	11	11	12
MINIMUM	10	11	10	10	9	9	9	9	10	11	11	10	10	11	11	11	10	11	11	10	11	11	11	11	10	9	10	9	8	9	9	10
SEPTEMBER																																
MAXIMUM	12	12	11	10	9	10	11	11	12	11	11	12	11	9	9	9	9	10	10	10	10	9	9	9	10	11	10	10	10	10	--	10
MINIMUM	10	10	9	8	8	8	9	10	10	10	10	10	9	8	8	9	9	9	10	9	9	9	9	9	10	9	9	9	9	9	--	9

14159200 SOUTH FORK MCKENZIE RIVER ABOVE COUGAR RESERVOIR, NEAR RAINBOW, OREG.

LOCATION.--Lat 44°02'50", long 122°13'00", in T.17 S., R.5 E. (unsurveyed), Lane County, temperature recorder at gaging station on right bank, 100 ft upstream from Tipsoo Creek, 8 miles south of Rainbow, 9 miles southeast of town of Blue River, and at mile 10.4.

DRAINAGE AREA.--160 sq mi at cableway 0.2 mile downstream, where all discharge measurements are made.

PERIOD OF RECORD.--Water temperatures: November 1957 to September 1969.

EXTREMES.--1988-69:
Water temperatures: Maximum, 14.0°C on many days during June to August; minimum, 1.0°C on several days during January and February.

Period of record:
Water temperatures: Maximum, 17.0°C July 5-8, 27, 28, 1968; minimum, 0.5°C Mar. 1, 1962.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	9	9	9	9	9	8	8	8	8	8	8	8	8	7	7	8	8	8	7	7	7	8	8	8	8	8	8	8	8	8	7	8
MINIMUM	8	7	7	8	7	8	7	6	6	7	8	7	7	6	7	7	7	7	6	7	7	7	7	7	7	7	7	7	7	7	6	7
NOVEMBER																																
MAXIMUM	7	7	7	6	6	6	7	8	8	7	8	7	6	6	6	6	6	7	7	7	7	7	7	6	6	6	6	6	6	5	--	6
MINIMUM	6	7	6	5	6	5	6	7	7	7	7	6	6	5	6	6	6	6	6	6	6	7	6	6	6	5	5	5	5	4	--	6
DECEMBER																																
MAXIMUM	4	4	5	6	6	6	6	6	6	6	6	4	5	5	6	4	4	4	3	3	2	3	4	4	4	4	4	4	3	3	4	4
MINIMUM	4	4	4	5	6	5	5	6	6	6	4	4	4	5	4	3	3	3	3	2	2	2	3	4	4	4	4	3	3	3	3	4
JANUARY																																
MAXIMUM	4	4	4	5	5	5	5	4	4	4	4	3	4	4	4	4	4	4	4	4	3	3	3	2	1	1	1	2	2	2	2	3
MINIMUM	4	4	4	4	5	5	4	4	3	3	3	3	3	4	3	3	3	3	3	3	3	3	2	1	1	1	1	1	2	2	1	3
FEBRUARY																																
MAXIMUM	2	3	3	3	3	3	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	3	3	3	3	4	--	--	--	4
MINIMUM	1	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	3	3	3	4	4	3	3	3	2	2	2	3	--	--	--	3
MARCH																																
MAXIMUM	4	3	--	--	--	--	--	--	--	--	--	4	4	4	4	4	4	4	4	4	5	4	5	5	5	5	5	5	4	5	4	--
MINIMUM	3	3	--	--	--	--	--	--	--	--	--	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	--
APRIL																																
MAXIMUM	5	5	4	5	5	6	6	6	6	7	7	6	6	6	6	7	6	6	5	6	7	7	6	5	6	7	7	5	6	5	--	6
MINIMUM	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	3	--	4
MAY																																
MAXIMUM	5	6	6	7	8	8	8	8	7	7	6	7	6	5	7	8	8	6	6	8	9	9	9	8	8	7	7	9	8	10	10	7
MINIMUM	4	4	4	4	4	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	6	6	6	7	7	7	6	6	7	7	7	5
JUNE																																
MAXIMUM	11	11	12	12	11	12	11	11	9	10	12	13	13	13	14	13	13	14	14	14	14	11	11	11	9	9	9	8	11	12	--	12
MINIMUM	7	8	8	9	9	9	9	9	9	9	9	9	9	10	10	9	9	9	11	10	10	10	10	9	8	8	8	8	8	8	--	9
JULY																																
MAXIMUM	13	12	12	13	13	13	13	13	14	14	14	13	13	13	13	13	13	14	14	14	14	14	14	13	14	14	14	14	14	14	14	14
MINIMUM	9	10	9	9	9	9	9	9	9	10	11	10	9	9	9	9	9	9	10	10	10	10	11	11	11	10	11	10	10	10	10	10
AUGUST																																
MAXIMUM	14	14	14	12	12	13	13	13	13	13	12	13	14	14	14	13	13	13	13	13	13	14	14	13	13	12	12	12	12	12	12	13
MINIMUM	9	9	9	10	8	8	9	9	9	9	9	9	9	10	10	10	9	10	10	9	9	9	10	10	9	9	9	9	8	9	9	9
SEPTEMBER																																
MAXIMUM	13	12	11	11	11	12	12	11	12	12	12	12	11	11	11	11	10	11	10	10	11	11	10	11	11	11	11	11	11	9	--	11
MINIMUM	9	9	9	8	8	8	9	9	9	9	9	9	9	8	8	8	9	9	9	9	9	8	9	9	9	9	8	9	9	9	--	9

14159500 SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OREG.

LOCATION.--Lat 44°08'10", long 122°14'50", in NE¼ sec.31, T.16 S., R.5 E., Lane County, temperature recorder at gaging station on right bank, 0.2 mile upstream from Cougar Creek, 0.6 mile downstream from Cougar Dam, 2.0 miles south of Rainbow, and at mile 3.9.

DRAINAGE AREA.--208 sq mi.

PERIOD OF RECORD.--Water temperatures: July 1955 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 12.0°C on many days during October and September; minimum, 2.0°C on several days during January and February.

Period of record:
Water temperatures: Maximum, 20.0°C July 28, 1958; minimum, 0.5°C Jan. 20-23, 1962.

REMARKS.--Recorder stopped Mar. 19 to Apr. 9; range in temperature, 4.0°C to 5.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
MINIMUM	11	11	10	11	11	12	12	9	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
NOVEMBER																																
MAXIMUM	11	11	11	11	11	11	11	11	11	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	7	--	9
MINIMUM	11	11	11	11	11	11	11	11	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	7	7	--	9
DECEMBER																																
MAXIMUM	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	4	4	6
MINIMUM	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	4	4	4	6
JANUARY																																
MAXIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	4
MINIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	2	4
FEBRUARY																																
MAXIMUM	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	--	--	--	3
MINIMUM	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	--	--	--	3
MARCH																																
MAXIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--
APRIL																																
MAXIMUM	--	--	--	--	--	--	--	--	--	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	--	--
MAY																																
MAXIMUM	5	5	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5	5	6	6	6	5
MINIMUM	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
JUNE																																
MAXIMUM	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	--	6
MINIMUM	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	--	6
JULY																																
MAXIMUM	7	7	7	8	8	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	8	9	9	9	9	9	8
MINIMUM	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	7	7	7	7	7	7	8	8	8	8	8	8	7	8	8	8	7
AUGUST																																
MAXIMUM	9	9	9	8	8	8	8	8	8	8	8	8	8	8	9	8	9	9	9	9	9	9	9	9	9	9	9	9	10	10	10	9
MINIMUM	8	8	8	8	8	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	8
SEPTEMBER																																
MAXIMUM	10	10	10	10	10	10	10	10	10	10	10	10	11	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	--	11
MINIMUM	10	10	10	10	10	10	10	10	10	10	10	10	11	11	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	--	11

14161100 BLUE RIVER BELOW TIDBITS CREEK, NEAR BLUE RIVER, OREG.

LOCATION.--Lat 44°13'05", long 122°15'50", in SE¼NE¼ sec.36, T.15 S., R.4 E., Lane County, Willamette National Forest, temperature recorder at gaging station on left bank, 0.2 mile downstream from Tidbits Creek, 5.5 miles northeast of town of Blue River, and at mile 8.5.

DRAINAGE AREA.--45.8 sq mi.

PERIOD OF RECORD.--Water temperatures: September 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C Aug. 23; minimum, freezing point on several days during January and February.

Period of record:
Water temperatures: Maximum (1963-65, 1966-69), 22.0°C July 28, Aug. 2, 3, 1968; minimum, freezing point on several days during January and February 1969.

REMARKS.--Recorder stopped Oct. 1-13, Nov. 18 to Dec. 9; ranges in temperature, 8.0°C to 14.0°C, and 4.0°C to 8.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	8	8	9	9	9	8	8	8	9	9	9	10	9	9	9	9	9	8	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	8	8	8	8	8	7	8	7	8	8	9	9	8	8	8	8	8	7	--
NOVEMBER																																
MAXIMUM	7	8	8	8	8	8	8	10	10	9	9	8	7	7	7	7	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	6	7	7	7	7	7	8	8	9	8	8	7	7	7	7	7	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DECEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	7	7	6	6	6	6	5	5	4	3	3	4	3	6	6	6	6	5	4	4	3	3	--
MINIMUM	--	--	--	--	--	--	--	--	--	6	6	5	5	6	5	3	4	3	3	3	3	2	3	6	6	5	4	4	3	2	3	--
JANUARY																																
MAXIMUM	4	5	6	6	6	7	7	6	6	4	4	4	3	4	4	3	3	3	4	4	4	4	3	2	1	1	1	1	1	0	0	3
MINIMUM	3	4	5	6	6	6	5	6	2	4	3	3	3	3	3	2	2	3	3	4	3	3	2	1	1	1	0	0	0	0	0	3
FEBRUARY																																
MAXIMUM	0	1	2	2	2	3	3	3	3	3	3	3	3	3	4	3	4	4	4	4	4	4	5	4	4	4	3	4	--	--	--	3
MINIMUM	0	0	1	1	2	2	3	2	2	3	2	2	2	3	3	3	3	3	3	4	4	4	3	3	3	3	3	3	--	--	--	2
MARCH																																
MAXIMUM	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	4
MINIMUM	3	3	3	3	2	2	3	3	3	2	2	3	2	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3
APRIL																																
MAXIMUM	5	5	5	6	6	6	7	7	6	7	7	6	6	6	6	6	6	6	6	7	7	7	6	6	6	7	7	6	6	6	--	6
MINIMUM	4	4	4	4	4	5	5	4	5	5	5	5	5	5	5	4	5	5	5	5	5	6	5	5	5	4	5	4	4	4	--	5
MAY																																
MAXIMUM	6	6	7	8	8	8	8	8	8	8	8	8	7	7	8	9	9	8	7	9	11	11	11	9	10	9	9	9	9	11	11	9
MINIMUM	4	4	5	5	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	7	8	8	8	7
JUNE																																
MAXIMUM	12	13	14	14	14	14	12	13	12	12	15	15	16	15	16	16	16	16	17	17	16	14	13	12	10	9	9	9	11	13	--	13
MINIMUM	8	9	10	11	12	12	12	11	11	11	11	12	12	11	12	12	12	13	13	13	13	13	12	10	9	9	8	8	8	9	--	11
JULY																																
MAXIMUM	14	12	12	13	14	14	15	16	17	17	16	14	16	14	16	15	16	16	17	17	17	18	18	17	19	18	19	19	19	19	19	16
MINIMUM	10	11	11	10	11	11	11	12	12	13	14	12	12	12	12	11	12	12	13	14	14	14	15	16	16	14	16	16	16	16	15	13
AUGUST																																
MAXIMUM	19	19	18	17	16	17	17	18	18	18	16	17	19	20	19	19	19	19	19	20	20	20	21	19	19	18	18	16	17	17	18	18
MINIMUM	16	15	14	14	13	12	13	13	14	14	14	13	14	14	16	14	13	14	15	14	14	15	16	15	14	14	14	14	12	12	13	14
SEPTEMBER																																
MAXIMUM	19	19	17	17	16	17	17	16	19	19	19	19	16	15	16	13	13	12	12	12	12	12	12	13	14	16	14	16	14	14	--	15
MINIMUM	13	14	13	12	11	12	12	14	14	14	14	14	14	12	11	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13	--	13

14161500 LOOKOUT CREEK NEAR BLUE RIVER, OREG.

LOCATION.--Lat 44°12'35", long 122°15'20", in T.15 or 16 S., R.5 E. (unsurveyed), Lane County, Willamette National Forest, temperature recorder at gaging station on left bank, 6.0 miles northeast of town of Blue River and at mile 0.5.

DRAINAGE AREA.--24.1 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1950 to September 1955, September 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C July 23, July 31 to Aug. 2; minimum, freezing point Jan. 31, Feb. 1.

Period of record:
Water temperatures: Maximum (1950-55, 1963-65, 1967-69), 22.0°C July 28, 1968; minimum, freezing point Jan. 31, Feb. 1, 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1966 TO SEPTEMBER 1969

	DAY																															
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
OCTOBER																																
MAXIMUM	12	12	11	11	11	11	11	9	9	10	9	9	9	9	8	9	9	9	8	8	8	9	9	9	9	9	8	8	8	8	8	9
MINIMUM	12	10	10	10	10	10	10	8	8	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	9
NOVEMBER																																
MAXIMUM	7	8	8	7	7	7	8	9	9	8	8	8	8	7	7	7	7	8	8	8	8	8	8	7	7	7	7	7	7	6	--	7
MINIMUM	6	7	7	7	7	6	7	8	8	8	8	7	7	7	7	7	7	7	8	8	7	8	7	7	7	7	7	6	6	5	--	7
DECEMBER																																
MAXIMUM	5	5	6	6	7	7	7	7	7	7	7	6	6	7	7	6	6	6	5	4	3	3	4	5	5	5	5	5	4	4	4	5
MINIMUM	4	5	5	6	6	6	6	7	7	7	6	6	6	6	6	4	6	4	4	3	3	2	3	4	5	5	4	4	4	3	3	5
JANUARY																																
MAXIMUM	4	5	5	5	5	5	6	4	4	4	3	4	4	4	4	3	3	3	4	4	3	3	3	2	1	1	1	1	1	1	1	3
MINIMUM	4	4	5	5	5	5	4	4	3	3	3	3	3	4	3	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	0	3
FEBRUARY																																
MAXIMUM	1	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	3	3	3	3	4	--	--	--	3
MINIMUM	0	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	3	3	3	3	3	3	3	--	--	--	3
MARCH																																
MAXIMUM	4	4	4	4	4	4	4	4	3	3	3	4	3	3	4	3	3	3	4	4	4	4	5	5	5	6	5	5	4	5	4	4
MINIMUM	3	3	3	4	3	3	3	3	3	2	2	3	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	3
APRIL																																
MAXIMUM	5	4	4	5	5	5	6	6	5	6	6	5	5	6	6	6	5	6	5	6	6	6	6	6	7	7	8	6	6	6	--	6
MINIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	4	4	5	6	5	5	5	6	5	5	4	--	5
MAY																																
MAXIMUM	6	6	7	9	9	9	9	9	9	8	8	8	7	7	8	9	10	8	7	9	10	11	11	10	10	9	9	10	9	11	11	9
MINIMUM	5	5	6	6	6	6	6	6	6	6	6	7	7	7	6	7	7	7	7	7	7	8	8	8	8	8	8	8	9	9	8	7
JUNE																																
MAXIMUM	13	13	14	14	14	14	12	12	11	11	14	15	16	16	16	16	16	16	17	16	16	13	12	12	11	10	10	9	12	14	--	13
MINIMUM	9	9	10	11	11	11	11	10	11	10	10	11	11	12	12	11	12	12	13	13	12	12	11	11	10	9	9	9	9	9	--	11
JULY																																
MAXIMUM	15	12	13	14	14	15	16	16	17	17	16	15	16	16	16	16	16	17	18	18	18	18	19	17	18	18	18	18	18	18	19	16
MINIMUM	10	11	11	10	11	11	11	11	12	13	13	12	12	11	11	11	11	12	13	13	13	13	14	15	14	13	14	14	14	14	14	12
AUGUST																																
MAXIMUM	19	19	18	16	17	17	17	18	18	17	15	17	18	18	18	17	17	17	18	18	18	18	18	18	17	17	17	16	16	16	16	17
MINIMUM	16	15	14	15	13	13	14	14	14	14	14	13	14	15	15	14	14	15	15	15	15	16	16	16	15	15	15	14	13	13	13	14
SEPTEMBER																																
MAXIMUM	16	16	15	14	14	14	14	14	16	16	16	16	16	14	13	13	13	13	13	13	13	13	13	14	14	13	13	13	13	12	--	14
MINIMUM	14	14	13	12	12	12	12	13	13	14	14	14	14	12	11	12	12	12	12	12	12	12	13	12	13	12	13	12	12	12	--	13

14162200 BLUE RIVER AT BLUE RIVER, OREG.

LOCATION.--Lat 44°09'45", long 122°19'55", in NW¼SE¼ sec.21, T.16 S., R.4 E., Lane County, temperature recorder at gaging station on right bank, 0.3 mile upstream from Simmonds Creek, 0.7 mile north of town of Blue River, 0.8 mile downstream from Blue River Dam, and at mile 0.9.

DRAINAGE AREA.--87.7 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1966 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 17.0°C Sept. 27-30; minimum, 2.0°C Jan. 28-31.

Period of record:
Water temperatures: Maximum, 26.0°C July 6-8, 29-31, Aug. 2, 1968; minimum, 1.0°C Dec. 15, 21, 1967.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	14	14	13	12	14	13	14	12	12	12	12	12	9	11	10	10	10	10	9	10	10	10	10	10	9	10	9	9	9	9	9	11
MINIMUM	12	11	10	11	11	12	11	7	9	10	10	9	8	8	10	9	9	9	8	9	9	9	9	9	9	8	8	8	8	9	8	9
NOVEMBER																																
MAXIMUM	9	9	9	9	9	9	9	11	11	9	9	9	9	9	9	10	10	11	11	10	9	9	9	9	8	8	8	8	7	7	--	9
MINIMUM	8	9	9	9	8	8	9	9	9	9	9	9	9	8	9	9	9	9	9	9	9	8	8	8	8	7	7	7	7	7	--	8
DECEMBER																																
MAXIMUM	7	7	7	8	8	8	8	8	7	7	7	7	7	6	6	7	7	7	7	6	5	5	5	5	5	4	4	5	4	4	4	6
MINIMUM	7	7	7	7	8	8	8	7	7	7	7	7	6	6	6	6	6	6	6	5	5	4	4	5	4	4	4	4	4	4	3	6
JANUARY																																
MAXIMUM	4	4	4	4	5	5	6	6	5	5	5	4	4	4	4	4	6	4	3	6	7	7	7	5	4	4	3	3	2	2	4	5
MINIMUM	3	4	4	4	4	5	5	5	5	5	4	4	4	4	4	3	3	3	3	3	6	7	3	3	4	3	3	2	2	2	2	4
FEBRUARY																																
MAXIMUM	4	4	6	7	6	6	6	6	5	5	4	4	4	4	4	5	4	4	5	6	5	4	4	6	6	4	4	5	--	--	--	5
MINIMUM	4	4	4	6	6	6	6	3	3	3	3	3	3	3	4	4	3	3	3	4	4	4	4	4	3	3	4	5	--	--	--	4
MARCH																																
MAXIMUM	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	6	6	7	8	9	8	8	7	7	7	6
MINIMUM	4	5	5	5	5	5	5	5	5	5	5	5	4	5	4	5	6	6	5	5	6	6	5	5	5	5	5	5	5	6	6	5
APRIL																																
MAXIMUM	7	7	7	7	6	7	7	7	6	7	7	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	--	6
MINIMUM	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	5	6	6	6	6	6	6	6	6	6	5	6	6	6	6	--	6
MAY																																
MAXIMUM	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
MINIMUM	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	7	6	6	6	6	7	7	7	7	7	7	7	6	6	6
JUNE																																
MAXIMUM	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	8	8	8	8	8	8	8	8	8	--	8
MINIMUM	6	6	6	7	7	7	7	7	8	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	7	7	--	7
JULY																																
MAXIMUM	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	9	9	9	9	9	11	--	--	--	--	--	--	--	--	11	13	--
MINIMUM	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	--	--	--	--	--	--	--	--	8	8	--
AUGUST																																
MAXIMUM	12	12	12	11	12	12	12	11	9	9	9	9	9	9	9	9	10	10	10	10	11	11	11	9	11	11	11	11	11	11	11	10
MINIMUM	9	9	8	9	9	9	9	8	8	8	9	8	8	8	8	8	9	9	9	9	9	9	9	9	9	10	10	10	10	11	11	9
SEPTEMBER																																
MAXIMUM	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	14	14	14	14	14	15	15	16	16	16	17	17	17	17	--	14
MINIMUM	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	13	13	13	14	14	14	14	15	15	15	15	16	16	17	17	--	13

14162500 MCKENZIE RIVER NEAR VIDA, OREG.

LOCATION.--Lat 44°07'30", long 122°28'10", in NE¼NE¼ sec.5, T.17 S., R.3 E., Lane County, temperature recorder at gaging station on right bank, 0.4 mile downstream from Mason Creek, 5.4 miles east of Vida, and at mile 47.7.

DRAINAGE AREA.--930 sq mi at cableway 0.4 mile downstream, where all discharge measurements are made.

PERIOD OF RECORD.--Water temperatures: June 1961 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 14.0°C on several days during July and September; minimum, 3.0°C Mar. 14-25.

Period of record:
Water temperatures: Maximum, 16.0°C on several days during June to August in 1968; minimum, 2.5°C Jan. 21-24, 1962.

REMARKS.--Prior to June 12, 1968, temperature recorder at site on left bank, 250 ft downstream.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	11	11	11	11	10	10	10	10	9	9	10	10	10	10	9	9	10	10	9	9	9	10	10	10	9	9	9	9	9	9	9	10
MINIMUM	11	9	9	10	9	10	9	9	9	9	9	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
NOVEMBER																																
MAXIMUM	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	--	8
MINIMUM	9	9	9	9	9	8	8	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	--	8
DECEMBER																																
MAXIMUM	8	8	8	8	8	8	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
MINIMUM	8	8	8	8	8	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
JANUARY																																
MAXIMUM	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	5	5	5	4	4	4	4	4	5
MINIMUM	6	6	6	6	6	6	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5
FEBRUARY																																
MAXIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	4
MINIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	4
MARCH																																
MAXIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	4
MINIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
APRIL																																
MAXIMUM	4	4	4	4	4	4	5	5	5	6	6	6	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	--	5
MINIMUM	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	--	5
MAY																																
MAXIMUM	6	6	6	7	7	8	8	8	8	7	7	7	6	6	7	7	7	7	7	8	8	8	8	8	8	7	7	8	8	9	8	7
MINIMUM	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	6
JUNE																																
MAXIMUM	9	9	11	11	9	9	9	9	9	9	11	11	12	12	12	11	11	12	12	12	12	12	10	9	9	9	9	9	11	12	--	10
MINIMUM	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	--	9
JULY																																
MAXIMUM	12	12	11	12	12	12	12	13	13	13	13	12	13	12	12	12	12	13	14	14	14	14	14	14	13	14	14	14	13	13	13	13
MINIMUM	9	10	9	9	9	9	9	9	10	11	11	10	9	9	9	9	9	9	10	11	10	11	11	11	11	11	11	11	11	11	11	10
AUGUST																																
MAXIMUM	13	13	13	12	12	12	12	13	13	13	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13
MINIMUM	11	10	10	10	9	9	9	10	11	11	11	10	10	10	11	11	10	11	11	10	10	11	11	11	11	11	11	11	11	11	11	10
SEPTEMBER																																
MAXIMUM	13	13	13	13	13	13	13	13	13	14	14	13	13	13	13	12	12	13	13	13	12	12	12	13	13	13	13	13	13	13	--	13
MINIMUM	11	11	12	11	11	11	12	12	12	12	12	12	13	12	11	12	12	12	13	12	12	12	12	12	13	13	13	12	12	13	13	--	12

14165000 MOHAWK RIVER NEAR SPRINGFIELD, OREG.

LOCATION.--Lat 44°05'35", long 122°57'20", near center of sec.17, T.17 S., R.2 W., Lane County, temperature recorder at gaging station on left bank, 50 ft downstream from bridge, 1.3 miles (revised) northeast of Springfield, and at mile 1.59.

DRAINAGE AREA.--177 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1963 to September 1969 (discontinued).

EXTREMES.--1968-69:
Water temperatures: Maximum, 23.0°C Aug. 23; minimum, 1.0°C Jan. 25-27.

Period of record:
Water temperatures: Maximum, 26.0°C July 28-31, 1968; minimum, 1.0°C Dec. 20, 21, 1965, Jan. 25-27, 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	14	14	13	12	12	12	12	12	11	11	11	11	11	11	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
MINIMUM	14	13	12	12	11	12	12	11	11	11	11	11	10	10	10	10	11	11	10	10	10	11	11	11	11	11	10	11	11	11	10	11
NOVEMBER																																
MAXIMUM	10	10	10	9	9	9	9	11	11	10	11	11	9	9	8	8	9	9	9	10	10	10	10	9	9	8	8	8	8	8	--	9
MINIMUM	9	9	9	8	8	9	8	9	10	9	10	9	9	8	8	8	8	9	9	9	9	9	9	9	8	8	8	8	8	7	--	9
DECEMBER																																
MAXIMUM	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	6	6	6	6	7	7	7	7	7	7	6	5	7
MINIMUM	7	7	7	8	8	8	8	8	8	8	8	8	7	8	7	6	6	7	6	6	6	6	6	6	7	7	7	7	6	5	4	7
JANUARY																																
MAXIMUM	6	7	7	8	8	8	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	4	3	1	2	2	2	3	3	5
MINIMUM	5	6	6	7	8	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	4	3	1	1	1	2	2	2	2	5
FEBRUARY																																
MAXIMUM	3	3	4	4	4	4	4	4	4	4	5	5	5	6	6	6	6	6	6	5	5	5	6	5	5	5	5	6	--	--	--	5
MINIMUM	2	3	3	3	4	4	4	4	3	4	4	5	5	5	6	6	5	5	5	5	5	4	5	4	4	4	4	5	--	--	--	4
MARCH																																
MAXIMUM	6	6	6	6	6	6	6	5	6	6	6	7	7	7	7	8	8	7	8	8	8	8	8	8	8	9	9	9	9	10	10	7
MINIMUM	6	5	6	5	6	6	6	4	4	4	4	5	5	5	6	6	7	7	6	7	6	7	6	6	7	7	7	7	8	8	9	6
APRIL																																
MAXIMUM	9	9	8	8	9	9	9	9	9	10	10	9	9	9	9	9	9	9	9	9	11	11	11	11	10	11	12	12	10	9	--	10
MINIMUM	8	8	7	7	8	8	7	8	8	8	9	9	9	9	9	9	9	9	9	8	9	10	11	9	9	9	11	10	8	8	--	9
MAY																																
MAXIMUM	8	9	9	11	12	14	15	16	16	16	17	17	17	13	14	16	17	17	14	16	17	19	19	19	17	14	14	14	14	17	17	15
MINIMUM	8	8	9	9	10	12	13	14	14	14	14	14	13	12	12	13	14	14	13	13	14	16	17	17	14	14	13	13	13	14	14	13
JUNE																																
MAXIMUM	18	19	21	21	20	18	16	16	16	16	17	18	18	19	19	20	21	21	21	20	19	19	18	16	14	13	13	12	13	14	--	17
MINIMUM	15	17	18	18	18	16	15	16	16	14	14	16	17	17	18	18	19	19	19	18	17	18	16	14	13	12	12	11	12	12	--	16
JULY																																
MAXIMUM	16	16	15	15	16	16	16	17	19	19	19	17	17	17	18	18	18	19	20	20	20	20	21	21	21	20	20	19	19	19	19	18
MINIMUM	14	14	13	13	14	14	13	15	16	17	17	16	15	16	16	16	17	17	18	19	18	18	19	21	19	19	19	19	18	18	18	17
AUGUST																																
MAXIMUM	19	19	20	19	18	19	19	19	20	20	19	18	20	22	21	21	20	21	22	22	22	22	23	22	21	21	21	20	19	19	20	20
MINIMUM	18	18	19	18	17	17	18	18	18	19	18	17	18	19	21	19	18	19	21	21	21	21	21	21	20	19	19	19	18	18	18	19
SEPTEMBER																																
MAXIMUM	21	21	21	19	18	18	19	19	19	20	21	21	21	20	18	17	17	17	17	16	16	16	16	16	17	17	17	17	17	17	--	18
MINIMUM	19	20	19	18	17	17	18	18	18	19	19	20	20	18	17	17	17	17	16	16	16	16	16	15	16	16	16	16	16	16	--	17

14165500 MCKENZIE RIVER NEAR COBURG, OREG.

LOCATION.--Lat 44°06'45", long 123°02'45", in NE¼NE¼ sec.9, T.17 S., R.3 W., Lane County, temperature recorder at gaging station on left bank at downstream side of Armitage Bridge, 2 miles southeast of Coburg and at mile 7.1.

DRAINAGE AREA.--1,337 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C July 23, 26; minimum, 4.0°C Dec. 30 to Jan. 1.

Period of record:
Water temperatures: Maximum (1963-65, 1966-69), 20.0°C July 8, 1968; minimum, 1.5°C Dec. 17, 18, 1964.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	13	12	12	12	12	12	12	12	12	11	11	11	11	10	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
MINIMUM	13	12	12	12	12	12	12	12	12	11	11	11	10	10	9	9	10	10	11	11	10	10	11	11	11	11	10	10	11	11	10	11
NOVEMBER																																
MAXIMUM	11	11	11	10	9	9	9	10	11	11	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	--	9
MINIMUM	11	11	10	9	9	9	9	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	7	--	9
DECEMBER																																
MAXIMUM	7	7	7	7	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	4	7
MINIMUM	7	7	7	7	7	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	4	4	7
JANUARY																																
MAXIMUM	5	5	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	7	7	7	8	8	8	7
MINIMUM	4	5	5	6	7	7	6	6	6	6	7	7	7	7	7	7	7	7	7	8	8	8	8	8	7	7	7	7	7	7	8	7
FEBRUARY																																
MAXIMUM	8	8	8	6	6	6	6	7	6	6	6	6	6	7	7	7	6	6	6	6	6	6	6	6	6	6	6	7	--	--	--	6
MINIMUM	8	8	6	6	6	6	6	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	6	6	--	--	--	6
MARCH																																
MAXIMUM	7	7	7	7	7	7	6	6	6	7	7	7	7	7	7	7	7	7	7	7	8	7	7	8	8	9	9	9	8	9	9	7
MINIMUM	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	7	7	7	6	7	7	7	6	7	7	7	8	8	8	8	8	6
APRIL																																
MAXIMUM	8	8	8	8	9	9	9	9	8	9	10	9	9	9	9	9	9	8	8	9	9	9	9	9	9	9	11	10	9	8	--	9
MINIMUM	8	8	7	7	8	8	8	8	8	7	8	9	8	8	8	8	8	8	8	7	8	9	9	8	8	8	9	9	8	8	--	8
MAY																																
MAXIMUM	8	9	9	10	12	12	13	13	12	11	11	10	10	9	9	10	11	11	9	11	12	12	12	11	11	10	11	11	11	12	12	11
MINIMUM	8	8	8	8	9	10	11	11	11	11	10	9	9	9	8	9	10	9	9	9	11	11	11	11	10	10	10	10	11	11	11	10
JUNE																																
MAXIMUM	13	13	14	14	12	12	12	12	11	11	13	13	13	16	15	16	17	17	17	16	15	14	14	13	12	11	11	11	12	13	--	13
MINIMUM	11	12	12	12	12	12	11	11	11	11	11	12	12	13	14	13	13	13	14	14	12	13	12	12	11	11	11	11	11	12	--	12
JULY																																
MAXIMUM	15	14	13	14	13	14	15	16	17	16	16	15	16	16	16	16	16	16	17	17	17	16	18	17	17	18	17	17	17	17	16	16
MINIMUM	13	12	12	12	12	13	12	13	14	14	14	13	12	13	13	13	13	13	14	14	14	14	14	16	14	14	14	14	14	14	14	14
AUGUST																																
MAXIMUM	17	17	17	17	15	16	16	16	17	16	15	14	16	17	16	15	15	16	16	16	16	16	17	16	16	15	15	14	14	15	15	16
MINIMUM	13	14	14	14	13	12	13	13	13	14	13	12	13	13	13	12	13	13	14	13	13	14	14	14	14	13	13	13	12	13	13	13
SEPTEMBER																																
MAXIMUM	16	16	14	14	14	14	15	14	14	16	16	16	16	15	14	13	13	13	13	13	13	13	13	14	14	14	14	15	15	14	--	14
MINIMUM	13	13	13	12	12	12	12	13	13	13	14	14	14	13	12	12	13	13	13	13	13	13	13	13	13	13	13	14	14	14	--	13

14166000 WILLAMETTE RIVER AT HARRISBURG, OREG.

LOCATION.--Lat 44°16'05", long 123°10'20", in SW¼NE¼ sec.16, T.15 S., R.4 W., Linn County, temperature recorder on right bank 600 ft downstream from gaging station at bridge on U.S. Highway 99 at Harrisburg and at mile 161.2.

DRAINAGE AREA.--3,420 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: June 1961 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C July 22-25; minimum, 1.0°C Jan. 26, 27.

Period of record:
Water temperatures: Maximum, 21.0°C July 8, 9, 1968; minimum, 1.0°C Jan. 26, 27, 1969.

REMARKS.--Recorder stopped Feb. 3 to Mar. 11; range in temperature, 3.0°C to 7.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	16	15	14	14	14	14	14	14	13	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	13
MINIMUM	15	14	14	14	14	14	14	13	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12
NOVEMBER																																
MAXIMUM	11	11	11	11	11	11	11	11	11	11	11	11	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	--	10
MINIMUM	11	11	11	11	11	11	11	11	11	11	11	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	--	10
DECEMBER																																
MAXIMUM	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	6	6	6	6	6	6	6	6	6	6	6	5	7
MINIMUM	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	6	6	6	6	6	6	6	6	6	6	6	5	4	7
JANUARY																																
MAXIMUM	4	4	5	6	6	6	6	6	6	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	3	2	2	2	3	3	3	4
MINIMUM	4	4	4	5	6	6	6	6	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	3	2	1	1	2	2	3	3	4
FEBRUARY																																
MAXIMUM	3	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	3	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MARCH																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	7	7	7	7	7	7	7	7	7	7	7	8	8	8	9	9	9	9	9	9	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	9	9	--
APRIL																																
MAXIMUM	9	9	9	8	9	9	9	9	9	9	11	11	11	9	9	9	9	9	9	9	10	10	10	10	9	9	10	10	10	9	--	9
MINIMUM	9	9	8	8	8	9	9	9	9	8	9	11	9	9	9	9	9	9	9	8	9	10	10	9	8	9	9	10	9	8	--	9
MAY																																
MAXIMUM	8	8	9	9	11	12	13	13	13	13	12	12	12	11	10	11	12	12	11	11	12	12	12	12	12	11	11	11	11	12	12	11
MINIMUM	8	8	8	9	9	11	12	13	12	12	12	12	11	10	10	10	11	11	10	10	11	12	12	12	11	11	11	11	11	11	12	11
JUNE																																
MAXIMUM	13	14	14	14	14	14	13	12	12	12	13	13	13	14	15	16	17	17	17	16	16	16	15	14	13	13	12	12	13	13	--	14
MINIMUM	12	13	14	14	14	13	12	12	12	12	12	13	13	13	14	14	16	16	16	16	14	15	14	13	13	12	12	12	12	13	--	13
JULY																																
MAXIMUM	14	14	14	15	15	15	15	16	17	17	17	17	17	17	17	17	17	17	17	17	17	18	18	18	18	17	17	17	17	17	17	17
MINIMUM	13	14	13	14	15	15	14	14	16	17	17	16	16	16	16	16	16	17	17	17	17	17	18	18	16	17	17	17	16	17	16	16
AUGUST																																
MAXIMUM	17	17	17	17	17	16	17	17	17	17	17	16	17	17	17	17	16	17	17	17	17	17	17	17	16	16	16	16	16	16	16	16
MINIMUM	16	16	17	17	16	16	16	16	17	17	16	15	15	17	17	16	16	16	17	17	17	17	17	16	16	16	16	16	16	16	16	16
SEPTEMBER																																
MAXIMUM	17	17	17	16	16	16	16	16	16	17	17	17	17	17	16	16	16	15	15	15	15	15	15	15	16	16	16	16	15	15	--	16
MINIMUM	16	17	16	16	16	16	16	16	16	16	17	17	17	16	15	15	15	15	15	15	15	15	15	15	15	16	16	15	15	15	--	15

14171750 WILLAMETTE RIVER ABOVE CALAPOOIA RIVER, AT ALBANY, OREG.

LOCATION.--Lat 44°38'30", long 123°07'00", in NW¼SE¼ sec.1, T.11 S., R.4 W., Benton County, temperature recorder on left bank 0.4 mile upstream from Calapooia River, 0.6 mile upstream from gaging station at Albany, and at mile 119.9.

DRAINAGE AREA.--4,460 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 20.0°C July 24; minimum, 1.0°C Jan. 26, 27.

Period of record:
Water temperatures: Maximum (1963-66, 1967-69), 22.0°C on several days during June to August 1968; minimum, 1.0°C Jan. 26, 27, 1969.

REMARKS.--Recorder stopped Aug. 28 to Sept. 30; range in temperature, 14.0°C to 18.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	17	16	16	16	16	15	15	14	14	13	13	13	13	13	13	12	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	13
MINIMUM	16	16	15	15	15	15	14	14	13	13	13	13	13	13	12	12	12	13	13	13	13	12	13	12	12	12	12	12	12	12	12	13
NOVEMBER																																
MAXIMUM	12	11	12	12	11	11	11	11	11	11	11	11	10	10	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	--	10
MINIMUM	11	11	11	11	11	11	10	11	11	11	11	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	--	10
DECEMBER																																
MAXIMUM	8	7	7	8	7	8	7	7	7	7	7	7	7	7	7	8	8	7	7	6	6	6	6	6	6	6	6	6	6	6	5	7
MINIMUM	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	5	5	6	6	6	6	6	6	5	3	6
JANUARY																																
MAXIMUM	4	5	6	7	7	7	7	7	6	5	5	5	4	4	4	4	4	4	4	4	4	4	4	3	3	2	2	2	2	2	2	4
MINIMUM	3	4	5	6	7	7	7	6	5	5	5	4	4	4	4	4	4	4	4	4	4	4	3	3	2	1	1	2	2	2	2	4
FEBRUARY																																
MAXIMUM	3	3	3	3	3	3	3	4	4	4	5	5	5	6	6	6	7	7	6	6	6	6	6	6	6	6	6	6	--	--	--	5
MINIMUM	2	2	3	3	3	3	3	3	3	3	4	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	--	--	--	5
MARCH																																
MAXIMUM	7	7	7	7	8	8	8	7	7	7	7	7	8	8	8	8	8	9	9	8	9	9	9	9	9	10	11	11	11	10	11	8
MINIMUM	6	7	7	7	7	8	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	9	8	8	8	9	9	9	10	10	10	8
APRIL																																
MAXIMUM	11	10	9	9	10	10	11	11	11	11	11	12	11	11	11	11	11	11	11	11	11	12	12	11	11	11	12	12	12	11	--	11
MINIMUM	10	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	11	10	10	10	11	11	11	11	11	11	12	11	10	--	10
MAY																																
MAXIMUM	10	10	11	11	12	13	14	16	16	15	14	14	13	12	11	13	13	14	13	12	13	14	14	14	13	12	12	12	13	14	14	13
MINIMUM	10	10	10	11	11	12	13	14	14	14	14	13	12	11	11	11	13	13	12	12	12	13	14	13	12	12	12	12	12	13	13	12
JUNE																																
MAXIMUM	14	16	17	17	17	16	14	14	14	13	14	15	16	16	17	17	19	19	19	18	18	17	17	17	15	14	13	13	13	15	--	16
MINIMUM	14	14	15	16	16	14	14	14	13	13	13	14	14	15	16	16	17	18	18	17	17	17	17	15	14	13	13	12	12	13	--	15
JULY																																
MAXIMUM	16	16	16	15	17	17	16	17	18	18	18	18	17	18	19	19	19	19	19	19	19	19	19	20	19	19	19	19	18	18	18	18
MINIMUM	14	16	15	14	15	16	15	15	17	18	18	17	16	17	17	18	18	18	18	18	18	18	19	19	18	17	18	18	17	17	17	17
AUGUST																																
MAXIMUM	17	18	18	18	17	17	18	19	19	19	18	17	18	19	19	18	17	18	18	19	19	18	18	18	18	17	17	--	--	--	--	18
MINIMUM	17	17	17	17	17	16	17	17	18	18	17	16	16	17	18	17	16	17	17	18	18	18	18	17	17	17	17	--	--	--	--	17
SEPTEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

14172000 CALAPOOIA RIVER AT HOLLEY, OREG.

LOCATION.--Lat 44°21'05", long 122°47'10", in SE¼ sec.15, T.14 S., R.1 W., Linn County, temperature recorder at gaging station on right bank, 200 ft downstream from bridge on State Highway 228, 0.3 mile southwest of Holley, 5.0 miles upstream from Brush Creek, and at mile 45.4.

DRAINAGE AREA.--105 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 25.0°C Aug. 14, 23; minimum, 1.0°C on several days in January.

Period of record:
Water temperatures: Maximum, 28.5°C July 3, 1967; minimum, freezing point Dec. 19, 20, 1965.

REMARKS.--Recorder stopped Feb. 8-19, Mar. 5 to Apr. 8, Apr. 12 to May 28; ranges in temperature, 3.0°C to 6.0°C, 3.0°C to 9.0°C, and 5.0°C to 18.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	DAY																															
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	15	13	13	13	13	13	13	12	11	12	12	11	11	10	9	11	11	11	11	11	11	12	11	12	12	12	11	11	11	11	10	11
MINIMUM	12	10	9	11	10	12	10	8	8	10	11	9	9	8	9	9	9	9	8	10	9	10	10	10	10	10	9	9	10	9	8	10
NOVEMBER																																
MAXIMUM	8	10	9	8	8	8	11	11	--	--	--	--	--	7	8	8	9	10	9	9	9	10	9	8	8	8	8	7	7	6	--	9
MINIMUM	7	8	8	7	7	7	8	11	--	--	--	--	--	7	7	7	7	9	8	8	8	9	8	8	7	7	7	6	6	5	--	8
DECEMBER																																
MAXIMUM	6	6	7	8	8	8	8	8	--	--	--	--	--	--	7	6	6	6	6	4	5	5	7	7	7	7	6	6	5	4	4	6
MINIMUM	6	6	6	7	7	7	7	8	--	--	--	--	--	--	6	6	5	4	4	4	4	4	5	6	6	6	5	5	4	2	2	5
JANUARY																																
MAXIMUM	6	6	7	8	8	3	8	6	6	6	6	5	6	5	5	5	5	5	6	6	6	5	4	3	1	1	1	2	2	3	2	5
MINIMUM	4	6	6	7	7	8	5	5	4	4	4	4	5	4	4	4	4	4	5	5	5	4	3	2	1	1	1	1	1	1	2	4
FEBRUARY																																
MAXIMUM	3	4	5	4	5	5	6	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	6	6	6	6	7	7	--	--	--	--
MINIMUM	2	3	3	3	3	3	4	--	--	--	--	--	--	--	--	--	--	--	--	6	5	4	5	4	4	4	4	4	--	--	--	--
MARCH																																
MAXIMUM	7	6	6	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	4	4	5	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
APRIL																																
MAXIMUM	--	--	--	--	--	--	--	--	9	10	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	7	6	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	15	16	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	13	12	--
JUNE																																
MAXIMUM	18	20	22	22	19	17	16	17	16	15	18	19	18	21	19	23	23	24	23	20	22	19	17	14	13	12	12	12	14	16	--	18
MINIMUM	13	14	15	17	17	16	14	14	14	13	14	16	17	17	17	17	17	18	18	17	16	17	14	13	12	11	11	11	11	11	--	15
JULY																																
MAXIMUM	18	16	16	17	17	15	17	19	21	21	19	18	19	20	20	21	21	22	23	22	22	23	24	23	23	23	24	20	22	23	19	20
MINIMUM	12	13	13	12	14	14	13	14	15	17	16	15	13	14	14	14	14	15	16	17	16	17	18	19	17	16	18	16	15	16	17	15
AUGUST																																
MAXIMUM	22	23	23	18	21	22	21	20	22	22	22	22	23	25	21	23	23	23	24	24	24	24	25	23	23	22	22	21	21	22	22	22
MINIMUM	16	16	16	16	14	14	15	17	16	16	17	16	17	17	18	16	15	17	18	17	18	17	18	18	16	16	17	16	14	14	15	16
SEPTEMBER																																
MAXIMUM	23	22	21	19	19	20	21	23	23	21	19	22	21	19	18	16	18	18	16	16	17	18	17	17	18	19	17	19	17	16	--	19
MINIMUM	16	16	15	13	13	13	14	17	16	17	16	14	16	14	12	13	14	15	15	14	14	14	15	14	16	15	14	14	15	14	--	15

14173500 CALAPOOIA RIVER AT ALBANY, OREG.

LOCATION.--Lat 44°37'15", long 123°07'40", in NW¼ sec.13, T.11 S., R.4 W., Linn County, temperature recorder at gaging station near right bank on downstream side of bridge on Riverside Drive in Albany, 0.6 mile downstream from Oak Creek and at mile 3.0.

DRAINAGE AREA.--372 sq mi.

PERIOD OF RECORD.--Water temperatures: January 1964 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 25.0°C July 24; minimum, freezing point sometime during period Jan. 7 to Feb. 18.

Period of record:
Water temperatures: Maximum, 28.5°C Aug. 16, 17, 19-21, 1967; minimum, freezing point sometime during period Jan. 7 to Feb. 18, 1969.

REMARKS.--Recorder stopped Dec. 10 to Jan. 6, Jan. 7 to Feb. 18, May 28 to July 7; ranges in temperature, 2.0°C to 9.0°C, 0.0°C to 9.0°C, and 13.0°C to 22.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	17	17	16	15	15	15	14	14	13	13	13	12	12	12	12	11	12	12	12	11	12	12	12	12	12	12	12	12	12	12	12	13
MINIMUM	16	15	14	14	14	14	13	13	12	12	12	12	12	12	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	11	12
NOVEMBER																																
MAXIMUM	11	10	11	11	9	9	9	11	12	12	12	12	11	10	8	8	8	9	10	10	10	10	11	11	10	9	9	9	8	8	--	10
MINIMUM	10	10	10	9	9	9	9	9	11	12	12	11	10	8	8	8	8	8	9	9	10	10	10	10	9	9	9	8	8	7	--	9
DECEMBER																																
MAXIMUM	7	7	7	7	6	6	6	8	8	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	7	7	7	6	6	6	6	6	8	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JANUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	6	6	6	5	5	5	6	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	6	6	6	6	5	4	4	5	5	--	--	--	--
MARCH																																
MAXIMUM	6	6	6	6	7	7	6	6	6	6	6	7	7	7	7	8	8	8	7	8	8	8	7	8	8	9	9	9	9	9	10	7
MINIMUM	5	6	6	6	6	6	6	6	6	5	5	6	6	6	6	7	8	7	7	7	7	7	7	7	7	8	8	9	8	8	9	7
APRIL																																
MAXIMUM	9	8	8	8	9	10	10	10	10	10	11	11	11	11	11	11	11	11	9	10	11	12	12	11	11	12	12	13	12	9	--	10
MINIMUM	8	8	7	7	8	9	9	9	9	9	9	11	9	9	9	9	10	9	9	9	9	11	11	11	9	9	11	12	9	9	--	9
MAY																																
MAXIMUM	9	10	11	11	13	14	16	17	16	16	17	17	17	15	14	14	17	17	16	15	17	19	19	19	18	17	17	--	--	--	--	15
MINIMUM	8	9	9	9	10	12	13	14	14	14	14	15	15	13	12	12	14	16	15	14	14	16	17	18	17	16	15	--	--	--	--	14
JUNE																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JULY																																
MAXIMUM	--	--	--	--	--	--	--	20	21	21	21	21	21	20	21	21	22	22	23	23	23	24	24	25	24	24	23	23	22	22	22	--
MINIMUM	--	--	--	--	--	--	--	17	18	19	19	19	18	18	18	19	19	19	20	21	20	21	21	22	22	21	21	21	19	19	19	--
AUGUST																																
MAXIMUM	21	22	22	22	21	21	21	21	21	22	21	21	22	23	22	21	21	22	22	23	23	23	23	22	22	21	20	20	19	20	21	21
MINIMUM	19	19	19	20	18	18	19	18	19	19	19	18	19	21	21	19	19	19	20	20	20	21	21	20	19	19	18	18	17	18	18	19
SEPTEMBER																																
MAXIMUM	22	22	21	19	18	19	20	20	20	21	21	21	21	19	19	18	17	17	17	16	16	16	16	17	17	17	17	17	17	17	--	18
MINIMUM	19	19	18	18	17	17	17	19	18	18	19	19	19	17	16	17	17	17	16	16	16	16	16	16	17	16	16	16	17	16	--	17

14178000 NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OREG.

LOCATION.--Lat 44°42'25", long 122°06'00", in SE¼NW¼ sec.17, T.10 S., R.6 E., Marion County, temperature recorder at gaging station on right bank, 0.5 mile downstream from Boulder Creek, 3.0 miles southeast of Detroit, and at mile 70.7.

DRAINAGE AREA.--216 sq mi.

PERIOD OF RECORD.--Water temperatures: April 1951 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 16.0°C July 19, 22, 23, 27, 28; minimum, 1.0°C on several days during January and February.

Period of record:
Water temperatures: Maximum (1951-65, 1966-69), 18.0°C July 27-29, 1968; minimum, freezing point Dec. 1, 1954, Mar. 5, 1955, Feb. 16, 17, 1956.

REMARKS.--Recorder stopped Oct. 25 to Nov. 5; range in temperature, 5.0°C to 7.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	11	9	9	9	9	9	8	8	7	8	8	8	7	7	7	8	8	8	7	7	7	8	8	8	--	--	--	--	--	--	--	--
MINIMUM	9	7	7	8	7	8	7	7	6	7	8	7	7	7	7	7	7	7	6	7	6	7	7	7	--	--	--	--	--	--	--	--
NOVEMBER																																
MAXIMUM	--	--	--	--	--	6	7	8	8	7	8	7	6	6	6	6	6	6	6	7	7	7	7	7	6	6	6	6	6	5	--	6
MINIMUM	--	--	--	--	--	5	6	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	4	--	6
DECEMBER																																
MAXIMUM	4	4	4	4	4	4	5	5	5	5	5	4	4	4	4	4	4	4	3	3	3	3	4	4	4	4	4	4	3	3	3	4
MINIMUM	4	4	4	4	4	4	4	5	5	5	4	4	4	4	4	3	3	3	3	2	2	3	3	4	4	4	4	3	3	2	2	4
JANUARY																																
MAXIMUM	4	4	4	5	5	5	5	4	4	3	3	3	4	4	3	3	3	3	4	4	4	3	3	1	1	1	1	2	1	1	1	3
MINIMUM	3	4	4	4	5	5	4	4	3	3	3	3	3	3	3	3	3	3	3	4	3	3	2	1	1	1	1	1	1	1	1	3
FEBRUARY																																
MAXIMUM	1	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	3	3	4	4	4	4	3	3	3	3	4	--	--	--	3
MINIMUM	1	1	2	3	3	2	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	--	--	--	3
MARCH																																
MAXIMUM	4	3	4	4	4	3	4	4	3	3	3	4	4	4	4	4	4	4	5	6	6	4	6	6	6	6	6	6	6	6	6	5
MINIMUM	3	3	3	3	2	2	3	2	2	2	2	2	2	2	3	3	4	3	3	3	3	4	4	3	3	4	4	4	4	4	4	3
APRIL																																
MAXIMUM	6	5	6	6	6	6	7	7	5	7	7	5	6	6	6	6	6	6	4	7	7	7	6	5	6	7	7	6	5	5	--	6
MINIMUM	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	3	3	4	--	4
MAY																																
MAXIMUM	5	5	6	8	9	9	9	9	8	8	8	8	6	6	8	8	9	7	6	9	9	9	9	8	8	7	7	9	8	9	9	8
MINIMUM	4	4	4	4	4	5	5	4	5	5	5	5	6	6	5	6	6	6	6	6	6	6	6	6	6	7	6	6	7	7	6	5
JUNE																																
MAXIMUM	11	11	12	13	12	11	10	11	10	10	13	13	14	14	14	14	14	14	15	14	14	12	12	11	11	10	9	9	13	14	--	12
MINIMUM	7	7	8	9	9	9	9	9	9	9	9	10	10	10	10	10	10	10	11	11	11	11	11	10	9	9	9	9	9	9	--	9
JULY																																
MAXIMUM	14	12	11	13	14	14	14	15	15	14	13	13	14	13	13	13	14	14	16	15	15	16	16	14	15	15	16	16	14	14	14	14
MINIMUM	10	11	10	9	9	10	10	11	10	11	11	10	9	9	9	9	9	9	11	11	10	10	11	12	11	10	11	11	10	10	10	10
AUGUST																																
MAXIMUM	14	14	14	12	13	13	13	13	14	13	13	13	14	14	14	14	13	13	14	14	14	14	14	14	13	13	12	12	12	11	12	13
MINIMUM	11	9	9	10	9	8	9	9	9	9	10	9	9	11	11	10	9	10	10	10	10	10	11	11	10	9	10	9	8	9	9	10
SEPTEMBER																																
MAXIMUM	13	13	12	12	11	11	12	12	11	13	13	13	13	12	11	10	11	10	11	10	10	10	11	10	11	11	11	9	11	10	--	11
MINIMUM	9	9	9	8	8	8	9	9	10	10	10	10	10	8	8	8	9	9	10	9	9	9	9	9	9	9	9	8	9	9	--	9

14179000 BREITENBUSH RIVER ABOVE CANYON CREEK, NEAR DETROIT, OREG.

LOCATION.—Lat 44°45'10", long 122°07'40", in SE¼NE¼ sec.36, T.9 S., R.5 E., Marion County, temperature recorder at gaging station on left bank, 600 ft upstream from Canyon Creek, 1.5 miles northeast of Detroit, and at mile 2.0.

DRAINAGE AREA.—106 sq mi.

PERIOD OF RECORD.—Water temperatures: December 1950 to July 1961, January 1962 to September 1969.

EXTREMES.—1968-69:
Water temperatures: Maximum, 16.0°C July 23, 27, 28; minimum, 1.0°C on several days during December to February.

Period of record:
Water temperatures: Maximum, 17.0°C on several days in July and August 1968; minimum, 1.0°C on several days during December to February each year.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	11	10	9	10	10	9	9	9	8	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9
MINIMUM	10	8	8	9	9	9	9	8	7	8	9	8	8	8	8	8	8	8	7	8	8	8	8	8	8	7	7	8	8	8	7	8
NOVEMBER																																
MAXIMUM	7	8	8	7	6	7	7	8	8	8	8	8	7	7	6	6	7	7	7	7	7	7	7	7	7	6	6	7	6	6	--	7
MINIMUM	6	7	7	6	6	6	7	7	8	7	8	7	7	6	6	6	6	7	7	7	7	7	7	7	7	6	6	6	6	4	--	6
DECEMBER																																
MAXIMUM	4	4	5	6	6	6	6	6	6	6	6	5	5	5	5	5	4	4	3	3	3	3	4	5	5	5	4	4	3	3	2	5
MINIMUM	4	4	4	5	6	6	5	6	6	6	5	5	5	5	5	4	4	3	3	3	3	2	3	4	5	4	4	3	3	1	1	4
JANUARY																																
MAXIMUM	4	4	4	5	5	5	6	5	4	3	3	3	3	3	3	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	1	3
MINIMUM	2	3	4	4	5	5	4	4	3	3	3	2	2	3	3	2	2	2	2	3	3	2	1	1	1	1	1	1	1	1	1	2
FEBRUARY																																
MAXIMUM	1	2	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	3	3	3	4	--	--	--	3
MINIMUM	1	1	2	3	3	2	3	3	2	3	2	3	3	3	3	4	3	3	3	3	3	3	4	3	2	3	3	3	--	--	--	3
MARCH																																
MAXIMUM	4	4	4	4	4	3	4	4	4	3	4	4	4	4	4	4	4	4	5	6	6	4	6	6	6	6	6	6	5	6	5	5
MINIMUM	4	3	3	4	2	2	3	3	3	2	2	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	4
APRIL																																
MAXIMUM	6	5	6	6	6	6	6	6	5	7	7	6	6	6	7	7	6	6	6	7	7	7	6	6	6	7	7	6	5	6	--	6
MINIMUM	5	5	4	5	5	5	5	4	4	5	4	5	5	5	6	5	6	6	6	6	5	5	5	5	4	4	4	4	4	4	--	5
MAY																																
MAXIMUM	6	6	6	8	8	8	8	8	8	8	8	8	6	6	8	8	9	7	6	9	9	9	9	8	8	7	7	8	7	8	9	8
MINIMUM	4	5	5	4	5	5	5	5	5	5	5	6	6	5	5	5	5	6	6	6	6	7	6	6	6	6	6	6	7	6	6	5
JUNE																																
MAXIMUM	10	11	11	11	11	10	9	9	9	11	12	12	12	12	12	13	13	13	13	13	13	11	10	9	9	8	9	8	11	12	--	11
MINIMUM	6	7	7	8	8	8	8	8	8	8	8	9	9	8	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	--	8
JULY																																
MAXIMUM	13	12	11	12	13	13	14	14	14	14	13	13	14	13	13	13	14	14	15	15	15	15	16	14	15	15	16	16	15	15	15	14
MINIMUM	9	10	9	9	9	9	10	10	11	11	11	11	9	9	9	9	10	10	11	11	11	11	11	12	12	11	12	12	11	11	11	10
AUGUST																																
MAXIMUM	15	14	14	14	13	13	13	13	14	14	14	13	14	14	14	14	13	14	14	14	14	14	15	14	14	14	13	13	12	13	13	14
MINIMUM	12	11	11	11	11	10	11	10	11	11	11	11	11	12	12	11	11	12	12	11	12	12	12	12	12	11	11	11	9	11	11	11
SEPTEMBER																																
MAXIMUM	13	13	13	12	11	11	12	12	13	12	13	12	12	11	10	10	10	11	11	10	10	11	11	10	11	11	10	11	11	10	--	11
MINIMUM	11	11	11	9	8	9	9	11	11	11	11	11	11	9	8	9	9	10	10	9	9	9	10	9	10	9	9	9	9	9	--	10

14181500 NORTH SANTIAM RIVER AT NIAGARA, OREG.

LOCATION.--Lat 44°45'10", long 122°17'50", in NE¼NE¼ sec.34, T.9 S., R.4 E., Linn County, temperature recorder at gaging station on left bank, 0.1 mile downstream from Little Sardine Creek, 0.8 mile downstream from Big Cliff Dam, 2.1 miles east of Niagara, and at mile 57.3.

DRAINAGE AREA.--453 sq mi.

PERIOD OF RECORD.--Water temperatures: January 1953 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 13.0°C Sept. 19-30; minimum, 3.0°C Jan. 24 to Feb. 10.

Period of record:
Water temperatures: Maximum, 16.5°C July 28, 29, 1958; minimum, 1.5°C on several days during January and February 1957.

REMARKS.--Recorder stopped May 27 to June 30; range in temperature, 6.0°C to 11.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	--	--	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	12	12	12	11	11	11	12	12	12	12	12	12	12	12
MINIMUM	--	--	12	12	12	12	12	12	12	12	12	12	12	12	12	10	10	11	12	12	11	11	11	11	11	12	12	12	12	12	12	11
NOVEMBER																																
MAXIMUM	12	12	12	11	11	11	11	11	11	11	11	11	10	10	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	--	10
MINIMUM	12	12	11	11	11	11	11	11	11	11	11	10	10	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	--	10
DECEMBER																																
MAXIMUM	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	6	5	5	4	4	4	6
MINIMUM	8	8	8	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	4	4	4	4	6
JANUARY																																
MAXIMUM	4	4	4	4	4	4	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	4
MINIMUM	4	4	4	4	4	4	4	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	4
FEBRUARY																																
MAXIMUM	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	--	4
MINIMUM	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	--	4
MARCH																																
MAXIMUM	5	5	5	5	5	5	4	4	4	4	4	4	4	4	5	5	5	5	6	5	5	5	5	5	5	5	5	6	6	6	6	5
MINIMUM	4	5	5	5	5	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	5
APRIL																																
MAXIMUM	6	6	6	6	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	6	6	7	7	7	6	--	6
MINIMUM	6	6	6	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	--	6
MAY																																
MAXIMUM	6	6	6	6	6	6	6	6	6	6	6	7	7	7	8	8	8	7	7	7	8	11	10	8	9	8	--	--	--	--	--	7
MINIMUM	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	6	6	7	7	8	8	7	7	7	--	--	--	--	--	6
JUNE																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JULY																																
MAXIMUM	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	9	9	9	9	9
MINIMUM	8	8	8	8	8	8	9	9	9	9	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
AUGUST																																
MAXIMUM	9	9	9	9	9	9	9	9	9	10	10	10	11	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10
MINIMUM	9	9	9	9	9	9	9	9	9	9	10	10	10	10	10	10	11	11	11	11	11	11	10	10	11	11	11	11	11	11	11	10
SEPTEMBER																																
MAXIMUM	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13	--	12
MINIMUM	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	--	12

14185000 SOUTH SANTIAM RIVER BELOW CASCADIA, OREG.

LOCATION.--Lat 44°23'30", long 122°29'50", in SW¼ sec.31, T.13 S., R.3 W., Linn County, temperature recorder 0.7 mile upstream from gaging station on left bank, 1.0 miles southwest of Cascadia, and at mile 2.

DRAINAGE AREA.--174 sq mi (at gaging station).

PERIOD OF RECORD.--Water temperatures: June 1963 to July 1967, February to September 1969.

EXTREMES.--February to September 1969:
Water temperatures: Maximum, 19.0°C on several days during July and August.

Period of record:
Water temperatures: Maximum, 25.0°C July 30, Aug. 7, 1965; minimum, 0.5°C sometime during period Jan. 11-24, 1962.

REMARKS.--Recorder stopped Feb. 22 to Apr. 8; range in temperature, 3.0°C to 8.0°C.

TEMPERATURE (°C) OF WATER, FEBRUARY TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	5	5	--	--	--	--	--	--	--	--	--	--	--
MARCH																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
APRIL																																
MAXIMUM	--	--	--	--	--	--	--	--	7	8	8	8	6	7	7	7	7	6	6	8	9	8	8	7	7	8	9	8	6	6	--	--
MINIMUM	--	--	--	--	--	--	--	--	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	6	6	6	6	6	5	5	--	--
MAY																																
MAXIMUM	6	7	7	8	9	11	10	9	9	9	9	9	7	6	8	9	11	10	7	9	11	11	11	10	9	9	8	9	9	11	11	9
MINIMUM	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	8	8	8	8	7	7	9	9	9	7
JUNE																																
MAXIMUM	13	14	14	14	13	13	12	12	12	11	14	16	16	17	17	18	18	18	18	18	17	17	14	12	11	11	10	10	12	13	--	14
MINIMUM	9	10	11	12	12	11	11	11	11	11	11	12	13	14	14	14	14	15	16	15	14	14	12	11	10	10	10	10	10	10	--	12
JULY																																
MAXIMUM	15	14	13	14	15	14	16	17	17	18	18	17	17	17	17	17	17	18	18	18	18	19	19	19	18	18	19	18	19	18	18	17
MINIMUM	11	12	11	11	12	12	12	13	14	15	16	15	13	15	14	15	14	15	16	16	16	16	17	18	16	16	17	16	16	16	16	14
AUGUST																																
MAXIMUM	18	18	18	17	16	17	17	18	18	18	16	17	18	19	18	18	18	18	19	19	19	19	19	18	18	18	18	17	16	17	17	18
MINIMUM	16	16	16	14	13	14	14	14	16	16	16	14	16	17	17	16	15	16	17	16	17	17	17	17	16	16	16	16	14	14	14	15
SEPTEMBER																																
MAXIMUM	18	18	17	16	14	15	16	16	17	18	18	18	17	16	14	14	14	14	14	13	13	14	14	13	14	14	14	14	14	14	--	15
MINIMUM	16	16	15	14	12	12	13	14	14	16	16	16	16	13	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	--	14

14185800 MIDDLE SANTIAM RIVER NEAR CASCADIA, OREG.

LOCATION.--Lat 44°30'55", long 122°22'15", in NE¼ sec.19, T.12 S., R.4 E., Linn County, temperature recorder at gaging station on right bank, 5.6 miles downstream from Bear Creek, 10 miles northeast of Cascadia, and at mile 17.5.

DRAINAGE AREA.--104 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C Aug. 23.

Period of record:
Water temperatures: Maximum, 21.0°C July 30, 1965, July 28, 1968; minimum (1963-68), 0.5°C Dec. 23, 24, 1965.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
OCTOBER																																
MAXIMUM	12	11	9	10	10	10	10	9	8	9	9	9	9	9	8	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	9
MINIMUM	11	9	9	9	9	10	9	8	8	8	9	9	8	8	8	8	8	8	8	8	7	8	8	8	8	8	8	8	8	8	7	8
NOVEMBER																																
MAXIMUM	7	8	8	7	7	7	8	9	9	8	9	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	--	7
MINIMUM	6	7	7	7	6	6	7	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	4	--	7
DECEMBER																																
MAXIMUM	5	4	5	6	6	6	6	6	6	6	6	5	5	5	5	5	4	4	3	3	3	3	4	5	5	5	5	4	4	4	4	5
MINIMUM	4	4	4	5	6	6	6	6	6	6	5	5	5	5	5	3	3	3	3	3	3	3	3	4	5	5	4	4	4	3	3	4
JANUARY																																
MAXIMUM	4	5	5	6	6	6	6	5	5	4	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	4	4	5	5	6	6	5	5	4	4	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MARCH																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	3	3	3	3	3	3	3	3	4	4	4	4	4	3	3	3	3	3	4	4	4	--
APRIL																																
MAXIMUM	4	4	4	5	5	5	5	5	5	6	6	6	5	6	6	6	6	5	5	6	6	6	6	5	5	6	6	6	4	4	--	5
MINIMUM	4	4	4	4	4	4	4	4	3	4	4	5	4	4	5	4	5	4	4	4	4	5	5	4	4	4	4	4	4	4	--	4
MAY																																
MAXIMUM	4	5	5	6	7	7	7	7	7	7	7	7	6	6	7	7	8	7	6	8	8	9	9	8	8	7	7	8	8	9	9	7
MINIMUM	4	4	4	4	4	5	5	5	5	5	5	6	6	6	5	6	6	6	6	6	6	6	7	7	6	7	6	6	7	8	8	6
JUNE																																
MAXIMUM	11	12	12	13	12	12	11	11	11	11	13	13	14	14	14	14	15	16	16	16	15	14	12	11	10	9	9	9	11	12	--	12
MINIMUM	8	9	9	10	11	11	10	9	10	10	9	11	12	12	12	12	12	13	13	13	13	12	11	10	9	9	8	8	9	9	--	10
JULY																																
MAXIMUM	13	13	11	12	13	12	13	14	15	15	14	13	13	13	13	14	14	15	16	17	16	17	17	17	17	17	17	17	17	17	17	15
MINIMUM	11	11	10	10	11	11	11	12	12	13	13	12	11	11	11	11	12	12	14	14	14	14	14	16	15	14	15	16	16	15	15	13
AUGUST																																
MAXIMUM	17	17	16	16	15	15	16	16	17	17	16	16	17	18	17	17	17	17	17	17	18	18	19	18	17	17	17	15	14	15	16	17
MINIMUM	15	15	14	13	13	13	14	14	15	15	14	13	14	16	16	16	14	16	16	15	16	16	17	16	15	15	14	14	12	13	14	15
SEPTEMBER																																
MAXIMUM	17	16	16	14	13	14	14	15	16	16	16	16	16	14	13	13	13	13	13	12	13	13	13	13	12	13	13	13	12	12	12	--	14
MINIMUM	14	14	14	12	12	12	13	14	14	14	14	14	14	12	11	12	13	13	12	12	12	12	12	12	12	12	12	12	12	12	12	--	13

14185900 QUARTZVILLE CREEK NEAR CASCADIA, OREG.

LOCATION.--Lat 44°32'25", long 122°26'05", in NW¼ sec.10, T.12 S., R.3 E., Linn County, temperature recorder at gaging station on right bank, 80 ft downstream from Panther Creek, 10 miles north of Cascadia, and at mile 6.6.

DRAINAGE AREA.--99.2 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1963 to November 1964, October 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C sometime during period Aug. 13 to Sept. 30; minimum, freezing point on several days during January and February.

Period of record:
Water temperatures: Maximum, 24.0°C July 28, 1968; minimum, freezing point on several days during January and February 1969.

REMARKS.--Recorder stopped Nov. 28 to Dec. 19, June 15-23, June 30 to Aug. 13, Aug. 14 to Sept. 30; ranges in temperature, 2.0°C to 6.0°C, 13.0°C to 18.0°C, 10.0°C to 18.0°C, and 11.0°C to 21.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	DAY																															
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	11	11	11	12	11	11	9	9	11	9	9	9	8	8	9	9	9	8	8	8	9	9	10	9	8	9	9	8	8	7	9
MINIMUM	11	8	8	10	9	10	9	7	8	9	9	8	8	7	7	8	7	8	7	8	7	8	8	8	8	7	7	7	8	7	6	8
NOVEMBER																																
MAXIMUM	7	8	8	7	7	7	8	9	9	8	9	7	7	6	6	6	7	7	8	8	8	8	8	7	6	6	6	--	--	--	--	7
MINIMUM	4	7	6	6	6	5	7	8	7	7	7	6	6	5	5	6	6	7	7	7	7	7	7	6	6	5	6	--	--	--	--	6
DECEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4	3	3	5	6	6	5	5	4	3	3	3	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	3	3	3	5	5	5	4	3	3	2	2	--
JANUARY																																
MAXIMUM	4	4	5	6	6	7	7	5	5	4	4	3	3	4	3	3	2	3	3	3	3	3	3	2	1	1	1	0	0	0	0	3
MINIMUM	3	4	4	5	6	6	5	5	4	4	3	3	3	3	3	2	2	2	3	3	3	3	1	1	1	0	0	0	0	0	0	3
FEBRUARY																																
MAXIMUM	0	1	2	2	2	2	3	3	3	3	3	3	4	3	4	4	4	5	6	4	5	5	5	4	4	4	4	5	--	--	--	3
MINIMUM	0	0	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	3	3	3	3	4	--	--	--	3
MARCH																																
MAXIMUM	5	4	4	6	4	3	4	6	5	5	6	6	6	6	6	6	5	4	6	6	7	5	6	7	7	7	7	6	6	6	5	5
MINIMUM	4	4	4	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
APRIL																																
MAXIMUM	6	4	4	6	6	5	6	6	4	6	6	5	6	5	6	6	4	6	7	7	8	7	6	6	7	7	7	6	6	6	--	6
MINIMUM	4	4	3	4	4	4	4	4	4	3	3	4	4	4	4	4	4	4	4	5	6	6	5	4	4	6	6	4	4	4	--	4
MAY																																
MAXIMUM	6	6	7	8	9	9	9	9	9	9	10	10	8	8	9	9	11	10	9	11	11	12	12	12	11	11	11	11	11	12	12	10
MINIMUM	4	5	5	6	7	7	7	7	8	8	8	8	8	7	7	8	8	8	8	9	10	10	10	11	11	10	9	9	11	11	10	8
JUNE																																
MAXIMUM	13	13	14	15	15	14	13	13	13	13	14	15	16	16	--	--	--	--	--	--	--	--	--	13	11	10	9	9	10	--	--	--
MINIMUM	11	11	12	13	14	13	13	13	13	12	12	14	14	15	--	--	--	--	--	--	--	--	--	11	10	9	8	8	8	--	--	--
JULY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AUGUST																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEPTEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

14186700 SOUTH SANTIAM RIVER AT FOSTER, OREG.

LOCATION.--Lat 44°24'50", long 122°40'25", in NE¼NW¼ sec.27, T.13 S., R.1 E., Linn County, temperature recorder at gaging station on left bank, 300 ft upstream from Wiley Creek, 0.2 mile below Foster Reservoir, 0.5 mile north of town of Foster, and at mile 37.5.

DRAINAGE AREA.--493 sq mi.

PERIOD OF RECORD.--Water temperatures: November 1966 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 13.0°C on many days during August and September; minimum, 3.0°C sometime during period Dec. 25 to Feb. 17.

Period of record:
Water temperatures: Maximum, 16.0°C Oct. 2, 1967; minimum, 3.0°C sometime during period Dec. 25, 19[illegible] to Feb. 17, 1969.

REMARKS.--Recorder stopped Oct. 13 to Nov. 6, Nov. 9 to Dec. 19, Dec. 25 to Feb. 17; ranges in temperature, 11.0°C to 13.0°C, 6.0°C to 11.0°C, and 3.0°C to 7.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	--	--	12	12	12	12	12	12	12	11	12	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	10	11	11	11	11	10	11	10	11	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NOVEMBER																																
MAXIMUM	--	--	--	--	--	--	11	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	11	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DECEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	6	6	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	6	6	--	--	--	--	--	--	--	--
JANUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	6	6	6	6	5	5	5	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	5	5	5	6	6	5	4	4	4	--	--	--	--
MARCH																																
MAXIMUM	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	6
MINIMUM	4	4	5	4	6	6	5	6	6	6	5	6	5	5	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	6
APRIL																																
MAXIMUM	8	8	8	8	8	8	8	8	8	8	8	8	7	7	8	8	8	8	8	8	8	7	7	8	8	9	7	7	8	7	--	8
MINIMUM	7	7	7	8	7	7	7	6	7	7	6	6	6	7	7	7	7	7	7	7	6	6	6	7	7	7	6	6	6	6	--	7
MAY																																
MAXIMUM	7	7	7	7	8	8	9	9	9	9	9	10	9	9	9	9	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
MINIMUM	6	6	6	6	6	6	6	7	8	7	7	7	8	8	7	7	7	7	8	7	7	7	7	8	8	8	8	7	8	8	8	7
JUNE																																
MAXIMUM	9	9	9	9	9	9	9	9	10	10	10	10	10	10	10	11	11	11	11	11	11	11	12	12	12	12	12	11	11	11	--	10
MINIMUM	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	9	10	11	11	12	11	11	11	9	9	--	9
JULY																																
MAXIMUM	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11
MINIMUM	9	10	10	9	9	10	10	10	10	10	10	11	11	11	11	11	11	11	11	11	12	11	11	12	12	12	12	12	12	12	12	11
AUGUST																																
MAXIMUM	12	12	12	12	13	13	13	13	13	12	12	13	13	13	13	13	13	12	13	13	13	13	13	13	13	13	13	13	12	12	12	13
MINIMUM	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	11	11	11	12
SEPTEMBER																																
MAXIMUM	12	13	13	13	13	13	12	12	12	12	12	12	12	12	12	11	12	12	11	11	11	11	11	11	11	11	11	11	11	11	--	12
MINIMUM	11	11	12	12	12	11	11	11	11	11	11	11	11	11	10	11	11	10	11	11	11	11	11	11	11	10	11	11	11	11	--	11

14187500 SOUTH SANTIAM RIVER AT WATERLOO, OREG.

LOCATION.--Lat 44°29'55", long 122°49'20", in SW¼NW¼ sec.28, T.12 S., R.1 W., Linn County, temperature recorder at gaging station on left bank, 0.1 mile downstream from highway bridge at Waterloo, 2.1 miles upstream from Hamilton Creek, and at mile 23.3.

DRAINAGE AREA.--640 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 17.0°C on several days during July and August; minimum, 3.0°C Jan. 25, 26.

Period of record:
Water temperatures: Maximum, 26.0°C Aug. 4, 1966; minimum, 1.5°C Dec. 18-20, 1965.

REMARKS.--Recorder stopped Nov. 6 to Dec. 22; range in temperature, 5.0°C to 12.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	11	11	11	12	12	11	11	12	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	12	12	13	13	12	12	12	11
MINIMUM	10	9	10	11	9	11	11	9	9	11	11	11	11	11	10	10	11	11	11	11	11	12	12	12	12	12	12	12	12	12	12	11
NOVEMBER																																
MAXIMUM	12	12	12	11	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	12	12	11	11	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DECEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	7	7	7	7	7	6	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	6	7	7	7	6	6	--
JANUARY																																
MAXIMUM	6	6	6	7	7	8	8	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	5	5	4	4	4	4	4	4	6
MINIMUM	6	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	5	5	3	3	4	4	4	4	4	6
FEBRUARY																																
MAXIMUM	4	4	5	4	4	4	4	4	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	--	--	--	5
MINIMUM	4	4	4	4	4	4	4	4	4	4	6	6	5	6	6	6	6	6	6	6	6	6	6	5	5	6	5	5	--	--	--	5
MARCH																																
MAXIMUM	6	6	6	6	7	6	6	7	7	6	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	9	9	9	8	9	9	7
MINIMUM	6	6	6	6	6	6	6	6	6	5	5	6	6	6	6	7	7	7	6	7	7	7	6	6	7	7	7	7	8	8	8	6
APRIL																																
MAXIMUM	8	8	8	8	8	8	9	9	9	10	10	9	8	8	9	10	10	9	8	9	9	8	9	9	10	12	11	10	9	9	--	9
MINIMUM	7	7	7	8	8	7	7	8	8	8	8	8	7	8	8	8	8	8	8	7	8	8	8	8	8	8	9	8	7	8	--	8
MAY																																
MAXIMUM	8	9	8	10	11	12	12	12	11	11	11	11	9	9	11	11	12	11	10	11	12	12	12	10	11	11	11	11	11	12	11	11
MINIMUM	8	8	8	7	8	8	8	9	9	9	9	9	9	9	9	8	8	9	9	9	9	9	9	10	9	9	9	9	9	9	9	9
JUNE																																
MAXIMUM	12	13	12	13	12	11	11	11	11	11	13	12	12	14	14	14	15	15	15	15	14	14	12	12	12	12	11	11	12	12	--	13
MINIMUM	9	9	10	10	11	10	10	10	11	11	11	11	11	11	11	11	12	12	12	12	12	12	12	12	12	11	11	11	11	11	--	11
JULY																																
MAXIMUM	14	12	12	13	13	13	13	15	16	16	16	15	16	16	16	16	16	16	16	16	16	17	17	17	16	16	17	16	16	16	16	15
MINIMUM	11	11	11	11	12	12	12	12	12	13	14	13	13	13	13	13	13	14	14	14	14	14	15	15	14	13	14	14	13	13	13	13
AUGUST																																
MAXIMUM	16	16	16	16	15	15	14	16	17	17	15	16	17	17	17	16	16	16	16	16	16	16	16	14	14	13	13	13	14	14	14	15
MINIMUM	13	14	13	13	12	13	13	13	14	14	14	13	14	15	14	13	13	14	15	13	13	13	13	12	12	12	12	12	11	12	12	13
SEPTEMBER																																
MAXIMUM	14	14	14	13	14	14	13	13	13	13	13	13	12	13	12	12	12	12	12	12	12	12	12	12	13	13	13	13	13	12	--	13
MINIMUM	12	12	12	12	12	12	11	12	11	11	11	11	12	11	10	11	11	12	12	12	12	12	12	11	12	12	11	12	12	11	--	11

14188800 THOMAS CREEK NEAR SCIO, OREG.

LOCATION.--Lat 44°42'40", long 122°45'45", in SE¼ sec.11, T.10 S., R.1 W., Linn County, temperature recorder at gaging station on left bank, 0.3 mile upstream from bridge on State highway, 1.6 miles upstream from Mill Creek, 4.2 miles east of Scio, and at mile 14.6.

DRAINAGE AREA.--109 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1962 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 23.0°C on several days during June to August; minimum, 1.0°C Jan. 24-28.

Period of record:
Water temperatures: Maximum, 28.0°C Aug. 16, 1967; minimum, 0.5°C Jan. 11-14, 1963.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	14	13	11	11	11	11	11	10	9	10	10	10	9	9	9	9	10	10	9	9	9	10	10	10	10	10	10	10	10	10	9	10
MINIMUM	12	8	9	11	9	11	9	8	8	9	10	9	9	9	9	9	9	9	8	9	8	9	9	9	9	9	9	9	9	9	8	9
NOVEMBER																																
MAXIMUM	8	9	9	8	8	8	9	9	9	9	9	9	8	8	7	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	--	8
MINIMUM	8	8	8	7	7	7	8	9	9	8	9	8	8	7	7	7	8	8	8	8	8	8	8	8	8	7	7	7	6	6	--	8
DECEMBER																																
MAXIMUM	6	6	7	7	6	6	7	7	7	7	7	6	6	6	7	6	6	6	6	5	4	4	6	6	6	6	6	6	5	4	3	6
MINIMUM	6	6	6	6	6	6	6	7	7	7	6	6	6	6	6	6	6	6	5	4	4	4	4	6	6	6	6	5	4	2	2	5
JANUARY																																
MAXIMUM	5	6	6	6	7	7	7	6	5	5	5	5	5	5	5	4	4	4	4	4	4	4	3	2	1	1	2	2	2	3	3	4
MINIMUM	3	5	6	6	6	6	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	3	2	1	1	1	1	1	2	2	2	4
FEBRUARY																																
MAXIMUM	3	3	3	3	3	4	4	5	4	5	5	5	5	6	6	6	5	5	5	4	4	4	4	4	4	4	4	5	--	--	--	4
MINIMUM	2	3	3	3	3	3	3	3	3	4	5	5	4	4	5	5	4	4	4	4	4	3	4	3	3	3	3	4	--	--	--	4
MARCH																																
MAXIMUM	6	5	5	5	5	4	5	5	5	5	5	6	6	6	8	7	7	6	7	7	7	7	7	7	8	8	8	8	8	8	8	6
MINIMUM	4	4	4	4	4	4	4	3	3	3	3	4	4	4	4	6	6	6	6	6	5	6	4	4	4	5	6	6	6	7	7	5
APRIL																																
MAXIMUM	8	8	7	8	8	8	9	9	9	11	11	11	9	9	11	10	10	9	8	9	11	11	10	9	9	11	12	11	8	8	--	9
MINIMUM	7	7	6	7	8	7	6	6	7	7	8	8	7	8	8	8	9	8	8	7	8	8	8	7	7	7	8	8	7	7	--	7
MAY																																
MAXIMUM	8	9	10	12	13	14	14	13	13	14	14	14	14	11	13	14	16	15	12	13	17	17	17	17	14	13	13	13	13	13	14	13
MINIMUM	7	7	8	7	9	10	10	10	10	10	11	11	11	9	9	11	11	11	10	10	11	13	14	14	12	12	11	11	12	12	11	10
JUNE																																
MAXIMUM	18	19	20	20	19	17	16	16	16	15	17	17	18	20	20	22	23	23	22	21	19	19	17	14	13	13	12	12	14	15	--	17
MINIMUM	12	14	16	17	17	16	14	14	15	14	14	16	16	17	17	17	18	19	18	18	17	17	14	13	12	12	11	11	11	12	--	15
JULY																																
MAXIMUM	17	16	14	16	17	17	16	18	21	21	19	18	19	19	20	20	21	21	22	21	21	22	22	23	22	21	22	21	21	21	21	20
MINIMUM	13	14	13	13	14	14	14	13	15	17	18	17	16	16	16	17	17	17	18	18	17	18	19	21	19	18	19	19	17	18	18	16
AUGUST																																
MAXIMUM	21	22	21	19	18	19	18	21	22	21	19	19	21	23	21	21	21	22	22	23	22	23	23	21	21	19	18	19	18	20	21	21
MINIMUM	17	18	18	17	15	16	17	16	17	18	17	16	17	18	19	17	16	18	19	18	18	18	18	18	17	16	16	16	14	14	16	17
SEPTEMBER																																
MAXIMUM	22	21	18	17	18	18	19	19	19	20	21	20	19	18	16	15	17	17	16	15	14	16	16	16	16	16	15	16	16	15	--	17
MINIMUM	17	17	16	15	13	14	15	17	16	16	17	17	17	14	12	14	15	16	15	14	14	15	16	13	15	14	14	14	15	14	--	15

14189000 SANTIAM RIVER AT JEFFERSON, OREG.

LOCATION.--Lat 44°42'55", long 123°00'40", in SE¼ sec.11, T.10 S., R.3 W., Marion County, temperature recorder at gaging station on right bank, 350 ft upstream from Southern Pacific railroad bridge at Jefferson, 2.1 miles downstream from confluence of North and South Santiam Rivers, and at mile 9.62.

DRAINAGE AREA.--1,790 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: October 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C July 23, 24, Aug. 14; minimum, 1.0°C Jan. 26.

Period of record:
Water temperatures: Maximum (1963-64, 1967-69), 22.0°C July 8, 27-29, 31, 1968, July 23, 24, Aug. 14, 1969; minimum, 1.0°C Jan. 26, 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	13	12	13	13	12	12	12	12	12	12	12	11	11	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11
MINIMUM	12	11	11	12	12	12	11	11	11	11	12	11	11	10	10	10	9	10	10	11	10	10	10	10	11	11	11	11	11	10	9	11
NOVEMBER																																
MAXIMUM	9	10	10	9	9	9	9	10	10	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	--	9
MINIMUM	9	9	9	8	9	9	9	9	9	8	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	--	8
DECEMBER																																
MAXIMUM	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	4	6
MINIMUM	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	4	4	6
JANUARY																																
MAXIMUM	5	6	6	6	6	6	7	5	6	6	6	6	5	5	5	5	5	5	5	5	5	5	4	3	3	2	2	3	3	3	3	5
MINIMUM	4	5	6	6	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	3	3	2	1	2	2	2	3	3	4
FEBRUARY																																
MAXIMUM	3	4	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	5	5	6	6	6	6	5	4	4	6	--	--	--	5
MINIMUM	3	3	4	4	4	4	4	4	4	4	5	5	4	5	5	6	6	4	4	5	5	5	5	5	4	4	4	4	--	--	--	4
MARCH																																
MAXIMUM	6	6	6	6	6	6	6	6	6	6	6	6	7	7	8	7	8	7	7	7	8	8	7	7	8	8	8	8	8	9	9	7
MINIMUM	6	6	6	6	6	6	5	5	5	5	5	5	6	6	6	7	7	6	6	6	7	7	6	7	7	7	7	7	7	7	8	6
APRIL																																
MAXIMUM	8	7	7	7	8	9	9	9	9	10	10	10	9	9	10	9	9	8	8	9	10	10	9	9	9	10	11	11	8	7	--	9
MINIMUM	7	7	6	7	7	8	7	8	8	8	9	9	8	8	8	8	8	8	7	7	8	9	9	8	7	8	9	8	7	7	--	8
MAY																																
MAXIMUM	8	9	9	10	12	12	12	12	11	10	10	10	9	8	9	9	11	11	8	9	10	12	12	11	9	9	11	10	9	11	11	10
MINIMUM	7	8	8	8	9	9	11	11	9	8	8	8	8	8	7	8	8	8	7	7	8	9	9	9	8	8	9	8	9	9	9	8
JUNE																																
MAXIMUM	12	12	13	13	13	11	11	13	12	12	15	14	14	14	14	16	16	16	16	16	16	16	14	13	12	11	11	11	13	13	--	13
MINIMUM	9	9	10	11	11	11	10	11	11	11	12	14	13	13	13	13	13	14	14	14	12	14	13	12	11	10	10	11	11	11	--	12
JULY																																
MAXIMUM	15	15	13	14	14	14	14	16	18	18	17	16	18	18	18	19	19	19	20	20	19	21	22	22	21	20	21	20	19	21	20	18
MINIMUM	12	13	12	12	13	13	13	13	15	16	16	15	14	15	15	16	16	16	17	17	16	17	18	18	17	16	17	17	16	17	17	15
AUGUST																																
MAXIMUM	19	21	20	19	17	17	17	19	20	19	19	18	20	22	21	18	18	19	19	18	19	19	18	18	17	17	16	16	16	17	17	18
MINIMUM	16	17	17	17	14	14	15	16	16	17	17	15	16	17	18	16	16	17	17	16	16	17	17	16	16	14	14	15	14	14	15	16
SEPTEMBER																																
MAXIMUM	17	17	16	15	15	16	16	16	16	17	17	17	17	16	15	14	15	15	15	15	15	16	16	15	16	16	16	16	16	15	--	16
MINIMUM	15	15	14	14	14	14	15	16	14	14	16	15	16	14	13	14	14	15	15	14	14	14	15	14	14	14	14	14	15	14	--	14

14190000 LUCKIAMUTE RIVER AT PEDEE, OREG.

LOCATION.--Lat 44°44'35", long 123°25'25", in SE¼ sec.33, T.9 S., R.6 W., Polk County, temperature recorder at gaging station on left bank, 0.5 mile downstream from Pedee Creek, 1.0 mile southwest of Pedee, and at mile 29.7.

DRAINAGE AREA.--115 sq mi.

PERIOD OF RECORD.--Water temperatures: March 1964 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C July 23, 24; minimum, 2.0°C Jan. 26, 27.

Period of record:
Water temperatures: Maximum (1964-66, 1967-69), 23.0°C July 29, Aug. 1-3, 1966, July 28, 29, 31, 1968; minimum, 2.0°C Jan. 26, 27, 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	12	12	13	12	11	11	11	10	9	9	9	9	9	9	10	10	10	10	11	11	11	11	11	11	11	11	10	11	11	11	11
MINIMUM	12	10	10	11	11	11	10	9	9	9	9	9	9	9	9	9	10	10	9	9	10	10	10	11	11	11	10	10	10	11	9	10
NOVEMBER																																
MAXIMUM	9	9	9	9	8	8	9	11	11	11	11	11	11	10	9	9	9	9	9	10	10	9	9	9	9	9	8	8	8	8	--	9
MINIMUM	8	8	9	8	8	8	8	9	11	11	11	11	10	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	7	--	9
DECEMBER																																
MAXIMUM	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	6	6	7	7	7	7	7	7	7	7	4	7
MINIMUM	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	6	6	6	6	7	7	7	7	7	7	4	4	7
JANUARY																																
MAXIMUM	6	6	6	8	8	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	3	3	3	3	3	4	4	6
MINIMUM	4	6	6	6	8	8	7	8	7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	3	3	2	2	3	3	3	4	5
FEBRUARY																																
MAXIMUM	4	4	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	--	--	--	6
MINIMUM	3	4	4	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	--	--	--	5
MARCH																																
MAXIMUM	6	6	7	7	7	7	7	7	7	6	6	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	11	11	8
MINIMUM	6	6	6	6	6	7	6	6	6	6	6	6	6	6	6	7	7	8	7	7	7	8	7	7	7	7	8	8	8	9	9	7
APRIL																																
MAXIMUM	10	9	8	8	9	9	9	9	9	9	11	11	10	9	10	10	10	10	10	11	12	12	11	11	10	12	12	12	11	11	--	10
MINIMUM	9	8	7	8	8	8	7	8	8	8	8	10	9	9	8	9	9	9	9	8	9	10	10	9	9	9	11	11	9	9	--	9
MAY																																
MAXIMUM	10	10	11	12	14	15	17	17	17	17	18	18	18	15	15	16	17	17	16	16	17	18	18	17	16	14	14	13	14	14	15	15
MINIMUM	8	9	9	9	11	12	13	14	13	14	15	16	15	14	13	13	14	16	14	13	14	15	17	15	14	14	13	12	13	13	13	13
JUNE																																
MAXIMUM	17	18	20	20	19	18	17	17	17	17	18	18	18	19	19	20	21	21	20	19	18	18	17	16	16	16	16	15	15	17	--	18
MINIMUM	13	15	17	17	17	17	16	16	17	16	16	17	17	18	18	18	18	19	18	18	17	17	16	16	15	15	14	14	13	14	--	16
JULY																																
MAXIMUM	18	18	16	16	16	16	16	18	19	19	18	17	17	17	18	19	19	19	21	20	19	21	22	22	21	20	20	18	19	19	17	19
MINIMUM	16	16	15	15	16	15	15	16	17	17	17	16	15	14	14	15	16	16	17	17	16	17	18	19	17	16	17	17	15	15	15	16
AUGUST																																
MAXIMUM	19	19	19	18	17	18	17	19	20	19	18	17	19	21	19	18	18	19	19	20	20	20	19	19	19	18	17	17	17	18	18	19
MINIMUM	15	16	15	16	16	14	16	14	17	16	16	14	15	17	17	14	14	16	16	16	17	17	17	17	17	15	15	15	13	14	14	15
SEPTEMBER																																
MAXIMUM	19	18	18	16	16	16	17	18	18	19	19	19	18	17	16	15	16	16	15	15	14	15	16	16	16	16	16	16	16	16	--	16
MINIMUM	16	16	14	13	12	13	13	16	16	16	16	16	17	14	12	14	14	15	15	14	14	14	15	15	16	14	14	15	16	15	--	15

14191000 WILLAMETTE RIVER AT SALEM, OREG.
(Irrigation network station)

LOCATION.--Lat 44°56'40", long 123°02'30", in SW¼ sec.22, T.7 S., R.3 W., Marion County, at bridge on State Highway 22, 300 ft downstream from gaging station at Salem and at mile 84.16.
DRAINAGE AREA.--7,280 sq mi, approximately.
PERIOD OF RECORD.--Chemical analyses: August to December 1910, August 1911 to August 1912, February 1951 to September 1969.
Water temperatures: February 1951 to September 1969.
EXTREMES.--1968-69:
Dissolved solids: Maximum, 58 mg/l Mar. 2-18; minimum, 27 mg/l May 12-31, June 1-10.
Hardness: Maximum, 25 mg/l Jan. 27-31, Feb. 1-9, Feb. 16-28, Mar. 1; minimum, 16 mg/l Mar. 30-31, Apr. 1-3, May 12-31, June 1-10, June 28-30, July 1-8.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)
OCT.											
01-04	13100	15	5.3	1.8	4.2	.8	26	0	3.6	3.0	.1
05-20	21400	--	4.8	1.7	3.8	--	26	0	--	--	--
21-31	22600	--	5.1	1.8	3.7	--	25	0	--	--	--
NOV.											
01-12	40600	--	5.1	1.8	3.7	--	25	0	--	--	--
13-30	59500	15	4.7	1.7	3.4	.8	22	0	3.4	1.5	.0
DEC.											
01-04	41800	15	4.7	1.7	3.4	.8	22	0	3.4	1.5	.0
05-17	85000	--	5.0	1.7	3.1	--	24	0	--	--	--
18-31	57200	--	5.1	1.7	3.3	--	26	0	--	--	--
JAN.											
01-26	66200	--	4.9	2.3	3.3	--	24	0	--	--	--
27-31	23200	--	5.8	2.6	3.6	--	26	0	--	--	--
FEB.											
01-09	30300	--	5.8	2.6	3.6	--	26	0	--	--	--
10-15	57300	--	4.8	2.3	3.1	--	22	0	--	--	--
16-28	26800	15	5.6	2.5	3.4	.5	27	0	4.2	4.5	.0
MAR.											
01...	17000	15	5.6	2.5	3.4	.5	27	0	4.2	4.5	.0
02-18	18400	--	5.6	1.9	4.0	--	26	0	--	--	--
19...	32400	--	4.8	1.6	3.2	--	20	0	--	--	--
20...	30500	--	6.2	1.0	5.4	--	0	8	--	--	--
21-29	30200	--	4.8	1.6	3.5	--	23	0	--	--	--
30-31	24400	--	4.1	1.3	3.1	--	21	0	--	--	--
APR.											
01-03	24200	--	4.1	1.3	3.1	--	21	0	--	--	--
04-19	17000	--	4.8	1.6	3.5	--	24	0	--	--	--
20-30	19700	--	4.4	1.5	3.3	--	22	0	--	--	--
MAY											
01-11	18100	--	4.4	1.5	3.3	--	22	0	--	--	--
12-31	24200	--	4.1	1.4	3.1	--	23	0	--	--	--
JUNE											
01-10	17800	--	4.1	1.4	3.1	--	23	0	--	--	--
11-27	14600	--	4.6	1.7	3.6	--	24	0	--	--	--
28-30	35100	--	4.3	1.5	3.1	--	24	0	--	--	--
JULY											
01-08	17800	--	4.3	1.5	3.1	--	24	0	--	--	--
09-31	14800	--	5.2	1.9	4.0	--	28	0	--	--	--
AUG.											
01-04	7710	--	5.2	1.9	4.0	--	28	0	--	--	--
05-26	8410	--	4.9	1.8	3.9	--	25	0	--	--	--
27-31	11200	--	4.5	1.6	3.4	--	25	0	--	--	--
SEPT.											
01-21	11200	--	4.5	1.6	3.4	--	25	0	--	--	--
22-30	10200	--	5.3	1.8	4.0	--	26	0	--	--	--
WTD. AVG.	28910	--	4.9	1.8	3.5	--	25	0	--	--	--

14191000 WILLAMETTE RIVER AT SALEM, OREG.--Continued

EXTREMES.--1968-69:--Continued
Specific conductance: Maximum daily, 80 micromhos Mar. 20; minimum daily, 43 micromhos June 28, 29.
Water temperatures: Maximum, 23.0°C July 24, 25; minimum, 1.0°C Jan. 26.
Period of record (1951-69):
Dissolved solids: Maximum, 124 mg/l Dec. 10, 1965; minimum, 25 mg/l Mar. 29, 1968.
Hardness: Maximum, 38 mg/l Dec. 10, 1965; minimum, 12 mg/l Dec. 24-28, 1964.
Specific conductance: Maximum daily, 141 micromhos Sept. 17, 1966; minimum daily, 30 micromhos Jan. 29, 1965.
Water temperatures: Maximum, 25.5°C July 22, 1959; minimum, freezing point on several days during February 1956.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	COLOR (PLATI-NUM-COBALT UNITS)	PH (UNITS)
OCT.											
01-04	2.2	54	.07	1910	20	0	64	.4	30	0	7.2
05-20	--	43	.06	2480	19	0	59	.4	30	--	7.2
21-31	--	40	.05	2440	20	0	59	.4	29	--	7.0
NOV.											
01-12	--	40	.05	4380	20	0	59	.4	29	--	7.0
13-30	1.2	42	.06	6740	18	0	58	.3	27	20	7.1
DEC.											
01-04	1.2	42	.06	4740	18	0	58	.3	27	20	7.1
05-17	--	53	.07	12200	20	0	54	.3	26	--	7.1
18-31	--	38	.05	5870	20	0	59	.3	27	--	7.3
JAN.											
01-26	--	47	.06	8400	22	2	58	.3	25	--	7.2
27-31	--	43	.06	2690	25	4	68	.3	24	--	7.3
FEB.											
01-09	--	43	.06	3520	25	4	68	.3	24	--	7.3
10-15	--	42	.06	6500	22	4	56	.3	24	--	7.1
16-28	1.7	51	.07	3690	25	2	64	.3	23	15	7.2
MAR.											
01...	1.7	51	.07	2340	25	2	64	.3	23	15	7.2
02-18	--	58	.08	2880	22	0	67	.4	29	--	7.4
19...	--	56	.08	4900	18	2	58	.3	27	--	6.6
20...	--	56	.08	4610	20	0	80	.5	37	--	9.5
21-29	--	43	.06	3510	18	0	57	.4	29	--	6.9
30-31	--	47	.06	3100	16	0	49	.3	30	--	6.7
APR.											
01-03	--	47	.06	3070	16	0	49	.3	30	--	6.7
04-19	--	49	.07	2250	18	0	57	.4	29	--	6.9
20-30	--	47	.06	2500	17	0	53	.3	30	--	6.8
MAY											
01-11	--	47	.06	2300	17	0	53	.3	30	--	6.8
12-31	--	27	.04	1760	16	0	49	.3	30	--	7.2
JUNE											
01-10	--	27	.04	1300	16	0	49	.3	30	--	7.2
11-27	--	35	.05	1380	18	0	56	.4	30	--	7.2
28-30	--	40	.05	3790	16	0	50	.3	29	--	7.2
JULY											
01-08	--	40	.05	1920	16	0	50	.3	29	--	7.2
AUG.											
01-04	--	28	.04	583	21	0	64	.4	30	--	7.1
05-26	--	50	.07	1140	20	0	62	7.0	30	--	7.1
27-31	--	37	5.00	1120	18	0	56	.4	29	--	7.1
SEPT.											
01-21	--	37	5.00	1120	18	0	56	.4	29	--	7.1
22-30	--	49	7.00	1350	20	0	65	.4	30	--	7.0
*TD. AVG.	--	42	.58	--	19	0	58	.7	28	--	7.1

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	DISSOLVED					SUSPENDED		
DATE	URANIUM (UG/L)	RADIUM (PC/L)	GROSS α (UG U/L)	GROSS β (PC/L)	TOTAL DISSOLVED SOLIDS (MG/L)	GROSS α (UG U/L)	GROSS β (PC/L)	SUSPENDED SEDIMENTS (MG/L)
OCT.								
30...	<.01	.06	<.4	1.0	49	1.3	2.5	11
DEC.								
04...	<.01	.04	<.4	1.5	44	1.6	.9	38
FEB.								
04...	.03	.05	<.4	1.1	55	.5	.9	24
MAR.								
11...	<.01	.01	.9	.8	49	<.4	<.4	6
APR.								
23...	.02	.03	<.4	.6	35	<.4	.5	6
JUN.								
05...	.01	.06	<.4	.7	42	<.4	<.4	6
JUL.								
16...	<.01	.04	1.0	1.0	57	<.4	<.4	6
AUG.								
29...	<.01	.06	<.4	3.1	45	<.4	.6	8

14191000 WILLAMETTE RIVER AT SALEM, OREG.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	57	63	57	68	63	49	52	49	50	--	53
2	59	62	62	56	68	70	47	52	48	50	63	55
3	69	63	60	64	66	73	48	52	50	51	62	54
4	72	61	62	61	68	74	55	56	50	51	63	54
5	62	64	51	53	72	73	56	55	--	55	64	55
6	63	64	50	52	70	74	55	56	50	54	67	55
7	63	64	53	56	68	64	61	56	51	55	63	56
8	62	62	53	53	67	77	58	57	51	55	60	55
9	59	63	54	54	71	65	57	55	50	57	60	56
10	60	58	54	52	55	62	58	47	53	57	68	56
11	59	55	56	54	54	63	57	47	53	57	68	55
12	62	60	56	54	54	66	57	44	55	65	61	57
13	58	54	55	54	56	64	67	45	55	64	64	57
14	58	55	56	51	56	79	56	47	55	64	64	57
15	57	54	60	52	56	65	57	45	55	58	64	57
16	58	55	61	53	65	69	58	45	55	65	65	57
17	55	53	52	56	64	68	57	45	55	66	65	57
18	55	53	57	56	57	68	58	51	61	65	66	57
19	56	53	60	56	61	58	60	52	61	66	61	58
20	56	54	60	52	63	80	48	51	60	67	60	57
21	57	56	60	59	63	59	48	50	63	67	60	57
22	57	58	68	60	65	60	50	46	63	66	58	64
23	63	58	67	61	69	56	56	47	63	67	58	65
24	57	61	60	53	69	57	51	46	63	68	57	64
25	55	60	60	60	70	57	51	48	48	68	57	74
26	58	61	60	52	56	69	51	48	48	62	61	64
27	56	59	58	66	62	57	55	49	48	63	54	59
28	56	62	58	66	63	57	55	50	43	62	53	66
29	59	60	59	64	--	57	55	50	43	69	54	67
30	58	61	57	66	--	51	55	50	44	66	55	66
31	59	--	60	67	--	51	--	47	--	66	55	--
AVG	59	58	58	57	63	64	54	49	53	61	61	58

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	14	14	14	14	14	14	14	13	13	13	13	13	12	12	12	11	11	12	12	12	12	12	12	12	12	12	12	12	11	11	11	12
MINIMUM	14	13	13	13	14	14	13	13	12	12	12	12	12	12	11	11	11	11	12	12	12	12	12	12	12	12	11	11	11	11	10	12
NOVEMBER																																
MAXIMUM	10	9	9	9	9	9	9	10	11	11	11	11	11	10	9	9	9	9	9	10	9	9	9	9	9	8	8	8	8	8	--	9
MINIMUM	9	9	9	8	8	9	9	9	10	11	11	11	10	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	7	--	9
DECEMBER																																
MAXIMUM	7	7	8	8	7	7	7	7	7	7	7	8	8	8	8	8	8	7	7	7	6	6	6	7	7	7	6	6	6	6	4	7
MINIMUM	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	7	7	7	6	6	6	6	6	7	6	6	6	6	4	3	7
JANUARY																																
MAXIMUM	3	4	6	6	7	7	7	7	6	5	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	3	3	4
MINIMUM	3	3	4	6	6	7	7	6	5	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	2	1	2	2	2	3	3	4
FEBRUARY																																
MAXIMUM	3	4	4	4	4	4	4	4	4	4	4	6	6	6	6	6	7	7	7	6	7	7	7	7	7	6	6	6	--	--	--	5
MINIMUM	3	3	4	4	4	3	3	3	4	4	4	6	6	6	6	6	6	6	6	6	7	7	7	6	6	6	6	6	--	--	--	5
MARCH																																
MAXIMUM	7	7	7	7	7	7	7	7	6	6	6	6	7	7	7	7	8	8	7	7	8	8	8	7	8	8	9	9	9	9	9	7
MINIMUM	6	7	7	7	7	7	7	6	6	6	6	6	6	7	7	7	7	7	7	7	7	8	7	7	7	8	8	9	9	9	9	7
APRIL																																
MAXIMUM	9	9	9	8	9	9	9	10	10	10	11	11	11	11	11	11	11	11	10	9	10	11	11	11	11	11	12	12	12	10	--	10
MINIMUM	9	9	8	8	8	9	9	9	10	10	10	11	11	11	10	11	11	10	9	9	9	10	11	11	11	11	11	12	10	9	--	10
MAY																																
MAXIMUM	9	9	10	11	12	13	14	14	15	14	13	13	13	12	11	12	13	14	13	13	14	15	15	15	14	13	13	13	13	13	14	13
MINIMUM	9	9	9	10	11	12	13	14	14	13	13	13	12	11	11	11	12	13	12	12	12	14	15	14	13	13	13	13	13	13	13	12
JUNE																																
MAXIMUM	14	16	17	17	17	16	15	14	15	15	15	16	16	17	17	18	19	20	20	19	19	18	18	17	16	14	13	13	13	14	--	16
MINIMUM	14	14	16	16	16	15	14	14	14	14	14	15	16	16	17	17	18	18	19	19	18	18	17	16	14	13	13	13	12	13	--	15
JULY																																
MAXIMUM	16	16	16	16	16	17	17	18	19	20	19	19	19	19	19	20	21	21	21	21	21	21	22	23	23	22	21	21	21	21	21	19
MINIMUM	14	16	16	15	16	16	17	17	18	19	19	19	18	18	18	19	19	20	20	21	20	20	21	22	22	21	21	20	20	19	19	19
AUGUST																																
MAXIMUM	20	20	20	20	20	19	19	19	19	19	19	19	18	19	19	19	19	19	19	20	20	20	20	20	19	19	18	18	18	18	18	19
MINIMUM	19	19	19	19	19	18	18	18	19	19	19	18	18	18	19	19	18	18	19	19	20	19	19	19	18	18	18	17	17	17	17	18
SEPTEMBER																																
MAXIMUM	18	18	18	17	17	17	17	17	17	17	18	18	18	18	17	16	16	16	16	16	16	16	16	16	16	16	17	17	16	17	17	-- 17
MINIMUM	17	18	17	17	16	16	16	17	17	17	17	18	18	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	--	16

14197000 NORTH YAMHILL RIVER AT PIKE, OREG.

LOCATION.--Lat 45°22'10", long 123°15'15", in NW¼ sec.25, T.2 S., R.5 W., Yamhill County, temperature recorder at gaging station on right bank, 500 ft downstream from Turner Creek, 0.5 mile southeast of Pike, and at mile 20.5.

DRAINAGE AREA.--66.8 sq mi.

PERIOD OF RECORD.--Water temperatures: February 1964 to September 1969 (discontinued).

EXTREMES.--1968-69:
Water temperatures: Maximum, 24.0°C July 23; minimum, 1.0°C Dec. 30, 31, Jan. 25-27.

Period of record:
Water temperatures: Maximum, 25.0°C July 30, 31, 1965; minimum, 0.5°C Dec. 17-20, 1964.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	14	12	12	13	13	12	12	11	10	11	11	11	10	10	11	11	11	10	9	11	10	11	11	11	11	11	9	10	11	10	9	11
MINIMUM	12	10	10	12	11	11	10	9	9	9	11	9	9	9	9	10	9	9	9	9	9	9	11	9	11	8	9	9	9	9	7	10
NOVEMBER																																
MAXIMUM	8	9	9	8	8	8	8	10	10	9	10	10	9	8	8	8	8	9	9	9	9	9	9	9	9	8	8	8	8	7	--	9
MINIMUM	6	7	8	7	7	7	7	8	9	8	9	9	8	8	7	7	8	8	8	9	9	9	8	8	8	8	8	8	7	7	--	8
DECEMBER																																
MAXIMUM	7	7	8	8	8	7	7	7	7	8	8	7	7	8	8	7	7	6	6	6	5	5	5	7	7	7	7	6	6	4	3	7
MINIMUM	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	5	4	5	3	4	5	6	6	6	6	4	1	1	6
JANUARY																																
MAXIMUM	5	6	6	6	7	7	7	6	4	4	5	5	5	5	4	4	5	5	4	4	4	4	4	3	2	2	2	2	2	3	3	4
MINIMUM	3	5	5	6	6	6	6	4	4	4	4	5	4	4	4	4	4	4	4	4	3	3	2	2	1	1	1	2	2	2	2	4
FEBRUARY																																
MAXIMUM	3	4	4	4	4	4	4	4	4	4	5	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	--	--	--	5
MINIMUM	3	3	4	4	4	4	4	3	4	4	4	5	5	5	5	5	5	4	4	5	5	5	5	4	4	5	4	5	--	--	--	4
MARCH																																
MAXIMUM	7	6	7	6	6	7	6	6	6	6	6	7	7	7	8	7	7	7	7	8	8	8	8	8	8	9	9	9	8	9	9	7
MINIMUM	5	5	5	4	6	6	5	5	4	4	4	4	4	4	5	5	6	6	6	5	5	6	6	5	5	6	6	6	6	7	7	5
APRIL																																
MAXIMUM	8	7	7	7	8	9	9	9	9	9	11	11	8	8	9	9	9	9	9	9	12	11	11	9	9	12	12	11	10	9	--	9
MINIMUM	7	7	5	6	7	6	5	6	7	7	7	8	7	7	7	7	8	7	7	6	8	8	9	7	7	7	9	9	7	6	--	7
MAY																																
MAXIMUM	9	9	9	12	14	14	16	16	15	16	16	16	16	13	13	14	16	16	13	14	17	17	18	17	15	15	14	13	13	14	16	14
MINIMUM	7	7	7	7	8	9	11	12	11	12	12	13	12	12	10	12	12	13	12	11	13	14	16	15	13	13	13	11	12	12	12	11
JUNE																																
MAXIMUM	18	19	21	21	19	18	17	18	18	17	19	18	20	21	22	23	23	23	21	19	18	17	17	16	17	16	15	15	16	19	--	19
MINIMUM	14	16	16	17	17	16	14	16	17	16	15	17	16	17	17	17	18	19	17	16	16	16	16	14	13	14	14	13	13	14	--	16
JULY																																
MAXIMUM	21	19	17	17	18	17	17	20	22	21	18	17	17	17	19	19	20	21	22	21	21	23	24	23	21	21	22	20	20	21	19	20
MINIMUM	16	17	14	14	15	14	15	15	17	17	16	16	14	14	14	15	16	16	17	17	16	17	19	20	17	16	17	17	16	16	17	16
AUGUST																																
MAXIMUM	20	20	19	18	17	18	18	19	20	20	19	18	20	22	21	18	18	18	18	19	19	20	21	20	18	18	17	16	17	18	19	19
MINIMUM	16	16	16	17	15	14	15	14	16	16	16	14	15	17	18	14	14	16	16	16	16	16	16	16	16	14	14	13	12	14	14	15
SEPTEMBER																																
MAXIMUM	19	19	17	14	15	17	18	18	19	19	19	19	18	17	15	14	14	14	14	14	14	14	14	15	15	15	14	16	16	15	--	16
MINIMUM	15	16	14	13	12	12	14	16	16	16	17	16	16	13	12	12	13	13	13	13	12	13	14	13	14	13	12	14	14	14	--	14

14198500 MOLALLA RIVER ABOVE PINE CREEK, NEAR WILHOIT, OREG.

LOCATION.--Lat 45°00'35", long 122°28'45", in NE¼NE¼ sec.31, T.6 S., R.3 E., Clackamas County, temperature recorder at gaging station on right bank, 0.5 mile upstream from Pine Creek, 5 miles southeast of Wilhoit, and at mile 32.5.

DRAINAGE AREA.--97.0 sq mi, at gaging cable 0.2 mile downstream.

PERIOD OF RECORD.--Water temperatures: January 1964 to September 1969 (discontinued).

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C on several days during July and August; minimum, 1.0°C on several days during December and January.

Period of record:
Water temperatures: Maximum, 24.0°C July 30, 1965; minimum (1965-69), 1.0°C Dec. 17, 18, 1965, and on several days during December 1968 and January 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBRR 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	12	10	11	11	11	10	9	9	8	9	9	8	8	8	7	8	8	8	8	8	8	8	8	9	9	9	8	9	9	9	8	9
MINIMUM	9	8	8	9	9	9	8	8	7	8	8	8	8	7	7	7	7	7	7	8	7	8	8	8	8	7	8	8	8	8	7	8
NOVEMBER																																
MAXIMUM	7	8	8	7	7	7	7	8	8	8	8	8	7	7	7	7	7	8	8	8	8	8	8	8	8	7	7	7	7	6	--	7
MINIMUM	6	7	7	6	6	6	7	7	7	7	8	7	7	7	7	7	7	7	8	8	8	8	8	8	7	7	7	7	6	6	--	7
DECEMBER																																
MAXIMUM	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	4	4	4	4	4	4	4	4	4	4	3	2	5
MINIMUM	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	5	4	4	4	4	3	3	4	4	4	4	3	1	1	4
JANUARY																																
MAXIMUM	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	2	2	2	2	1	1	2	2	3
MINIMUM	2	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	2	2	2	2	1	1	1	1	2	3
FEBRUARY																																
MAXIMUM	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	4	5	4	5	5	5	5	5	5	4	4	4	5	--	--	--	4
MINIMUM	2	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	5	5	5	5	4	4	4	4	4	--	--	--	4
MARCH																																
MAXIMUM	5	5	5	5	5	5	4	4	4	4	4	5	5	5	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	5
MINIMUM	4	4	5	5	5	4	4	4	4	4	4	4	4	4	5	6	6	6	6	6	6	6	6	5	6	6	6	6	6	6	6	5
APRIL																																
MAXIMUM	7	7	6	7	7	7	7	7	7	7	8	7	6	6	7	7	7	7	6	7	8	8	8	7	6	8	8	8	6	6	--	7
MINIMUM	6	6	6	6	7	7	6	6	6	6	6	6	6	6	6	6	7	6	6	5	6	7	7	6	5	5	7	6	5	5	--	6
MAY																																
MAXIMUM	6	6	6	8	9	10	9	9	9	10	10	10	9	7	9	10	11	11	8	9	11	11	12	12	9	9	9	9	9	10	11	9
MINIMUM	5	5	6	5	6	7	7	7	7	7	7	7	7	7	7	7	7	8	7	7	7	7	8	8	8	8	8	8	9	9	8	7
JUNE																																
MAXIMUM	13	13	15	16	16	13	12	12	12	12	13	14	16	16	17	17	18	18	18	18	16	16	14	13	11	10	9	9	11	13	--	14
MINIMUM	9	10	11	12	13	12	11	11	12	12	12	13	14	15	15	15	16	17	17	16	14	14	13	11	10	9	9	9	9	9	--	12
JULY																																
MAXIMUM	14	14	12	12	13	13	13	16	17	17	16	14	14	16	16	16	17	18	18	18	18	19	19	19	19	18	19	18	18	18	17	16
MINIMUM	11	12	11	11	12	12	12	13	14	16	14	13	12	13	13	13	13	14	15	16	14	15	17	17	16	14	17	17	15	14	15	14
AUGUST																																
MAXIMUM	18	18	17	17	16	17	16	17	18	17	16	16	18	18	18	17	17	18	19	19	19	19	19	19	18	18	17	16	16	16	17	17
MINIMUM	14	14	14	14	13	13	13	13	14	14	15	14	14	15	16	14	13	15	16	15	16	15	16	17	16	15	14	14	13	13	13	14
SEPTEMBER																																
MAXIMUM	18	18	17	14	14	14	16	16	17	18	17	17	17	16	14	13	14	14	14	13	13	14	14	13	13	14	13	14	14	13	--	15
MINIMUM	14	14	14	13	12	11	13	14	14	15	16	15	16	13	11	12	12	14	13	12	12	13	13	12	13	12	12	12	13	13	--	13

14200000 MOLALLA RIVER NEAR CANBY, OREG.

LOCATION.--Lat 45°14'40", long 122°41'10", on NW¼NE¼ sec.9, T.4 S., R.1 E., Clackamas County, temperature recorder at gaging station on left bank at upstream side of Good's Bridge, 1.5 miles south of Canby and at mile 6.01.

DRAINAGE AREA.--323 sq mi.

PERIOD OF RECORD.--Water temperatures: January 1964 to September 1969 (discontinued).

EXTREMES.--1968-69:
Water temperatures: Maximum, 25.0°C Aug. 23; minimum, 1.0°C on several days during December and January.

Period of record:
Water temperatures: Maximum, 27.0°C sometime during period Aug. 10 to Sept. 20, 1967; minimum, 1.0°C Dec. 17-19, 1964, and on several days during December 1968 and January 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	17	16	15	15	16	14	14	13	12	12	12	12	11	11	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	12
MINIMUM	16	14	13	14	13	14	13	12	11	12	11	11	11	10	10	10	10	11	10	10	10	10	11	11	11	10	9	10	11	10	8	11
NOVEMBER																																
MAXIMUM	8	9	9	8	8	8	9	11	11	9	10	9	8	8	8	8	8	9	9	9	9	9	9	9	9	8	9	9	8	8	--	9
MINIMUM	8	8	8	7	7	7	8	9	9	8	9	8	8	8	8	8	8	8	9	9	9	9	9	9	8	8	8	9	7	--	8	8
DECEMBER																																
MAXIMUM	7	7	8	8	7	7	7	8	8	8	8	7	7	8	7	7	6	6	6	5	4	4	6	6	6	6	6	6	5	4	2	6
MINIMUM	7	7	7	6	7	7	7	7	8	8	7	7	7	7	7	6	6	6	5	4	4	4	4	6	5	6	6	5	4	1	1	6
JANUARY																																
MAXIMUM	5	5	6	7	7	7	7	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	3	3	2	1	1	1	2	3	3	4
MINIMUM	2	5	5	6	7	7	5	5	4	4	5	4	4	5	5	5	5	5	4	5	4	3	3	2	1	1	1	1	1	2	3	4
FEBRUARY																																
MAXIMUM	3	4	4	4	4	4	4	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	--	--	--	5
MINIMUM	3	3	4	4	4	4	4	4	4	4	6	6	5	5	6	6	5	5	5	6	6	6	6	4	4	5	4	5	--	--	--	5
MARCH																																
MAXIMUM	7	7	7	7	8	7	7	7	7	7	7	7	7	7	8	8	8	7	8	8	8	8	8	8	9	9	9	9	8	8	8	8
MINIMUM	6	6	6	6	7	7	6	6	6	5	5	6	6	6	6	7	7	6	6	6	7	7	7	6	7	7	7	7	7	7	7	6
APRIL																																
MAXIMUM	8	8	7	8	9	9	9	10	10	11	11	11	9	9	11	10	10	9	9	10	12	11	11	10	11	11	13	12	9	9	--	10
MINIMUM	6	7	7	7	8	8	7	8	9	9	9	8	8	8	9	9	9	8	8	8	10	11	10	9	8	8	11	9	8	8	--	8
MAY																																
MAXIMUM	9	10	11	12	14	14	14	14	13	13	13	13	13	12	13	14	16	16	12	13	16	17	17	17	14	14	14	14	13	14	16	14
MINIMUM	8	9	9	9	11	12	12	11	11	11	11	12	11	11	10	12	12	12	11	11	12	14	16	14	13	13	12	12	13	12	12	11
JUNE																																
MAXIMUM	18	19	20	21	21	18	18	18	17	17	18	18	21	22	22	23	24	24	23	22	21	21	19	18	15	14	13	13	14	16	--	19
MINIMUM	14	16	17	18	18	17	16	16	16	16	16	17	17	19	19	19	21	21	21	20	19	19	18	15	13	13	12	12	12	13	--	17
JULY																																
MAXIMUM	19	18	16	17	18	18	17	19	20	20	20	19	20	21	21	22	22	22	23	22	21	23	24	24	23	23	24	23	23	23	22	21
MINIMUM	16	16	14	14	16	16	16	16	17	18	18	18	17	17	18	18	18	19	19	20	18	18	20	21	20	19	20	20	19	19	19	18
AUGUST																																
MAXIMUM	23	23	24	23	22	22	22	22	23	23	22	22	23	24	23	22	22	23	23	24	24	24	25	24	23	22	21	21	21	22	22	23
MINIMUM	19	19	20	21	19	19	19	18	19	19	20	19	19	21	21	18	18	20	21	20	21	20	21	21	20	19	18	19	17	18	18	19
SEPTEMBER																																
MAXIMUM	23	23	21	19	19	21	22	22	22	23	23	22	22	20	19	19	17	17	17	17	17	17	17	17	17	18	18	18	18	17	--	19
MINIMUM	19	19	18	17	16	17	18	19	18	19	20	20	20	17	17	17	17	17	17	16	16	17	17	16	17	16	16	17	17	16	--	17

14204000 GALES CREEK NEAR GALES CREEK, OREG.

LOCATION.--Lat 45°38'30", long 123°15'55", in NW¼SE¼ sec.23, T.2 N., R.5 W., Washington County, temperature recorder at gaging station on right bank, 0.5 mile downstream from Beaver Creek, 4.6 miles northwest of town of Gales Creek, and at mile 17.5.

DRAINAGE AREA.--33.2 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1963 to September 1969 (discontinued).

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C June 17, July 23; minimum, 2.0°C on several days during December to February.

Period of record:
Water temperatures: Maximum, 20.5°C Aug. 15, 16, 1967; minimum, 2.0°C Nov. 20, 21, Dec. 17, 19, 20, 1964, Dec. 17, 23, 24, 1965, and on several days during December 1968 to February 1969.

REMARKS.--Recorder stopped Nov. 9-13; range in temperature, 7.0°C to 10.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	11	11	10	11	11	11	11	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	10	9	9	9	10	10	8	10
MINIMUM	10	8	8	10	9	10	8	7	8	9	9	9	9	9	9	9	8	8	8	9	8	9	9	9	9	7	8	8	9	8	7	9
NOVEMBER																																
MAXIMUM	8	9	8	7	8	7	8	9	--	--	--	--	--	8	8	8	8	9	9	9	9	9	9	9	8	8	8	8	8	7	--	8
MINIMUM	6	8	7	7	7	6	7	8	--	--	--	--	--	8	8	8	8	8	9	9	9	9	8	8	8	8	7	8	7	6	--	8
DECEMBER																																
MAXIMUM	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	4	3	6
MINIMUM	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	4	5	6	6	6	6	6	6	4	3	2
JANUARY																																
MAXIMUM	4	5	5	6	6	6	6	6	5	4	5	5	5	5	5	4	4	4	4	4	4	4	4	3	3	2	2	2	2	2	2	4
MINIMUM	2	4	5	5	6	6	6	5	4	4	4	5	5	5	4	4	4	4	4	4	4	3	3	3	2	2	2	2	2	2	2	4
FEBRUARY																																
MAXIMUM	2	3	4	4	4	4	4	4	4	4	5	5	5	5	5	6	5	5	5	5	5	5	6	5	5	5	5	5	--	--	--	5
MINIMUM	2	2	3	4	3	3	4	4	4	4	4	5	4	4	5	5	4	4	4	4	4	4	5	4	4	4	4	4	--	--	--	4
MARCH																																
MAXIMUM	6	5	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	6	7	7	6	7	7	7	7	7	7	7	8	7	6
MINIMUM	4	4	4	4	5	5	5	4	4	4	4	4	4	4	5	5	6	5	6	5	5	5	5	4	4	5	5	5	6	6	6	5
APRIL																																
MAXIMUM	7	7	6	7	8	7	8	8	7	8	9	7	7	7	8	8	8	8	8	8	11	9	8	8	8	10	10	9	9	7	--	8
MINIMUM	6	6	6	6	6	6	5	5	6	6	6	6	6	6	6	6	7	7	7	6	7	8	8	7	6	6	8	8	6	6	--	6
MAY																																
MAXIMUM	8	8	8	11	12	12	13	13	12	13	12	12	12	12	11	11	12	12	10	11	13	13	14	13	11	11	11	10	11	12	13	11
MINIMUM	6	6	7	6	7	8	9	9	9	10	9	9	9	9	8	8	8	10	9	8	9	9	11	11	9	10	9	9	10	10	9	9
JUNE																																
MAXIMUM	14	15	16	16	15	14	13	15	15	14	14	14	16	17	18	18	19	18	18	16	15	15	15	14	14	13	13	13	13	16	--	15
MINIMUM	11	11	12	13	13	13	12	12	13	13	12	13	13	13	13	14	15	15	14	14	13	13	13	12	12	11	12	12	12	12	--	13
JULY																																
MAXIMUM	17	17	14	15	16	15	15	17	18	18	16	16	14	14	15	15	16	17	17	17	17	18	19	18	17	17	17	17	16	17	17	16
MINIMUM	13	13	13	13	13	12	13	13	14	14	14	13	12	12	12	12	12	13	13	14	13	14	15	16	14	13	14	14	12	13	14	13
AUGUST																																
MAXIMUM	16	16	16	15	14	14	14	15	16	16	15	14	16	17	17	14	14	16	15	16	16	16	16	16	14	14	13	13	13	14	14	15
MINIMUM	12	13	12	13	12	11	12	12	13	13	12	12	13	14	14	11	12	13	14	13	14	13	13	13	14	12	12	12	10	12	12	12
SEPTEMBER																																
MAXIMUM	16	16	14	12	12	13	14	15	16	16	16	16	15	14	12	12	12	12	12	12	12	12	12	12	12	12	12	13	13	13	--	13
MINIMUM	13	13	12	12	11	11	12	13	13	14	14	13	14	11	10	11	11	11	12	12	10	11	12	12	12	11	11	12	12	12	--	12

14211000 CLACKAMAS RIVER NEAR CLACKAMAS, OREG.

LOCATION.--Lat 45°23'36", long 122°31'54", in NE¼SW¼ sec.14, T.2 S., R.2 E., Clackamas County, temperature recorder at gaging station on left bank, 0.8 mile upstream from Johnson Creek, 2.1 miles southeast of Clackamas, and at mile 4.8.

DRAINAGE AREA.--930 sq mi at gage, 936 sq mi at Gladstone Bridge 3.6 miles downstream, where high-flow discharge measurements are made.

PERIOD OF RECORD.--Water temperatures: May 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 20.0°C on several days in August; minimum, 1.0°C Dec. 30, 31, Jan. 2, 30.

Period of record:
Water temperatures: Maximum, 22.0°C Aug. 13, 14, 1967, July 8, 9, 28, 1968; minimum, 1.0°C Dec. 30, 31, 1968, Jan. 2, 30, 1969.

REMARKS.--Recorder stopped Oct. 8-22, Apr. 30 to May 1; ranges in temperatures, 9.0°C to 13.0°C, and 7.0°C to 8.0°C, respectively. No record Nov. 21 to Dec. 3.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	14	14	14	14	14	13	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11	11	11	11	11	11	11	11	10	--
MINIMUM	12	12	12	13	12	12	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	9	9	9	9	9	9	8	--
NOVEMBER																																
MAXIMUM	9	10	9	9	9	9	9	10	10	9	9	8	7	7	7	7	8	8	8	8	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	8	9	8	8	7	8	8	8	9	9	8	7	7	7	7	7	7	7	8	7	--	--	--	--	--	--	--	--	--	--	--	--
DECEMBER																																
MAXIMUM	--	--	--	7	7	6	7	7	6	6	6	6	5	6	6	5	6	6	5	4	4	4	5	5	5	6	5	5	4	2	2	5
MINIMUM	--	--	--	6	6	6	6	6	6	6	4	5	5	5	5	5	4	4	4	4	3	4	4	4	4	5	4	4	2	1	1	4
JANUARY																																
MAXIMUM	2	2	3	4	4	6	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	2	2	2	2	4
MINIMUM	2	1	2	3	4	4	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	2	2	2	2	1	2	3
FEBRUARY																																
MAXIMUM	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	--	--	--	3
MINIMUM	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	3	3	3	3	--	--	--	3
MARCH																																
MAXIMUM	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	6	6	6	6	6	6	6	6	6	6	6	7	7	7	5
MINIMUM	3	3	4	4	4	4	4	4	4	4	3	3	3	3	4	4	4	5	5	5	5	6	5	5	5	5	5	5	6	6	6	4
APRIL																																
MAXIMUM	7	7	7	7	7	7	7	7	8	8	8	8	8	8	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	--	--	8
MINIMUM	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	--	--	7
MAY																																
MAXIMUM	--	8	8	9	10	11	11	11	11	11	10	10	9	9	9	9	10	9	9	9	9	11	11	11	11	10	11	11	9	10	11	10
MINIMUM	--	6	7	6	7	8	8	9	8	8	8	8	8	8	7	7	8	9	8	8	8	8	9	9	9	9	9	9	9	9	9	8
JUNE																																
MAXIMUM	11	12	12	13	13	13	14	13	13	13	13	13	14	16	16	16	17	17	17	16	16	16	16	15	14	14	13	13	14	14	--	14
MINIMUM	9	10	11	11	12	12	12	12	12	12	12	12	13	14	14	14	14	15	15	15	14	16	15	14	13	13	13	13	13	13	--	13
JULY																																
MAXIMUM	15	15	14	14	15	16	15	16	16	17	17	17	17	18	18	18	18	19	19	19	18	19	19	19	19	19	19	19	--	--	--	17
MINIMUM	13	14	13	14	14	14	14	14	14	16	16	16	16	16	16	16	17	17	17	17	17	17	18	18	18	18	18	18	--	--	--	16
AUGUST																																
MAXIMUM	19	20	20	20	19	19	19	19	20	20	19	19	20	20	20	19	--	--	--	--	--	--	--	--	--	18	18	17	17	17	18	--
MINIMUM	18	18	18	18	18	17	18	17	18	18	18	17	18	18	18	17	--	--	--	--	--	--	--	--	--	16	17	16	15	16	16	--
SEPTEMBER																																
MAXIMUM	18	18	17	16	17	17	17	17	17	--	--	17	18	16	16	16	16	16	14	15	15	16	16	16	16	15	14	15	15	14	--	16
MINIMUM	16	16	16	15	14	15	15	16	15	--	--	16	16	14	14	14	15	14	14	14	14	14	14	14	14	13	13	14	13	13	--	14

14218500 YALE RESERVOIR NEAR YALE, WASH.

LOCATION.--Lat 46°03'06", long 122°17'30", in NW¼SE¼ sec.34, T.7 N., R.4 E., Cowlitz County, temperature recorder 0.3 mile east of Cougar and 8.0 miles upstream from gaging station.

DRAINAGE AREA.--596 sq mi (at gaging station).

PERIOD OF RECORD.--Water temperatures: June to September 1969.

EXTREMES.--Period of record:
Water temperatures: Maximums; at 3 ft 21.8°C Aug. 24; at 18 ft 23.0°C July 24; at bottom 15.0°C Sept. 1.

REMARKS.--Recorder has 3 probes, with 2 constant (3 ft and 18 ft below surface) and one adjustable (usually within 10 ft of reservoir bottom).

TEMPERATURE (°C) OF WATER, JUNE TO SEPTEMBER 1969
(Recorded 3 feet below water surface)

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	--	--	17.9	16.6	20.4	20.3	19.8	19.0
2	--	--	--	--	--	--	17.7	17.4	20.4	20.2	19.5	19.3
3	--	--	--	--	--	--	17.4	17.1	20.4	20.2	19.4	18.8
4	--	--	--	--	--	--	17.1	16.9	20.3	20.1	18.8	18.2
5	--	--	--	--	17.0	16.1	17.6	17.1	20.1	19.7	18.3	18.1
6	--	--	--	--	16.1	15.4	17.4	17.2	19.9	19.4	19.0	18.0
7	--	--	--	--	15.9	15.4	17.4	17.1	20.0	19.6	18.7	17.3
8	--	--	--	--	16.5	15.3	17.7	17.1	20.0	19.4	17.8	17.1
9	--	--	--	--	16.8	16.5	18.6	17.6	20.1	19.8	18.3	17.6
10	--	--	--	--	16.7	16.4	18.5	18.3	20.1	20.0	19.3	18.3
11	--	--	--	--	16.6	16.3	18.4	18.2	20.1	19.8	19.4	19.1
12	--	--	--	--	16.4	16.2	18.2	17.9	19.8	19.5	19.5	19.3
13	--	--	--	--	17.5	16.2	18.1	17.8	20.1	19.2	19.5	18.9
14	--	--	--	--	18.3	17.5	18.3	18.0	20.4	20.1	18.9	18.5
15	--	--	--	--	18.7	18.0	18.5	18.2	20.4	20.1	18.5	17.7
16	--	--	--	--	20.2	17.5	18.7	18.4	20.2	20.1	18.0	17.6
17	--	--	--	--	20.2	17.5	18.9	18.6	20.1	18.5	17.6	16.9
18	--	--	--	--	19.9	19.2	19.6	18.7	19.4	19.3	17.0	16.9
19	--	--	--	--	19.6	19.3	20.3	19.6	19.5	19.4	17.0	16.7
20	--	--	--	--	19.3	18.3	20.3	20.1	20.2	19.5	16.8	16.6
21	--	--	--	--	18.4	17.7	20.1	19.9	20.6	20.1	16.7	16.6
22	--	--	--	--	17.7	17.4	20.5	19.9	21.0	20.2	16.6	16.6
23	--	--	--	--	17.4	16.9	20.7	20.3	21.4	20.5	16.6	16.3
24	--	--	--	--	16.9	16.3	20.9	20.5	21.8	21.3	16.4	16.2
25	--	--	--	--	16.3	16.1	20.8	20.3	21.4	21.1	16.4	16.2
26	--	--	--	--	16.2	16.0	20.5	18.4	21.1	20.2	16.2	15.8
27	--	--	--	--	16.0	15.7	20.0	19.9	20.2	19.8	16.0	15.3
28	--	--	--	--	15.7	15.6	20.0	19.9	20.0	19.7	16.0	15.6
29	--	--	--	--	15.7	15.5	20.2	19.8	19.7	19.2	15.9	15.7
30	--	--	--	--	17.1	15.4	20.6	20.1	19.7	19.4	15.7	15.4
31	--	--	--	--	--	--	20.5	20.3	20.7	19.4	--	--
AVG	--	--	--	--	17.4	16.6	19.0	18.6	20.3	19.8	17.7	17.3

TEMPERATURE (°C) OF WATER, JUNE TO SEPTEMBER 1969
(Recorded usually within 10 feet of bottom)

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	--	--	18.6	13.6	21.6	18.3	20.4	15.8
2	--	--	--	--	--	--	18.2	14.8	21.6	16.1	20.2	19.5
3	--	--	--	--	--	--	17.8	14.6	21.7	16.9	19.8	19.1
4	--	--	--	--	--	--	18.1	12.8	21.1	19.1	19.1	18.2
5	--	--	--	--	15.2	11.6	18.4	13.5	20.6	16.8	19.2	18.2
6	--	--	--	--	14.1	12.3	18.6	13.3	18.6	16.6	19.6	17.5
7	--	--	--	--	13.5	11.6	18.0	16.8	17.6	14.8	20.6	17.5
8	--	--	--	--	13.8	11.1	17.0	13.1	19.6	16.6	19.1	15.6
9	--	--	--	--	12.9	11.8	17.9	13.6	21.4	16.6	19.2	18.0
10	--	--	--	--	14.6	11.8	17.7	13.8	21.4	16.8	18.6	18.0
11	--	--	--	--	14.3	11.1	18.7	14.5	20.9	19.6	18.9	17.0
12	--	--	--	--	15.1	11.8	18.6	13.8	20.3	16.4	19.4	17.3
13	--	--	--	--	13.3	11.9	19.2	14.0	19.8	15.9	19.3	17.0
14	--	--	--	--	14.8	12.1	16.7	13.7	21.8	16.8	18.9	16.7
15	--	--	--	--	14.4	11.8	19.6	14.1	21.1	18.8	17.3	15.1
16	--	--	--	--	14.5	12.1	19.9	14.1	20.8	16.7	17.4	15.8
17	--	--	--	--	14.5	12.5	20.0	14.6	19.0	14.9	16.6	14.8
18	--	--	--	--	15.6	12.8	17.4	14.0	20.1	19.0	6.9	16.5
19	--	--	--	--	18.0	12.6	17.7	14.6	20.1	18.6	16.9	16.7
20	--	--	--	--	18.6	13.1	21.5	15.0	19.3	17.5	16.7	16.5
21	--	--	--	--	18.8	15.3	19.4	14.0	20.4	17.3	16.7	16.5
22	--	--	--	--	18.3	16.8	16.8	14.6	19.8	16.9	16.5	15.8
23	--	--	--	--	18.0	13.4	18.8	15.0	20.5	17.6	16.5	16.2
24	--	--	--	--	17.3	15.8	23.0	15.2	19.1	17.5	16.5	15.5
25	--	--	--	--	16.6	16.0	22.0	14.8	19.1	17.6	16.7	15.8
26	--	--	--	--	16.0	14.9	18.3	13.3	20.8	17.3	15.9	14.0
27	--	--	--	--	16.2	14.6	19.0	17.3	21.5	16.6	15.9	15.0
28	--	--	--	--	16.1	14.8	19.0	17.1	21.3	16.2	15.9	15.4
29	--	--	--	--	16.0	13.5	19.5	17.2	20.8	15.6	16.3	15.5
30	--	--	--	--	15.5	12.1	21.8	18.3	20.3	16.0	16.2	15.7
31	--	--	--	--	--	--	21.6	17.8	19.1	16.5	--	--
AVG	--	--	--	--	15.6	13.0	18.9	14.7	20.3	17.0	17.5	16.5

14218500 YALE RESERVOIR NEAR YALE, WASH.--Continued

TEMPERATURE (°C) OF WATER, JUNE TO SEPTEMBER 1969
(Recorded 18 feet below water surface)

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	--	--	11.1	9.2	11.2	10.1	15.0	11.2
2	--	--	--	--	--	--	10.1	9.8	11.1	10.2	12.8	10.7
3	--	--	--	--	--	--	10.2	9.9	11.7	10.0	12.7	10.9
4	--	--	--	--	--	--	10.4	9.9	11.6	10.2	12.9	11.4
5	--	--	--	--	9.3	8.5	10.8	9.3	11.2	10.2	12.9	10.7
6	--	--	--	--	9.0	8.5	10.8	9.8	11.7	10.4	12.7	11.5
7	--	--	--	--	9.3	8.6	10.3	9.4	11.7	10.4	13.5	11.2
8	--	--	--	--	9.1	8.6	10.4	9.4	12.0	10.3	12.6	10.7
9	--	--	--	--	9.3	8.9	10.7	9.7	11.9	10.4	12.7	11.7
10	--	--	--	--	9.2	8.9	10.3	9.8	11.4	10.5	13.1	12.0
11	--	--	--	--	9.3	8.8	10.4	10.1	11.6	10.7	13.1	12.3
12	--	--	--	--	9.4	8.9	10.3	9.9	11.1	10.7	13.8	12.6
13	--	--	--	--	9.7	8.5	11.0	9.9	12.9	10.8	13.2	12.4
14	--	--	--	--	10.0	8.9	11.0	9.5	12.1	10.7	13.8	12.3
15	--	--	--	--	9.8	8.6	11.0	10.0	11.7	10.9	13.2	12.1
16	--	--	--	--	10.2	8.6	10.9	9.0	11.6	10.8	13.1	12.0
17	--	--	--	--	10.3	9.0	10.9	9.8	13.7	10.5	13.6	12.1
18	--	--	--	--	10.3	9.1	11.0	10.0	12.6	11.1	13.5	12.7
19	--	--	--	--	10.2	9.0	11.0	10.0	12.7	10.8	14.0	12.6
20	--	--	--	--	10.0	9.5	10.8	10.3	12.8	10.8	13.2	12.5
21	--	--	--	--	10.1	9.5	10.8	10.2	11.8	10.7	13.5	12.8
22	--	--	--	--	9.9	9.3	11.2	10.2	13.1	10.7	13.3	12.2
23	--	--	--	--	10.3	9.4	11.2	10.2	12.7	10.8	14.7	12.5
24	--	--	--	--	10.1	9.7	11.5	10.5	11.7	10.8	12.9	12.0
25	--	--	--	--	10.1	9.7	11.1	10.1	11.7	10.6	13.3	12.2
26	--	--	--	--	9.8	9.3	11.9	10.0	12.6	10.6	12.5	12.1
27	--	--	--	--	9.9	9.4	11.3	10.1	12.2	10.4	13.6	12.2
28	--	--	--	--	10.1	9.3	11.3	10.2	12.3	10.6	12.7	12.5
29	--	--	--	--	10.0	9.5	11.4	10.4	13.1	10.8	13.1	12.4
30	--	--	--	--	10.7	9.5	11.5	10.2	12.1	10.7	14.4	12.4
31	--	--	--	--	--	--	11.2	10.1	13.0	11.1	--	--
AVG	--	--	--	--	9.8	9.0	10.8	9.9	12.0	10.5	13.3	11.9

14221700 LEWIS RIVER AT WOODLAND, WASH.

LOCATION.--Lat 45°53'25", long 122°44'00", in SE¼NW¼ sec.30, T.5 N., R.1 E., Cowlitz County, at bridge on U.S. Highway 99, 1.0 mile southeast of Woodland, 1.8 miles upstream from East Fork, and at mile 5.4.

DRAINAGE AREA.--828 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1962 to September 1969.

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
21...	13	3.4	.9	2.6	.3	20	0	.0	.7	.1	.0	--
NOV.												
12...	14	3.5	.9	2.8	.3	20	0	.4	1.1	.1	.0	--
DEC.												
11...	13	3.4	.9	2.6	.3	20	0	1.2	.8	.1	.1	--
JAN.												
22...	14	3.3	.8	2.4	.4	18	0	1.6	.6	.1	.2	0
FEB.												
17...	17	3.3	.8	2.5	.4	18	0	1.2	.6	.1	.2	--
MAR.												
11...	14	3.3	.8	2.5	.5	19	0	.2	.8	.1	.1	--
APR.												
15...	14	3.1	.8	2.5	.3	19	0	.2	1.0	.0	.4	--
MAY												
21...	11	3.3	.7	2.3	.3	19	0	.0	1.0	.0	.0	--
JUNE												
25...	14	3.3	.8	2.5	.4	19	0	.8	.8	.1	.0	--
JULY												
24...	14	3.2	.8	2.4	.4	19	0	.2	.7	.1	.1	--
AUG.												
20...	13	3.4	.8	2.6	.4	20	0	.0	1.0	.0	.1	--
SEPT.												
24...	13	3.5	.8	2.6	.5	19	0	.2	.9	.0	.2	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
21...	34	12	0	37	7.1	0	10	10.1	750	--	--	--
NOV.												
12...	30	12	0	39	7.1	5	10	9.5	0	--	--	--
DEC.												
11...	32	12	0	36	7.1	5	8	9.5	1800	--	--	--
JAN.												
22...	32	12	0	34	7.2	5	3	9.8	20	0	0	0
FEB.												
17...	36	12	0	36	7.3	5	3	13.0	250	--	--	--
MAR.												
11...	33	12	0	36	7.2	0	4	13.9	4	--	--	--
APR.												
15...	34	11	0	36	7.0	0	7	12.4	260	--	--	--
MAY												
21...	31	11	0	35	7.1	5	10	11.8	16	--	--	--
JUNE												
25...	34	12	0	35	7.4	0	11	10.7	6100	0	0	0
JULY												
24...	38	12	0	35	7.3	0	13	10.7	26	--	--	--
AUG.												
20...	26	12	0	37	7.3	0	13	10.2	100	--	--	--
SEPT.												
24...	35	12	0	37	7.0	0	13	9.3	1400	--	--	--

14222500 EAST FORK LEWIS RIVER NEAR HEISSON, WASH.

LOCATION.--Lat 45°50'13", long 122°27'54", in NE¼NW¼ sec.17, T.4 N., R.3 E., Clark County, temperature recorder at gaging station on right bank, 60 ft downstream from Basket Creek, 1.5 miles northeast of Heisson, 3.4 miles southwest of Yacolt, and at mile 20.2.

DRAINAGE AREA.--125 sq mi.

PERIOD OF RECORD.--Water temperatures: June 1950 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C July 23-25, 27-28, Aug. 14; minimum, 1.0°C Dec. 30-31, Jan. 24 to Feb. 2.

Period of record:
Water temperatures: Maximum (1950-60, 1962-67, 1968-69), 23.5°C Aug. 4, 1952, July 31, 1965; minimum, freezing point Jan. 24 to Feb. 1, 1957, Jan. 11-14, 1963.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	11.0	8.0	7.0	7.0	7.0	4.0	2.0	1.0	1.0	4.0	4.0
2	11.0	9.0	8.0	8.0	7.0	7.0	5.0	4.0	2.0	1.0	4.0	4.0
3	10.0	9.0	8.0	8.0	7.0	7.0	5.0	5.0	3.0	2.0	5.0	4.0
4	10.0	10.0	8.0	7.0	7.0	7.0	6.0	5.0	3.0	3.0	5.0	4.0
5	10.0	10.0	7.0	7.0	7.0	7.0	6.0	6.0	3.0	3.0	6.0	5.0
6	10.0	10.0	7.0	7.0	7.0	7.0	6.0	6.0	3.0	3.0	6.0	5.0
7	10.0	9.0	7.0	7.0	7.0	7.0	6.0	6.0	3.0	3.0	6.0	5.0
8	10.0	9.0	9.0	7.0	7.0	7.0	6.0	5.0	3.0	3.0	6.0	5.0
9	9.0	9.0	9.0	8.0	7.0	7.0	5.0	4.0	3.0	3.0	5.0	4.0
10	9.0	9.0	8.0	8.0	7.0	7.0	5.0	4.0	4.0	3.0	5.0	4.0
11	9.0	9.0	9.0	8.0	7.0	7.0	5.0	5.0	4.0	4.0	5.0	4.0
12	9.0	9.0	9.0	8.0	7.0	7.0	5.0	4.0	4.0	4.0	5.0	4.0
13	9.0	9.0	8.0	8.0	7.0	7.0	5.0	4.0	4.0	4.0	5.0	4.0
14	9.0	9.0	8.0	8.0	7.0	7.0	5.0	4.0	4.0	4.0	6.0	4.0
15	9.0	9.0	8.0	7.0	7.0	7.0	4.0	4.0	4.0	4.0	7.0	6.0
16	9.0	8.0	7.0	7.0	7.0	7.0	4.0	4.0	5.0	4.0	7.0	6.0
17	9.0	8.0	7.0	7.0	7.0	7.0	4.0	4.0	5.0	4.0	6.0	6.0
18	8.0	8.0	8.0	7.0	7.0	6.0	4.0	4.0	5.0	4.0	6.0	6.0
19	8.0	8.0	8.0	8.0	6.0	6.0	4.0	4.0	5.0	4.0	7.0	6.0
20	8.0	8.0	8.0	8.0	6.0	5.0	4.0	4.0	5.0	4.0	7.0	6.0
21	8.0	8.0	8.0	8.0	5.0	5.0	4.0	3.0	5.0	5.0	7.0	6.0
22	8.0	8.0	8.0	8.0	5.0	4.0	3.0	2.0	5.0	4.0	7.0	6.0
23	8.0	8.0	8.0	8.0	6.0	4.0	2.0	2.0	5.0	4.0	7.0	6.0
24	8.0	8.0	8.0	8.0	6.0	6.0	2.0	1.0	4.0	4.0	7.0	6.0
25	8.0	8.0	8.0	8.0	6.0	6.0	1.0	1.0	4.0	3.0	7.0	6.0
26	8.0	8.0	8.0	7.0	6.0	6.0	1.0	1.0	4.0	4.0	8.0	6.0
27	8.0	8.0	8.0	8.0	6.0	4.0	1.0	1.0	4.0	4.0	8.0	6.0
28	8.0	8.0	8.0	7.0	4.0	4.0	1.0	1.0	4.0	4.0	8.0	6.0
29	8.0	8.0	8.0	7.0	4.0	3.0	1.0	1.0	--	--	8.0	6.0
30	8.0	8.0	7.0	7.0	3.0	1.0	1.0	1.0	--	--	8.0	7.0
31	8.0	8.0	--	--	2.0	1.0	1.0	1.0	--	--	8.0	7.0
AVG	8.8	8.6	7.9	7.5	6.1	5.8	3.7	3.3	3.8	3.4	6.3	5.2

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	7.0	7.0	6.0	12.0	9.0	13.0	11.0	16.0	15.0	16.0	14.0
2	7.0	7.0	7.0	6.0	13.0	11.0	13.0	12.0	16.0	15.0	16.0	15.0
3	7.0	6.0	7.0	6.0	14.0	12.0	12.0	11.0	16.0	15.0	15.0	14.0
4	7.0	6.0	9.0	7.0	14.0	13.0	12.0	11.0	16.0	15.0	14.0	13.0
5	7.0	7.0	10.0	8.0	14.0	13.0	13.0	12.0	15.0	14.0	13.0	12.0
6	7.0	6.0	11.0	8.0	13.0	12.0	13.0	12.0	15.0	13.0	13.0	12.0
7	7.0	6.0	11.0	8.0	12.0	12.0	12.0	12.0	15.0	14.0	14.0	13.0
8	8.0	6.0	11.0	8.0	13.0	12.0	13.0	12.0	15.0	13.0	15.0	14.0
9	7.0	6.0	11.0	8.0	13.0	13.0	15.0	13.0	16.0	14.0	17.0	15.0
10	7.0	6.0	11.0	8.0	13.0	13.0	15.0	14.0	16.0	16.0	17.0	16.0
11	8.0	6.0	11.0	8.0	13.0	12.0	15.0	14.0	16.0	16.0	17.0	17.0
12	8.0	7.0	11.0	8.0	13.0	13.0	14.0	13.0	16.0	15.0	17.0	16.0
13	7.0	6.0	11.0	8.0	15.0	13.0	14.0	13.0	17.0	14.0	16.0	15.0
14	6.0	6.0	9.0	9.0	16.0	14.0	14.0	13.0	18.0	16.0	15.0	13.0
15	7.0	6.0	9.0	8.0	16.0	15.0	15.0	13.0	17.0	17.0	13.0	12.0
16	7.0	6.0	9.0	8.0	17.0	16.0	15.0	14.0	17.0	14.0	12.0	12.0
17	7.0	7.0	12.0	9.0	17.0	16.0	16.0	14.0	15.0	14.0	13.0	12.0
18	7.0	6.0	12.0	10.0	17.0	17.0	16.0	15.0	16.0	14.0	13.0	13.0
19	6.0	6.0	10.0	9.0	17.0	16.0	17.0	16.0	16.0	15.0	13.0	13.0
20	7.0	6.0	9.0	8.0	16.0	15.0	17.0	16.0	16.0	15.0	13.0	12.0
21	9.0	7.0	12.0	9.0	15.0	14.0	17.0	15.0	17.0	16.0	13.0	12.0
22	8.0	7.0	12.0	9.0	14.0	13.0	17.0	15.0	17.0	16.0	13.0	13.0
23	8.0	7.0	13.0	11.0	13.0	13.0	18.0	17.0	17.0	16.0	13.0	13.0
24	7.0	6.0	13.0	11.0	13.0	12.0	18.0	18.0	17.0	16.0	13.0	12.0
25	7.0	6.0	11.0	9.0	12.0	11.0	18.0	17.0	16.0	16.0	13.0	12.0
26	8.0	6.0	10.0	10.0	11.0	11.0	17.0	16.0	16.0	15.0	13.0	12.0
27	9.0	7.0	10.0	9.0	11.0	11.0	18.0	17.0	15.0	14.0	12.0	12.0
28	9.0	7.0	9.0	9.0	11.0	11.0	18.0	16.0	14.0	13.0	13.0	12.0
29	7.0	6.0	9.0	9.0	11.0	11.0	16.0	15.0	14.0	13.0	13.0	13.0
30	6.0	6.0	9.0	9.0	12.0	10.0	17.0	16.0	14.0	13.0	13.0	12.0
31	--	--	11.0	8.0	--	--	17.0	16.0	15.0	14.0	--	--
AVG	7.3	6.3	10.2	8.4	13.7	12.8	15.3	14.1	15.8	14.7	14.0	13

14222890 COLUMBIA RIVER NEAR COLUMBIA CITY, OREG.

LOCATION.--Lat 45°54'55", long 122°48'54", in SW¼ sec.16, T.5 N., R.1 W., Columbia County, temperature recorder at head of Deer Island, 1.8 miles northwest of Columbia City and at mile 82.4.

DRAINAGE AREA.--253,900 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: October 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C Aug. 14, 15, 23; minimum, freezing point Jan. 31.

REMARKS.--Recorder stopped June 28-30; range in temperature, 16.0°C to 18.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	13	13	13	12	12	12	12	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	12	12	12	12	12	12	12	12	--
NOVEMBER																																
MAXIMUM	12	12	12	11	11	11	10	10	10	10	10	10	10	10	10	9	9	8	9	9	10	10	10	10	10	9	9	9	9	8	--	10
MINIMUM	12	12	11	11	10	10	10	10	10	9	10	10	10	10	9	9	8	8	8	9	9	10	10	9	9	9	9	9	8	8	--	10
DECEMBER																																
MAXIMUM	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	5	5	4	5	5	6	6	--	--	--	7
MINIMUM	8	8	7	7	7	7	6	6	6	6	7	7	7	7	6	6	7	6	6	5	5	5	4	4	4	5	5	5	--	--	--	6
JANUARY																																
MAXIMUM	--	--	--	--	--	--	6	6	6	5	5	4	4	4	4	4	4	4	4	4	--	--	--	--	--	--	--	--	--	--	1	--
MINIMUM	--	--	--	--	--	--	5	6	5	5	4	4	4	4	4	4	4	4	3	4	--	--	--	--	--	--	--	--	--	--	0	--
FEBRUARY																																
MAXIMUM	1	2	2	3	3	3	3	3	3	4	4	4	5	5	5	5	5	6	6	6	6	5	5	6	5	5	5	5	--	--	--	4
MINIMUM	1	1	2	2	2	2	3	2	2	3	4	4	4	4	4	4	4	4	4	4	5	4	4	5	4	4	4	4	--	--	--	3
MARCH																																
MAXIMUM	5	5	5	5	6	6	6	6	6	6	6	6	6	6	7	7	7	7	8	8	8	8	8	8	8	8	8	9	9	9	9	7
MINIMUM	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	6	6	6	6	6	7	7	7	7	8	8	8	8	8	8	9	6
APRIL																																
MAXIMUM	9	9	9	9	9	10	9	9	9	9	10	10	10	10	10	10	10	10	10	11	11	11	11	11	11	11	12	12	12	11	--	10
MINIMUM	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	10	10	10	10	10	10	11	11	11	11	11	11	11	11	11	--	10
MAY																																
MAXIMUM	11	11	11	11	12	12	12	13	13	13	14	14	14	14	14	14	14	14	14	14	14	15	14	14	15	15	15	15	15	15	15	14
MINIMUM	11	11	11	11	11	11	12	12	12	12	13	14	14	14	14	14	14	14	13	14	14	14	14	14	14	15	15	15	15	14	14	13
JUNE																																
MAXIMUM	15	16	16	17	17	17	17	18	18	18	18	18	18	18	19	19	20	20	19	19	19	19	18	18	18	18	18	--	--	--	--	18
MINIMUM	15	15	16	16	16	17	17	17	17	17	18	18	18	18	18	19	19	19	19	19	19	18	18	18	18	18	17	--	--	--	--	18
JULY																																
MAXIMUM	17	18	17	17	18	18	18	18	19	19	19	19	19	19	20	20	20	20	20	20	20	21	21	21	21	21	21	21	21	21	21	20
MINIMUM	17	17	17	17	17	18	18	18	18	18	18	18	19	19	19	19	19	19	19	20	20	20	20	20	20	20	20	21	20	20	21	19
AUGUST																																
MAXIMUM	21	21	21	21	21	21	21	21	21	21	21	21	21	22	22	21	21	21	21	21	21	21	22	21	21	21	21	21	21	21	21	21
MINIMUM	21	20	21	21	20	20	20	20	20	21	21	21	20	21	21	21	20	20	20	20	21	21	21	21	21	21	21	20	20	20	20	21
SEPTEMBER																																
MAXIMUM	21	21	21	20	20	19	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	--	19
MINIMUM	20	21	20	20	19	19	19	19	19	20	20	20	20	20	19	19	19	18	18	18	17	18	18	18	18	18	18	18	18	18	--	19

14222910 *COLUMBIA RIVER AT KALAMA, WASH.*

LOCATION.--Lat 46°01'13", long 122°51'30", in NW¼ sec.7, T.6 N., R.1 W., Cowlitz County, temperature recorder on right bank at dock of Dow Chemical Company, 1.0 mile northwest of Kalama and at mile 74.3.

DRAINAGE AREA.--254,000 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: September 1968 to September 1969.

EXTREMES.--Period of record:
Water temperatures: Maximum, 21.0°C on many days during July to September 1969; minimum, freezing point on several days in January 1969.

TEMPERATURE (°C) OF WATER, SEPTEMBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
SEPTEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	20	20	20	19	19	19	18	18	18	18	18	17	17	18	18	18	18	18	18	18	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	20	20	19	19	18	18	18	18	18	17	17	17	17	17	17	18	18	18	18	17	--	--
OCTOBER																																
MAXIMUM	17	17	17	16	16	16	16	16	16	16	15	15	14	14	14	14	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	14
MINIMUM	17	17	16	16	16	16	16	16	16	15	15	14	14	14	14	13	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	14
NOVEMBER																																
MAXIMUM	12	12	12	11	11	11	11	11	11	11	11	11	10	10	10	10	10	10	9	10	10	10	10	10	10	9	9	9	9	9	--	10
MINIMUM	12	12	11	11	11	11	11	11	11	11	11	10	10	10	10	10	9	9	9	9	10	10	10	9	9	9	9	9	9	8	--	10
DECEMBER																																
MAXIMUM	8	8	8	8	8	8	8	7	7	7	8	7	7	7	7	7	7	7	7	6	6	6	6	5	5	5	5	5	5	4	3	7
MINIMUM	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	5	5	5	5	5	5	4	3	1	6
JANUARY																																
MAXIMUM	1	0	2	2	--	--	4	4	4	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2
MINIMUM	0	0	1	2	--	--	4	4	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	1	1	0	0	1	1	0	0	2
FEBRUARY																																
MAXIMUM	1	1	1	2	2	2	2	2	2	2	2	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	--	--	--	2
MINIMUM	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	--	--	--	2
MARCH																																
MAXIMUM	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	6	6	6	6	6	7	7	7	7	7	8	5
MINIMUM	3	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	6	6	6	6	6	7	7	7	7	5
APRIL																																
MAXIMUM	7	7	7	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10	10	11	11	11	11	11	11	11	--	--	--	9
MINIMUM	7	7	7	7	7	8	8	8	8	9	9	9	9	9	9	10	10	10	10	10	10	10	11	11	10	10	10	11	--	--	--	9
MAY																																
MAXIMUM	--	--	--	--	11	11	12	12	12	12	12	12	13	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	13
MINIMUM	--	--	--	--	11	11	11	11	11	12	12	12	12	13	13	13	14	14	14	13	14	14	14	14	14	14	14	14	14	14	14	13
JUNE																																
MAXIMUM	15	16	16	16	16	16	16	16	16	17	17	18	18	18	19	19	19	19	19	19	18	18	18	18	17	17	17	17	17	18	--	17
MINIMUM	15	15	16	16	16	16	16	16	16	17	17	17	18	18	18	19	19	19	19	18	18	18	18	17	17	17	17	17	17	17	--	17
JULY																																
MAXIMUM	18	18	18	18	18	18	18	18	19	19	19	19	19	19	19	19	19	19	20	20	20	20	21	21	21	21	21	21	21	21	21	19
MINIMUM	18	18	18	17	18	18	18	18	18	18	19	19	19	19	19	19	19	19	19	20	20	20	20	21	21	20	21	21	21	20	21	19
AUGUST																																
MAXIMUM	21	21	21	21	21	21	20	20	21	21	21	21	21	21	21	21	20	20	20	21	21	21	21	21	21	21	21	21	20	20	20	21
MINIMUM	21	21	21	21	20	20	20	20	20	21	21	20	20	21	21	20	20	20	20	20	21	21	21	21	20	21	20	20	20	20	20	20
SEPTEMBER																																
MAXIMUM	20	21	20	20	20	19	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18	18	18	18	19	18	18	18	18	18	--	19
MINIMUM	20	20	20	20	19	19	19	20	20	20	20	20	20	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	18	--	19

14222920 KALAMA RIVER NEAR COUGAR, WASH.

LOCATION.--Lat 46°07'33", long 122°19'57", in NE¼NE¼ sec.5, T.7 N., R.4 E., Cowlitz County, temperature recorder at gaging station on right bank, 1.3 miles upstream from Fossil Creek and 5.3 miles north of Cougar.

DRAINAGE AREA.--12.3 sq mi.

PERIOD OF RECORD.--Water temperatures: April to September 1969.

EXTREMES.--Period of record:
Water temperatures: Maximum, 12.0°C Aug. 3, 6, 29, Sept. 4, 5, 14, 15.

REMARKS.--Recorder failed to ink properly June 21-22 and June 27 to July 4; no ranges in temperature available.

TEMPERATURE (°C) OF WATER, APRIL TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	6.0	5.0	9.0	5.0	--	--	11.0	9.0	10.0	7.0
2	--	--	6.0	4.0	9.0	5.0	--	--	11.0	9.0	10.0	9.0
3	--	--	6.0	5.0	9.0	6.0	--	--	12.0	9.0	11.0	10.0
4	--	--	7.0	5.0	9.0	6.0	--	--	11.0	10.0	12.0	10.0
5	--	--	7.0	5.0	8.0	7.0	11.0	10.0	11.0	10.0	12.0	10.0
6	--	--	7.0	5.0	8.0	8.0	11.0	10.0	12.0	9.0	11.0	8.0
7	--	--	7.0	5.0	8.0	8.0	10.0	10.0	11.0	10.0	10.0	8.0
8	--	--	6.0	4.0	8.0	7.0	10.0	9.0	11.0	9.0	10.0	8.0
9	--	--	6.0	4.0	7.0	6.0	10.0	8.0	11.0	9.0	9.0	7.0
10	--	--	6.0	4.0	7.0	6.0	10.0	9.0	10.0	9.0	9.0	7.0
11	--	--	6.0	4.0	8.0	6.0	9.0	8.0	10.0	10.0	10.0	8.0
12	--	--	6.0	4.0	8.0	7.0	9.0	8.0	10.0	9.0	11.0	9.0
13	--	--	6.0	5.0	8.0	7.0	9.0	7.0	10.0	7.0	11.0	10.0
14	--	--	6.0	5.0	9.0	5.0	9.0	7.0	10.0	8.0	12.0	10.0
15	--	--	7.0	5.0	8.0	6.0	8.0	6.0	10.0	9.0	12.0	9.0
16	--	--	6.0	5.0	9.0	5.0	9.0	7.0	11.0	9.0	11.0	10.0
17	--	--	7.0	5.0	9.0	6.0	9.0	7.0	11.0	8.0	11.0	10.0
18	--	--	6.0	5.0	10.0	8.0	9.0	7.0	10.0	9.0	10.0	10.0
19	--	--	6.0	5.0	9.0	8.0	10.0	7.0	10.0	9.0	10.0	10.0
20	--	--	7.0	4.0	9.0	9.0	10.0	8.0	10.0	8.0	10.0	10.0
21	--	--	8.0	5.0	--	--	11.0	8.0	10.0	8.0	10.0	10.0
22	--	--	8.0	5.0	--	--	10.0	7.0	10.0	8.0	10.0	10.0
23	--	--	8.0	5.0	9.0	9.0	10.0	7.0	10.0	8.0	10.0	10.0
24	--	--	6.0	6.0	10.0	9.0	10.0	8.0	10.0	9.0	10.0	10.0
25	5.0	4.0	7.0	5.0	10.0	9.0	11.0	9.0	11.0	9.0	10.0	10.0
26	6.0	4.0	6.0	6.0	10.0	10.0	11.0	8.0	11.0	9.0	10.0	9.0
27	6.0	5.0	7.0	6.0	--	--	10.0	8.0	11.0	10.0	10.0	9.0
28	5.0	4.0	7.0	6.0	--	--	11.0	9.0	11.0	10.0	10.0	9.0
29	6.0	4.0	6.0	6.0	--	--	11.0	8.0	12.0	9.0	10.0	9.0
30	6.0	4.0	6.0	6.0	--	--	11.0	8.0	11.0	9.0	10.0	9.0
31	--	--	8.0	5.0	--	--	10.0	9.0	11.0	8.0	--	--
AVG	--	--	6.5	4.9	8.6	7.0	9.9	8.0	10.6	8.9	10.4	9.1

14222930 FOSSIL CREEK NEAR COUGAR, WASH.

LOCATION.--Lat 46°08'22", long 122°20'30", in NE¼NW¼ sec.32, T.8 N., R.4 E., Cowlitz County, Gifford Pinchot National Forest, temperature recorder at gaging station on right bank, 2.3 miles upstream from mouth and 6.3 miles north of Cougar.

DRAINAGE AREA.--8.21 sq mi.

PERIOD OF RECORD.--Water temperatures: June to September 1969.

EXTREMES.--Period of record:
Water temperatures: Maximum, 15.0°C July 23, 24, Aug. 1, 14, 22, 23.

TEMPERATURE (°C) OF WATER, JUNE TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	--	--	12.0	9.0	15.0	12.0	14.0	11.0
2	--	--	--	--	--	--	10.0	9.0	14.0	12.0	13.0	11.0
3	--	--	--	--	--	--	9.0	8.0	14.0	11.0	11.0	10.0
4	--	--	--	--	--	--	10.0	8.0	12.0	11.0	11.0	10.0
5	--	--	--	--	--	--	11.0	9.0	11.0	10.0	12.0	9.0
6	--	--	--	--	--	--	11.0	9.0	13.0	10.0	12.0	9.0
7	--	--	--	--	--	--	10.0	10.0	12.0	10.0	13.0	10.0
8	--	--	--	--	--	--	12.0	9.0	14.0	10.0	12.0	11.0
9	--	--	--	--	--	--	13.0	10.0	14.0	11.0	14.0	12.0
10	--	--	--	--	--	--	12.0	10.0	14.0	11.0	14.0	12.0
11	--	--	--	--	--	--	10.0	10.0	12.0	11.0	14.0	12.0
12	--	--	--	--	--	--	10.0	9.0	12.0	11.0	14.0	12.0
13	--	--	--	--	--	--	10.0	9.0	14.0	10.0	13.0	11.0
14	--	--	--	--	--	--	11.0	9.0	15.0	11.0	12.0	10.0
15	--	--	--	--	--	--	11.0	9.0	13.0	11.0	11.0	9.0
16	--	--	--	--	--	--	12.0	9.0	14.0	11.0	11.0	10.0
17	--	--	--	--	--	--	13.0	10.0	13.0	10.0	11.0	10.0
18	--	--	--	--	--	--	12.0	10.0	13.0	11.0	11.0	10.0
19	--	--	--	--	--	--	13.0	11.0	14.0	11.0	10.0	9.0
20	--	--	--	--	--	--	14.0	11.0	14.0	11.0	10.0	9.0
21	--	--	--	--	--	--	14.0	11.0	14.0	12.0	10.0	9.0
22	--	--	--	--	--	--	14.0	11.0	15.0	11.0	10.0	9.0
23	--	--	--	--	--	--	15.0	12.0	15.0	12.0	10.0	9.0
24	--	--	--	--	8.0	7.0	15.0	12.0	13.0	12.0	9.0	8.0
25	--	--	--	--	8.0	7.0	14.0	12.0	14.0	11.0	9.0	9.0
26	--	--	--	--	8.0	7.0	14.0	11.0	13.0	11.0	9.0	8.0
27	--	--	--	--	8.0	7.0	14.0	12.0	11.0	10.0	9.0	9.0
28	--	--	--	--	8.0	7.0	14.0	12.0	12.0	10.0	10.0	9.0
29	--	--	--	--	8.0	7.0	14.0	11.0	12.0	10.0	10.0	9.0
30	--	--	--	--	11.0	8.0	14.0	11.0	13.0	10.0	9.0	9.0
31	--	--	--	--	--	--	14.0	12.0	13.0	10.0	--	--
AVG	--	--	--	--	--	--	12.3	10.1	13.2	10.8	11.2	9.8

14222950 DRY CREEK NEAR COUGAR, WASH.

LOCATION.--Lat 46°07'17", long 122°19'34", in SE¼NE¼ sec.5, T.7 N., R.4 E., Cowlitz County, temperature recorder at gaging station on right bank, 200 ft upstream from road bridge, 1.2 miles north of Lake Merrill, and 4.9 miles north of Cougar.

DRAINAGE AREA.--3.29 sq mi.

PERIOD OF RECORD.--Water temperatures: April to September 1969.

EXTREMES.--Period of record:
Water temperatures: Maximum, 26.0°C Aug. 31.

REMARKS.--Recorder failed to ink properly May 6-9, 11, 14, 22, 24, and June 6-23; no ranges in temperature available. No flow Sept. 1-16.

TEMPERATURE (°C) OF WATER, APRIL TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	6.0	5.0	8.0	6.0	10.0	8.0	19.0	12.0	--	--
2	--	--	6.0	5.0	9.0	6.0	10.0	9.0	19.0	11.0	--	--
3	--	--	6.0	5.0	9.0	6.0	9.0	8.0	19.0	10.0	--	--
4	--	--	7.0	5.0	10.0	7.0	9.0	8.0	13.0	11.0	--	--
5	--	--	7.0	6.0	9.0	8.0	11.0	9.0	13.0	11.0	--	--
6	--	--	--	--	--	--	11.0	9.0	18.0	9.0	--	--
7	--	--	--	--	--	--	10.0	9.0	16.0	10.0	--	--
8	--	--	--	--	--	--	12.0	9.0	19.0	10.0	--	--
9	--	--	--	--	--	--	13.0	10.0	20.0	10.0	--	--
10	--	--	6.0	5.0	--	--	11.0	10.0	20.0	12.0	--	--
11	--	--	--	--	--	--	11.0	10.0	14.0	11.0	--	--
12	--	--	6.0	5.0	--	--	11.0	10.0	15.0	11.0	--	--
13	--	--	6.0	5.0	--	--	12.0	9.0	21.0	10.0	--	--
14	--	--	--	--	--	--	13.0	9.0	22.0	11.0	--	--
15	--	--	6.0	5.0	--	--	13.0	9.0	16.0	11.0	--	--
16	--	--	6.0	5.0	--	--	14.0	9.0	20.0	9.0	--	--
17	--	--	6.0	5.0	--	--	14.0	10.0	21.0	9.0	11.0	10.0
18	--	--	6.0	6.0	--	--	15.0	10.0	18.0	11.0	11.0	10.0
19	--	--	6.0	5.0	--	--	16.0	10.0	16.0	12.0	10.0	9.0
20	--	--	6.0	5.0	--	--	16.0	11.0	20.0	11.0	9.0	9.0
21	--	--	7.0	6.0	--	--	16.0	11.0	22.0	12.0	9.0	9.0
22	--	--	--	--	--	--	17.0	11.0	23.0	10.0	9.0	9.0
23	--	--	7.0	--	--	--	18.0	11.0	24.0	11.0	9.0	8.0
24	--	--	--	--	9.0	8.0	18.0	12.0	18.0	12.0	8.0	8.0
25	6.0	5.0	7.0	6.0	9.0	8.0	17.0	11.0	20.0	11.0	9.0	8.0
26	6.0	5.0	7.0	6.0	8.0	8.0	17.0	10.0	18.0	9.0	8.0	8.0
27	6.0	5.0	6.0	6.0	9.0	8.0	18.0	11.0	14.0	9.0	9.0	8.0
28	6.0	5.0	6.0	6.0	8.0	8.0	19.0	12.0	19.0	13.0	9.0	9.0
29	6.0	5.0	7.0	6.0	8.0	8.0	18.0	10.0	20.0	12.0	9.0	9.0
30	5.0	5.0	6.0	6.0	9.0	8.0	19.0	11.0	22.0	10.0	9.0	9.0
31	--	--	7.0	5.0	--	--	18.0	12.0	26.0	10.0	--	--
AVG	--	--	6.3	--	--	--	14.0	9.9	18.8	10.6	--	--

14222960 MERRILL LAKE NEAR COUGAR, WASH.

LOCATION.--Lat 46°05'06", long 121°19'02", in SW¼SE¼ sec.16, T.7 N., R.4 E., Cowlitz County, temperature recorder 1,000 ft south southwest of east shore nonrecording gage and 2.3 miles north of Cougar.

DRAINAGE AREA.--9.08 sq mi.

PERIOD OF RECORD.--Water temperatures: May to September 1969.

EXTREMES.--Period of record:
Water temperatures: Maximums; at 3 ft 21.2°C June 17, 18; at 18 ft 20.1°C July 27, 31; at bottom 18.7°C Aug. 1.

REMARKS.--Recorder has 3 probes, with 2 constant (3 ft and 18 ft below surface) and one adjustable (3 ft-6 ft above bottom). Over inking caused loss of record Aug. 22, 25-30 and clock stoppage Sept. 11-31 at 3 ft; over inking caused loss of record May 6, 7, 10-15, June 30-July 16, Aug. 14, 16-20, 25, 27-30, Sept. 4-6, and clock stoppage Sept. 11-31 at 18 ft; clock stoppage Sept. 11-31 at bottom. No range in temperature is available for the above missing periods.

TEMPERATURE (°C) OF WATER, MAY TO SEPTEMBER 1969
(Recorded 3 feet below water surface)

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	16.2	14.4	17.4	16.6	20.5	20.0	19.9	18.9
2	--	--	8.1	7.7	16.8	14.4	17.7	16.8	20.3	19.9	19.7	19.3
3	--	--	8.3	7.8	18.2	16.2	17.3	16.9	20.2	19.7	19.3	18.4
4	--	--	9.5	7.9	18.5	15.7	16.9	16.6	20.0	19.5	--	--
5	--	--	10.6	9.1	18.2	16.2	17.0	16.4	19.5	19.1	--	--
6	--	--	12.0	9.9	18.0	17.4	16.9	16.5	19.5	18.8	--	--
7	--	--	11.2	9.8	18.0	17.2	16.8	16.4	19.2	18.9	18.4	17.6
8	--	--	12.1	10.0	18.2	17.4	17.1	16.3	19.0	18.5	18.7	18.2
9	--	--	12.3	9.0	18.2	17.6	18.0	17.0	19.3	18.8	18.9	--
10	--	--	12.4	10.7	17.7	17.2	18.1	17.9	19.5	19.0	19.9	18.8
11	--	--	14.2	11.3	17.2	16.6	17.9	17.5	19.5	19.0	--	--
12	--	--	15.0	12.1	17.7	16.9	17.8	17.3	19.0	18.8	--	--
13	--	--	14.9	9.8	17.9	17.0	17.9	17.1	19.7	18.8	--	--
14	--	--	14.4	12.3	18.9	17.1	17.9	17.1	20.0	19.3	--	--
15	--	--	14.2	12.5	20.0	17.2	18.0	17.1	20.0	19.5	--	--
16	--	--	14.0	13.4	20.2	19.3	18.4	17.4	19.5	18.8	--	--
17	--	--	14.9	11.0	21.2	19.8	18.7	17.8	19.6	18.9	--	--
18	--	--	14.5	12.2	21.2	18.8	19.2	18.0	19.5	19.1	--	--
19	--	--	14.0	13.7	21.0	17.3	19.9	18.7	19.1	19.0	--	--
20	--	--	14.4	13.7	20.8	19.7	19.9	19.2	19.7	18.9	--	--
21	--	--	14.7	10.4	19.7	19.1	19.6	18.9	19.8	19.2	--	--
22	--	--	15.6	12.7	19.1	18.7	20.2	19.0	--	--	--	--
23	--	--	15.7	12.0	18.7	17.9	20.7	19.8	20.1	19.6	--	--
24	--	--	15.6	15.1	17.9	17.1	20.9	20.3	19.9	19.6	--	--
25	--	--	15.1	13.0	17.1	16.8	20.9	20.0	--	--	--	--
26	--	--	15.0	14.7	16.8	16.3	20.9	20.0	--	--	--	--
27	--	--	14.7	14.0	16.3	15.9	20.6	20.1	--	--	--	--
28	--	--	14.1	13.7	15.9	15.5	20.6	20.1	--	--	--	--
29	--	--	14.0	13.5	15.9	15.2	20.4	19.9	--	--	--	--
30	--	--	13.8	13.2	17.4	15.6	20.8	20.0	--	--	--	--
31	--	--	15.0	13.2	--	--	20.7	20.1	19.3	18.5	--	--
AVG	--	--	13.4	11.6	18.2	17.0	18.8	18.1	19.6	19.1	--	--

TEMPERATURE (°C) OF WATER, MAY TO SEPTEMBER 1969
(Recorded 18 feet below water surface)

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	12.6	8.8	--	--	20.0	16.2	19.1	18.3
2	--	--	7.5	5.4	12.9	8.5	--	--	20.0	16.6	19.3	18.7
3	--	--	7.7	5.4	11.5	8.5	--	--	19.9	17.3	19.2	--
4	--	--	7.9	5.1	11.5	8.7	--	--	19.9	18.2	--	--
5	--	--	8.6	5.3	11.1	9.1	--	--	19.5	19.1	--	--
6	--	--	--	--	10.7	9.5	--	--	19.2	18.8	--	--
7	--	--	--	--	10.7	9.1	--	--	19.2	18.9	17.8	17.1
8	--	--	8.7	5.7	11.5	9.5	--	--	18.9	18.3	17.9	17.1
9	--	--	9.0	6.2	10.7	9.3	--	--	19.1	18.1	18.3	17.0
10	--	--	--	6.3	10.7	9.5	--	--	19.1	18.0	18.3	17.4
11	--	--	--	--	10.7	9.6	--	--	19.2	18.3	--	--
12	--	--	--	--	10.7	9.0	--	--	19.0	18.8	--	--
13	--	--	--	--	11.2	8.8	--	--	18.9	18.5	--	--
14	--	--	--	--	12.8	8.8	--	--	--	18.1	--	--
15	--	--	--	--	14.8	8.6	--	--	19.5	18.4	--	--
16	--	--	9.5	7.5	11.2	9.8	--	--	--	--	--	--
17	--	--	9.6	7.5	12.6	9.5	17.1	12.8	--	--	--	--
18	--	--	9.7	7.5	12.0	9.6	17.0	13.3	--	--	--	--
19	--	--	9.0	8.3	13.1	9.5	17.6	13.7	--	--	--	--
20	--	--	9.5	8.3	13.1	9.3	18.5	14.0	--	--	--	--
21	--	--	10.5	7.5	13.3	10.1	18.3	14.0	19.0	18.6	--	--
22	--	--	10.4	--	11.9	10.6	19.1	13.9	19.5	18.5	--	--
23	--	--	10.7	7.7	13.7	10.2	18.1	14.8	19.7	18.4	--	--
24	--	--	9.9	8.3	11.6	10.7	19.5	15.2	19.6	19.1	--	--
25	--	--	10.2	8.3	12.9	10.3	20.0	14.9	--	--	--	--
26	--	--	10.5	8.5	13.0	11.2	18.0	14.9	19.6	19.0	--	--
27	--	--	10.0	8.7	12.3	10.9	20.1	15.0	--	--	--	--
28	--	--	9.5	9.2	12.9	11.2	20.0	15.2	--	--	--	--
29	--	--	11.5	8.7	12.8	10.8	20.0	16.0	--	--	--	--
30	--	--	13.6	8.3	--	--	20.0	15.3	--	--	--	--
31	--	--	10.3	8.5	--	--	20.1	16.3	18.7	18.1	--	--
AVG	--	--	--	--	12.0	9.6	--	--	--	--	--	--

14222960 MERRILL LAKE NEAR COUGAR, WASH.--Continued

TEMPERATURE (°C) OF WATER, MAY TO SEPTEMBER 1969
(Recorded 3 to 6 feet above lake bottom)

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	8.4	7.3	11.5	9.0	18.7	13.5	18.5	17.8
2	--	--	5.4	5.2	9.2	7.2	11.5	8.9	17.7	13.8	18.6	17.9
3	--	--	7.2	5.2	9.2	7.3	11.3	9.5	18.1	13.8	18.5	17.7
4	--	--	6.5	5.3	9.3	7.6	12.1	9.5	18.0	14.5	17.8	17.3
5	--	--	6.2	5.3	9.0	7.7	15.8	9.2	17.7	14.6	17.3	16.7
6	--	--	7.1	5.4	8.8	7.8	13.1	9.0	17.6	14.3	16.9	16.7
7	--	--	6.2	5.6	9.0	7.8	11.9	9.1	17.6	14.2	17.0	16.8
8	--	--	6.2	5.7	8.8	7.9	12.1	9.6	17.2	15.1	17.3	17.0
9	--	--	6.8	5.8	8.9	7.9	12.1	9.7	17.4	14.0	17.8	17.2
10	--	--	7.4	6.0	8.2	8.0	12.1	9.8	17.8	14.3	18.3	17.5
11	--	--	7.8	6.1	8.4	8.0	13.6	9.8	17.7	15.8	--	--
12	--	--	7.3	6.0	9.0	7.8	12.4	9.9	17.6	16.1	--	--
13	--	--	7.6	6.1	10.0	8.0	13.8	10.2	17.4	16.8	--	--
14	--	--	7.5	6.2	11.0	8.2	14.5	10.0	18.1	15.8	--	--
15	--	--	7.0	6.3	12.9	8.1	15.6	10.0	18.1	16.4	--	--
16	--	--	7.8	6.4	9.5	8.2	14.6	10.3	18.0	16.5	--	--
17	--	--	8.0	6.7	11.4	8.3	15.4	10.7	17.9	15.9	--	--
18	--	--	7.4	6.6	10.1	8.3	15.3	10.6	17.9	16.4	--	--
19	--	--	7.2	6.8	10.4	8.3	16.2	10.8	17.6	17.2	--	--
20	--	--	7.2	7.0	10.9	8.1	16.8	10.8	17.8	17.4	--	--
21	--	--	9.0	6.8	10.8	8.6	16.8	10.8	18.0	17.6	--	--
22	--	--	8.1	6.8	9.9	8.7	17.2	11.2	18.1	17.6	--	--
23	--	--	8.3	7.0	10.9	8.8	16.8	11.0	18.2	17.4	--	--
24	--	--	7.8	7.0	9.9	8.7	16.7	11.7	18.4	17.9	--	--
25	--	--	8.8	7.1	9.8	8.8	14.8	12.1	18.3	18.1	--	--
26	--	--	7.8	7.1	9.9	8.8	16.0	11.3	18.4	18.2	--	--
27	--	--	7.8	7.2	10.0	8.9	16.9	12.8	18.2	18.0	--	--
28	--	--	7.7	7.2	10.8	9.0	18.1	11.9	18.1	17.4	--	--
29	--	--	7.9	7.3	10.9	8.9	16.6	13.2	18.0	17.3	--	--
30	--	--	8.2	7.2	11.3	9.1	16.6	13.3	17.9	17.4	--	--
31	--	--	8.4	7.3	--		17.0	13.8	17.8	17.4	--	--
AVG	--	--	7.4	6.3	9.8	8.2	14.6	10.6	17.9	16.1	--	--

14223500 KALAMA RIVER BELOW ITALIAN CREEK, NEAR KALAMA, WASH.

LOCATION (revised).--Lat 46°02'42", long 122°48'51", in NE¼SW¼ sec.33, T.7 N., R.1 W., Cowlitz County, at gaging station 2.8 miles northeast of Kalama, 5.7 miles downstream from Italian Creek, and at mile 4.2.

DRAINAGE AREA.--198 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1960 to September 1969 (miscellaneous).
Water temperatures: October 1954 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C July 23; minimum, 2.0°C Dec. 30 to Jan. 1, Jan. 25-27, Jan. 31 to Feb. 1.

Period of record:
Water temperatures: Maximum, 20.5°C July 28, 1958; minimum, freezing point Nov. 19, 20, 1958.

REMARKS.--Coliform and dissolved oxygen data furnished by Washington State Water Pollution Control Commission.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
21...	1410	14	3.9	1.3	2.6	.3	19	0	.0
JAN.									
22...	914	17	4.2	1.1	3.0	.3	20	0	1.4
APR.									
15...	1320	13	3.5	.9	2.8	.3	18	0	.2
JULY									
24...	390	18	4.6	1.1	4.1	.5	26	0	.2

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
21...	1.2	.1	.5	--	37	15	0	42	7.3
JAN.									
22...	1.6	.1	.7	10	41	15	0	45	7.4
APR.									
15...	1.2	.0	.5	--	33	12	0	35	7.0
JULY									
24...	2.3	.1	.2	--	52	16	0	52	7.3

DATE	COLOR (PLAT-INUM COBALT UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
21...	0	9	12.0	1100	--	--	--
JAN.							
22...	5	2	10.8	82	0	0	0
APR.							
15...	0	8	12.5	41	--	--	--
JULY							
24...	0	19	10.2	170	0	0	0

KALAMA RIVER BASIN

14223500 KALAMA RIVER BELOW ITALIAN CREEK, NEAR KALAMA, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.0	8.0	7.0	7.0	6.0	4.0	2.0	3.0	2.0	5.0	4.0
2	11.0	10.0	8.0	7.0	7.0	6.0	5.0	4.0	4.0	3.0	6.0	5.0
3	10.0	8.0	8.0	8.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	6.0
4	11.0	9.0	8.0	7.0	7.0	7.0	6.0	5.0	4.0	4.0	6.0	6.0
5	10.0	9.0	7.0	7.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	6.0
6	10.0	9.0	7.0	7.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	6.0
7	10.0	9.0	8.0	7.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	6.0
8	9.0	9.0	9.0	8.0	7.0	7.0	6.0	5.0	4.0	4.0	6.0	6.0
9	9.0	8.0	9.0	9.0	7.0	7.0	5.0	4.0	4.0	4.0	6.0	6.0
10	9.0	8.0	9.0	8.0	7.0	7.0	5.0	4.0	5.0	4.0	6.0	5.0
11	9.0	9.0	9.0	8.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
12	9.0	9.0	9.0	8.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
13	9.0	9.0	8.0	8.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0
14	9.0	8.0	8.0	8.0	7.0	7.0	5.0	5.0	5.0	5.0	6.0	5.0
15	9.0	8.0	8.0	7.0	7.0	7.0	5.0	4.0	5.0	5.0	7.0	6.0
16	9.0	8.0	7.0	7.0	7.0	7.0	4.0	4.0	5.0	5.0	7.0	6.0
17	9.0	8.0	8.0	7.0	7.0	7.0	4.0	4.0	5.0	5.0	7.0	7.0
18	9.0	8.0	8.0	8.0	7.0	6.0	4.0	4.0	5.0	5.0	7.0	6.0
19	8.0	8.0	8.0	8.0	6.0	6.0	4.0	4.0	5.0	5.0	7.0	6.0
20	9.0	8.0	8.0	8.0	6.0	5.0	4.0	4.0	5.0	5.0	7.0	6.0
21	9.0	8.0	8.0	8.0	5.0	5.0	4.0	3.0	5.0	5.0	7.0	6.0
22	9.0	8.0	8.0	8.0	5.0	5.0	3.0	3.0	5.0	5.0	7.0	6.0
23	9.0	9.0	8.0	8.0	6.0	5.0	3.0	3.0	5.0	5.0	7.0	6.0
24	9.0	9.0	9.0	8.0	6.0	6.0	3.0	3.0	5.0	4.0	6.0	6.0
25	9.0	9.0	8.0	8.0	6.0	6.0	3.0	2.0	4.0	4.0	7.0	6.0
26	9.0	8.0	8.0	8.0	6.0	6.0	2.0	2.0	4.0	4.0	7.0	6.0
27	8.0	8.0	8.0	8.0	6.0	6.0	3.0	2.0	4.0	4.0	7.0	6.0
28	9.0	8.0	8.0	8.0	6.0	4.0	3.0	3.0	5.0	4.0	7.0	6.0
29	10.0	9.0	8.0	7.0	4.0	4.0	3.0	3.0	--	--	7.0	6.0
30	10.0	9.0	7.0	7.0	4.0	2.0	3.0	3.0	--	--	7.0	6.0
31	9.0	8.0	--	--	2.0	2.0	3.0	2.0	--	--	7.0	7.0
AVG	9.3	8.5	8.0	7.6	6.2	5.9	4.2	3.8	4.5	4.3	6.3	5.8

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	6.0	7.0	6.0	12.0	11.0	14.0	13.0	16.0	14.0	15.0	13.0
2	6.0	6.0	7.0	6.0	13.0	12.0	14.0	12.0	16.0	14.0	15.0	14.0
3	6.0	6.0	7.0	7.0	13.0	12.0	12.0	12.0	15.0	13.0	14.0	12.0
4	6.0	6.0	8.0	7.0	14.0	13.0	12.0	11.0	15.0	13.0	12.0	12.0
5	7.0	6.0	9.0	8.0	14.0	13.0	13.0	12.0	14.0	12.0	13.0	11.0
6	7.0	6.0	9.0	9.0	13.0	12.0	14.0	13.0	15.0	12.0	13.0	11.0
7	7.0	6.0	10.0	9.0	12.0	11.0	14.0	13.0	14.0	13.0	14.0	12.0
8	7.0	6.0	10.0	8.0	13.0	12.0	15.0	13.0	15.0	12.0	14.0	13.0
9	7.0	7.0	10.0	8.0	13.0	13.0	17.0	14.0	16.0	14.0	15.0	13.0
10	7.0	7.0	10.0	8.0	13.0	12.0	16.0	14.0	16.0	14.0	16.0	14.0
11	7.0	7.0	10.0	8.0	13.0	12.0	14.0	13.0	15.0	14.0	15.0	14.0
12	8.0	7.0	9.0	9.0	13.0	12.0	14.0	13.0	14.0	13.0	15.0	14.0
13	7.0	7.0	9.0	9.0	15.0	12.0	13.0	12.0	15.0	13.0	14.0	13.0
14	7.0	6.0	9.0	9.0	16.0	14.0	15.0	12.0	16.0	14.0	13.0	12.0
15	7.0	6.0	9.0	8.0	17.0	14.0	16.0	13.0	16.0	14.0	12.0	11.0
16	7.0	7.0	9.0	9.0	17.0	14.0	16.0	13.0	14.0	13.0	11.0	11.0
17	7.0	7.0	11.0	9.0	17.0	14.0	16.0	13.0	14.0	13.0	12.0	11.0
18	7.0	7.0	11.0	9.0	17.0	14.0	17.0	13.0	14.0	13.0	12.0	11.0
19	7.0	6.0	9.0	9.0	15.0	14.0	17.0	13.0	14.0	14.0	12.0	12.0
20	7.0	6.0	9.0	8.0	14.0	13.0	17.0	14.0	15.0	13.0	12.0	11.0
21	8.0	7.0	11.0	9.0	13.0	13.0	16.0	14.0	16.0	14.0	12.0	11.0
22	8.0	7.0	11.0	10.0	13.0	12.0	17.0	14.0	16.0	14.0	12.0	11.0
23	8.0	7.0	12.0	11.0	12.0	12.0	18.0	14.0	16.0	14.0	12.0	11.0
24	7.0	6.0	12.0	11.0	12.0	11.0	17.0	14.0	15.0	14.0	12.0	11.0
25	7.0	6.0	11.0	10.0	11.0	11.0	16.0	14.0	14.0	14.0	12.0	11.0
26	7.0	6.0	11.0	10.0	11.0	11.0	16.0	14.0	14.0	13.0	12.0	11.0
27	8.0	7.0	11.0	10.0	11.0	11.0	17.0	14.0	13.0	12.0	11.0	11.0
28	8.0	7.0	10.0	9.0	11.0	11.0	16.0	14.0	13.0	12.0	12.0	11.0
29	7.0	6.0	9.0	9.0	11.0	11.0	16.0	13.0	13.0	11.0	12.0	12.0
30	7.0	6.0	10.0	9.0	13.0	11.0	16.0	14.0	14.0	12.0	12.0	11.0
31	--	--	11.0	9.0	--	--	16.0	14.0	14.0	13.0	--	--
AVG	7.1	6.4	9.7	8.7	13.4	12.2	15.3	13.1	14.7	13.1	12.9	11.8

14223780 COLUMBIA RIVER AT PRESCOTT, OREG.

LOCATION.--Lat 46°02'51", long 122°52'37", in SW¼NW¼ sec.36, T.7 N., R.2 W., Columbia County, temperature recorder on left bank, 1.0 mile upstream from gaging station at Prescott and at mile 72.9.

DRAINAGE AREA.--254,200 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: August 1967 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C Aug. 25; minimum, freezing point Jan. 31.

Period of record:
Water temperatures: Maximum, 23.0°C on several days during August 1967; minimum, freezing point Jan. 31, 1969.

REMARKS.--Thermograph not operating properly Dec. 23 to Jan. 6.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	17.0	17.0	12.0	12.0	8.0	8.0	--	--	1.0	1.0	5.0	4.0
2	17.0	17.0	12.0	12.0	8.0	8.0	--	--	2.0	1.0	5.0	4.0
3	17.0	16.0	12.0	12.0	8.0	8.0	--	--	2.0	2.0	5.0	4.0
4	16.0	16.0	12.0	11.0	8.0	8.0	--	--	2.0	2.0	5.0	4.0
5	16.0	15.0	12.0	11.0	8.0	7.0	--	--	3.0	2.0	5.0	4.0
6	16.0	16.0	11.0	11.0	7.0	7.0	--	--	3.0	2.0	5.0	4.0
7	16.0	16.0	11.0	10.0	7.0	7.0	5.0	5.0	3.0	2.0	5.0	4.0
8	16.0	15.0	11.0	10.0	7.0	7.0	6.0	5.0	3.0	2.0	6.0	4.0
9	16.0	15.0	11.0	10.0	7.0	7.0	6.0	5.0	3.0	2.0	6.0	5.0
10	15.0	15.0	10.0	10.0	7.0	7.0	5.0	5.0	4.0	3.0	6.0	5.0
11	15.0	14.0	10.0	10.0	8.0	7.0	5.0	4.0	4.0	4.0	6.0	4.0
12	15.0	14.0	11.0	10.0	8.0	7.0	4.0	4.0	4.0	4.0	6.0	4.0
13	14.0	14.0	11.0	10.0	7.0	7.0	4.0	4.0	5.0	4.0	6.0	5.0
14	14.0	13.0	10.0	10.0	7.0	7.0	4.0	4.0	5.0	5.0	6.0	5.0
15	13.0	13.0	10.0	10.0	7.0	7.0	4.0	4.0	5.0	4.0	6.0	5.0
16	13.0	13.0	10.0	9.0	7.0	7.0	4.0	4.0	5.0	4.0	6.0	5.0
17	13.0	12.0	9.0	9.0	7.0	7.0	4.0	4.0	5.0	4.0	6.0	6.0
18	13.0	13.0	9.0	9.0	7.0	7.0	4.0	4.0	5.0	4.0	6.0	6.0
19	13.0	13.0	9.0	9.0	7.0	6.0	4.0	4.0	5.0	4.0	7.0	6.0
20	13.0	13.0	9.0	9.0	6.0	6.0	4.0	3.0	5.0	5.0	7.0	7.0
21	13.0	13.0	9.0	9.0	6.0	6.0	4.0	4.0	5.0	5.0	8.0	7.0
22	13.0	13.0	10.0	9.0	6.0	5.0	4.0	3.0	5.0	4.0	7.0	7.0
23	13.0	13.0	10.0	9.0	--	--	4.0	3.0	5.0	4.0	7.0	7.0
24	14.0	13.0	9.0	9.0	--	--	3.0	2.0	5.0	4.0	8.0	7.0
25	13.0	13.0	9.0	9.0	--	--	3.0	2.0	5.0	4.0	8.0	7.0
26	13.0	13.0	9.0	9.0	--	--	2.0	2.0	5.0	4.0	8.0	7.0
27	13.0	13.0	9.0	9.0	--	--	2.0	2.0	5.0	4.0	8.0	8.0
28	13.0	13.0	9.0	9.0	--	--	2.0	2.0	5.0	4.0	9.0	8.0
29	13.0	13.0	9.0	8.0	--	--	2.0	1.0	--	--	9.0	8.0
30	13.0	13.0	9.0	8.0	--	--	1.0	1.0	--	--	9.0	8.0
31	13.0	12.0	--	--	--	--	1.0	0.0	--	--	9.0	9.0
AVG	14.2	13.9	10.1	9.7	--	--	3.6	3.2	4.0	3.3	6.6	5.7

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	9.0	11.0	11.0	16.0	15.0	18.0	17.0	21.0	21.0	21.0	20.0
2	9.0	8.0	11.0	11.0	16.0	15.0	18.0	17.0	21.0	20.0	21.0	20.0
3	9.0	8.0	11.0	11.0	17.0	16.0	17.0	17.0	21.0	20.0	20.0	20.0
4	9.0	8.0	11.0	11.0	17.0	16.0	18.0	17.0	21.0	21.0	20.0	19.0
5	9.0	8.0	12.0	11.0	17.0	16.0	18.0	17.0	21.0	20.0	19.0	19.0
6	9.0	8.0	12.0	11.0	16.0	16.0	18.0	18.0	21.0	20.0	20.0	19.0
7	9.0	9.0	13.0	12.0	17.0	16.0	18.0	18.0	20.0	20.0	20.0	19.0
8	9.0	8.0	13.0	12.0	17.0	16.0	19.0	18.0	20.0	20.0	20.0	19.0
9	9.0	9.0	13.0	12.0	17.0	16.0	19.0	18.0	20.0	20.0	20.0	20.0
10	9.0	9.0	13.0	12.0	17.0	17.0	19.0	19.0	21.0	20.0	20.0	20.0
11	10.0	9.0	14.0	13.0	17.0	17.0	18.0	18.0	21.0	20.0	20.0	20.0
12	10.0	9.0	14.0	13.0	18.0	17.0	19.0	18.0	21.0	20.0	20.0	20.0
13	9.0	9.0	14.0	14.0	18.0	17.0	19.0	19.0	21.0	21.0	20.0	20.0
14	10.0	9.0	14.0	14.0	18.0	18.0	19.0	19.0	21.0	20.0	20.0	20.0
15	10.0	10.0	15.0	14.0	19.0	18.0	19.0	19.0	21.0	21.0	20.0	19.0
16	10.0	10.0	15.0	14.0	19.0	18.0	20.0	19.0	21.0	20.0	19.0	19.0
17	10.0	10.0	15.0	14.0	19.0	19.0	19.0	19.0	20.0	20.0	19.0	19.0
18	10.0	10.0	15.0	14.0	19.0	19.0	20.0	19.0	20.0	20.0	19.0	18.0
19	10.0	10.0	14.0	14.0	19.0	19.0	20.0	19.0	21.0	20.0	18.0	17.0
20	10.0	10.0	14.0	14.0	19.0	19.0	20.0	19.0	21.0	20.0	18.0	18.0
21	11.0	10.0	15.0	14.0	19.0	19.0	20.0	20.0	21.0	21.0	18.0	18.0
22	11.0	11.0	15.0	15.0	19.0	18.0	20.0	20.0	21.0	21.0	18.0	18.0
23	11.0	11.0	15.0	15.0	18.0	18.0	21.0	20.0	21.0	21.0	18.0	18.0
24	11.0	11.0	15.0	15.0	18.0	18.0	21.0	20.0	21.0	21.0	18.0	18.0
25	11.0	11.0	15.0	15.0	18.0	18.0	21.0	21.0	22.0	21.0	18.0	18.0
26	11.0	11.0	16.0	15.0	18.0	18.0	21.0	21.0	21.0	21.0	18.0	18.0
27	12.0	11.0	15.0	15.0	18.0	18.0	21.0	21.0	21.0	21.0	18.0	18.0
28	11.0	11.0	15.0	15.0	18.0	17.0	21.0	21.0	21.0	20.0	18.0	18.0
29	11.0	11.0	15.0	15.0	17.0	17.0	21.0	21.0	21.0	20.0	18.0	18.0
30	11.0	11.0	15.0	15.0	18.0	17.0	21.0	20.0	21.0	20.0	18.0	17.0
31	--	--	15.0	15.0	--	--	21.0	21.0	20.0	20.0	--	--
AVG	10.0	9.6	13.8	13.4	17.7	17.2	19.4	19.0	20.8	20.3	19.1	18.8

14232500 CISPUS RIVER NEAR RANDLE, WASH.

LOCATION.--Lat 46°26'50", long 121°51'46", in NW¼ sec.18, T.11 N., R.8 E. (unsurveyed), Lewis County, Gifford Pinchot National Forest, temperature recorder at gaging station on left bank, 60 ft upstream from bridge to Tower Rock ranger station, 4.1 miles downstream from North Fork, 8.0 miles southeast of Randle, and at mile 15.8.

DRAINAGE AREA.--321 sq mi.

PERIOD OF RECORD.--Water temperatures: May 1950 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 14.0°C on several days during July and August; minimum, 1.0°C Dec. 30 to Jan. 1.

Period of record:
Water temperatures: Maximum, 16.5°C July 27-29, 1958; minimum, freezing point Jan. 20, 1954, and on several days during January and February 1963.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	8.0	6.0	6.0	5.0	4.0	2.0	1.0	2.0	2.0	5.0	4.0
2	9.0	8.0	7.0	6.0	4.0	4.0	2.0	2.0	2.0	2.0	5.0	4.0
3	9.0	8.0	7.0	6.0	4.0	4.0	2.0	2.0	3.0	2.0	5.0	4.0
4	9.0	8.0	6.0	6.0	4.0	4.0	3.0	2.0	3.0	3.0	6.0	5.0
5	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	5.0	4.0
6	8.0	8.0	6.0	6.0	4.0	4.0	4.0	3.0	3.0	3.0	5.0	4.0
7	8.0	8.0	6.0	6.0	4.0	4.0	4.0	3.0	3.0	3.0	5.0	4.0
8	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	5.0	3.0
9	8.0	7.0	7.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	5.0	3.0
10	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	5.0	3.0
11	8.0	7.0	7.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	4.0	3.0
12	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	3.0	5.0	3.0
13	8.0	8.0	6.0	6.0	4.0	3.0	3.0	3.0	4.0	3.0	5.0	3.0
14	8.0	8.0	6.0	6.0	3.0	3.0	3.0	3.0	4.0	4.0	5.0	3.0
15	8.0	7.0	6.0	6.0	3.0	3.0	3.0	3.0	4.0	4.0	6.0	4.0
16	7.0	7.0	6.0	6.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
17	7.0	7.0	6.0	6.0	3.0	3.0	3.0	3.0	4.0	4.0	5.0	4.0
18	7.0	7.0	6.0	6.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
19	7.0	7.0	6.0	6.0	3.0	3.0	3.0	3.0	4.0	4.0	6.0	4.0
20	7.0	7.0	6.0	6.0	3.0	3.0	3.0	3.0	5.0	4.0	6.0	4.0
21	7.0	7.0	6.0	6.0	3.0	3.0	3.0	3.0	4.0	3.0	6.0	4.0
22	7.0	7.0	6.0	6.0	3.0	3.0	3.0	2.0	4.0	4.0	4.0	4.0
23	8.0	7.0	6.0	6.0	3.0	3.0	2.0	2.0	4.0	3.0	6.0	4.0
24	8.0	7.0	6.0	6.0	3.0	3.0	2.0	2.0	3.0	3.0	6.0	3.0
25	8.0	8.0	6.0	6.0	3.0	3.0	2.0	2.0	3.0	3.0	4.0	4.0
26	8.0	7.0	6.0	6.0	3.0	3.0	2.0	2.0	4.0	3.0	7.0	4.0
27	7.0	7.0	6.0	6.0	3.0	3.0	2.0	2.0	4.0	3.0	6.0	4.0
28	8.0	7.0	6.0	6.0	3.0	3.0	2.0	2.0	4.0	4.0	6.0	4.0
29	8.0	8.0	6.0	5.0	3.0	2.0	2.0	2.0	--	--	6.0	4.0
30	8.0	7.0	5.0	5.0	2.0	1.0	2.0	2.0	--	--	6.0	4.0
31	7.0	6.0	--	--	1.0	1.0	2.0	2.0	--	--	5.0	4.0
AVG	7.8	7.3	6.1	5.9	3.3	3.2	2.6	2.5	3.4	3.2	5.2	3.7

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.0	4.0	6.0	5.0	9.0	7.0	13.0	10.0	14.0	11.0	13.0	9.0
2	5.0	4.0	6.0	5.0	9.0	7.0	12.0	11.0	14.0	11.0	12.0	10.0
3	5.0	4.0	7.0	6.0	9.0	7.0	11.0	9.0	14.0	10.0	11.0	9.0
4	5.0	4.0	8.0	5.0	10.0	8.0	12.0	9.0	12.0	10.0	9.0	9.0
5	6.0	4.0	9.0	6.0	9.0	8.0	12.0	10.0	12.0	9.0	11.0	8.0
6	6.0	5.0	8.0	6.0	9.0	8.0	12.0	11.0	13.0	9.0	12.0	8.0
7	7.0	4.0	8.0	6.0	9.0	8.0	13.0	11.0	13.0	10.0	13.0	9.0
8	7.0	4.0	8.0	6.0	10.0	8.0	13.0	11.0	14.0	10.0	12.0	9.0
9	6.0	4.0	8.0	6.0	10.0	8.0	14.0	11.0	14.0	11.0	12.0	11.0
10	7.0	5.0	7.0	6.0	11.0	8.0	12.0	11.0	14.0	11.0	13.0	10.0
11	7.0	4.0	7.0	6.0	11.0	9.0	11.0	11.0	12.0	11.0	13.0	11.0
12	6.0	5.0	8.0	6.0	11.0	9.0	11.0	9.0	11.0	10.0	13.0	10.0
13	5.0	4.0	7.0	6.0	11.0	9.0	12.0	9.0	14.0	10.0	12.0	10.0
14	6.0	4.0	7.0	6.0	11.0	9.0	12.0	9.0	14.0	11.0	11.0	9.0
15	7.0	6.0	7.0	5.0	12.0	9.0	13.0	9.0	13.0	11.0	11.0	7.0
16	6.0	5.0	7.0	6.0	12.0	10.0	13.0	9.0	13.0	10.0	9.0	8.0
17	6.0	6.0	8.0	6.0	12.0	10.0	13.0	9.0	13.0	9.0	10.0	9.0
18	6.0	6.0	7.0	6.0	12.0	10.0	13.0	9.0	12.0	10.0	10.0	9.0
19	6.0	5.0	6.0	6.0	13.0	11.0	14.0	11.0	11.0	11.0	9.0	9.0
20	7.0	5.0	8.0	6.0	12.0	11.0	14.0	11.0	13.0	10.0	9.0	9.0
21	8.0	6.0	8.0	6.0	11.0	10.0	14.0	11.0	14.0	11.0	11.0	9.0
22	7.0	6.0	8.0	6.0	10.0	10.0	14.0	11.0	14.0	10.0	10.0	9.0
23	7.0	6.0	8.0	6.0	10.0	10.0	14.0	11.0	14.0	11.0	10.0	9.0
24	6.0	5.0	8.0	7.0	10.0	9.0	14.0	11.0	13.0	11.0	10.0	9.0
25	6.0	4.0	7.0	6.0	10.0	9.0	13.0	11.0	13.0	10.0	10.0	9.0
26	7.0	4.0	7.0	7.0	9.0	9.0	14.0	10.0	12.0	9.0	11.0	8.0
27	7.0	6.0	7.0	6.0	10.0	9.0	14.0	11.0	11.0	9.0	9.0	8.0
28	7.0	6.0	7.0	6.0	9.0	9.0	14.0	11.0	12.0	9.0	10.0	9.0
29	6.0	4.0	7.0	7.0	11.0	9.0	14.0	11.0	12.0	8.0	11.0	9.0
30	6.0	5.0	7.0	6.0	12.0	9.0	14.0	10.0	13.0	9.0	10.0	9.0
31	--	--	8.0	6.0	--	--	14.0	11.0	13.0	9.0	--	--
AVG	6.2	4.8	7.3	5.9	10.4	8.9	13.0	10.2	12.9	10.0	10.9	9.0

14233400 COWLITZ RIVER NEAR RANDLE, WASH.
(Formerly published as 14233500 Cowlitz River near Kosmos)

LOCATION.--Lat 46°28'13", long 122°05'51", in NE¼ sec.6, T.11 N., R.6 E., Lewis County, temperature recorder at gaging station on right bank, 0.5 mile downstream from Cispus River, 8.1 mile southwest of Randle and at mile 89.3.

DRAINAGE AREA.--1,030 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1959 to September 1969.
Water temperatures: November 1952 to August 1968, April to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C July 23, 24.

Period of record:
Water temperatures: Maximum, 18.5°C July 11, 12, 1958, July 23, 24, 1969; minimum (1952-68), freezing point Jan. 20, 1962.

REMARKS.--Prior to October 1968 data collected at site 1.0 mile downstream and published as "near Kosmos (station 14233500)."

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)
NOV.											
08...	4400	14	5.9	1.2	2.8	.5	29	0	2.0	.8	.1
DEC.											
20...	4030	16	6.4	1.2	3.0	.4	33	0	2.0	.7	.0
FEB.											
19...	2620	17	7.3	1.4	3.5	.5	33	0	2.4	.9	.0
MAR.											
24...	3850	15	6.7	1.2	2.9	.4	31	0	2.9	.9	.1
MAY											
13...	15500	9.6	3.8	.7	1.6	.3	19	0	.6	.8	.0
JUNE											
20...	5790	--	4.9	.8	2.0	.2	20	0	--	--	.0
JULY											
23...	2430	14	6.0	1.1	2.8	.6	28	0	4.2	.7	.0
AUG.											
07...	1580	16	6.7	1.3	3.7	.8	33	0	2.4	1.3	.0
SEPT.											
19...	2340	13	5.5	1.2	3.0	.7	27	0	2.4	.8	.1

DATE	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM COBALT UNITS)	TEMPER-ATURE (DEG C)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
NOV.											
08...	.0	43	20	0	53	7.2	0	7	--	--	--
DEC.											
20...	.0	47	21	0	59	7.4	5	3	--	--	--
FEB.											
19...	.1	57	24	0	64	7.4	0	5	--	--	--
MAR.											
24...	.0	41	22	0	58	7.4	0	7	0	0	0
MAY											
13...	.2	28	13	0	33	7.2	5	10	--	--	--
JUNE											
20...	--	--	16	0	37	7.0	5	13	--	--	--
JULY											
23...	.0	48	20	0	52	7.3	0	18	--	--	--
AUG.											
07...	.1	53	22	0	61	7.4	0	16	--	--	--
SEPT.											
19...	.2	51	19	0	51	7.3	5	11	--	--	--

COWLITZ RIVER BASIN

14233400 COWLITZ RIVER NEAR RANDLE, WASH.--Continued

TEMPERATURE (°C) OF WATER, APRIL TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	6.0	6.0	10.0	8.0	14.0	12.0	17.0	14.0	16.0	14.0
2	6.0	--	7.0	6.0	10.0	9.0	14.0	12.0	16.0	14.0	15.0	14.0
3	6.0	5.0	7.0	6.0	10.0	9.0	12.0	11.0	16.0	14.0	14.0	12.0
4	6.0	6.0	8.0	7.0	11.0	9.0	13.0	10.0	16.0	14.0	12.0	11.0
5	7.0	6.0	10.0	8.0	11.0	9.0	14.0	12.0	14.0	13.0	13.0	10.0
6	7.0	6.0	10.0	8.0	10.0	9.0	14.0	12.0	15.0	12.0	14.0	11.0
7	8.0	6.0	9.0	8.0	10.0	9.0	14.0	12.0	15.0	13.0	15.0	13.0
8	8.0	6.0	9.0	8.0	10.0	9.0	16.0	13.0	16.0	14.0	15.0	14.0
9	8.0	7.0	8.0	7.0	11.0	10.0	16.0	14.0	16.0	14.0	15.0	14.0
10	8.0	7.0	9.0	6.0	11.0	10.0	16.0	14.0	17.0	14.0	16.0	13.0
11	8.0	7.0	8.0	6.0	11.0	10.0	14.0	13.0	16.0	14.0	16.0	14.0
12	8.0	7.0	8.0	7.0	12.0	11.0	14.0	12.0	14.0	12.0	15.0	14.0
13	7.0	6.0	8.0	7.0	11.0	11.0	14.0	11.0	16.0	13.0	15.0	13.0
14	7.0	6.0	8.0	7.0	12.0	10.0	15.0	12.0	17.0	14.0	13.0	12.0
15	7.0	6.0	8.0	6.0	12.0	12.0	15.0	12.0	17.0	15.0	12.0	11.0
16	7.0	7.0	7.0	7.0	13.0	12.0	15.0	12.0	15.0	13.0	12.0	11.0
17	7.0	7.0	8.0	7.0	13.0	12.0	16.0	13.0	15.0	13.0	--	11.0
18	7.0	6.0	8.0	7.0	13.0	12.0	16.0	13.0	15.0	13.0	--	--
19	6.0	6.0	7.0	6.0	13.0	13.0	17.0	14.0	14.0	14.0	12.0	--
20	7.0	6.0	8.0	6.0	13.0	11.0	17.0	14.0	14.0	14.0	11.0	10.0
21	8.0	7.0	8.0	7.0	12.0	11.0	17.0	14.0	16.0	14.0	12.0	11.0
22	8.0	8.0	8.0	7.0	11.0	10.0	17.0	14.0	16.0	14.0	12.0	12.0
23	8.0	6.0	9.0	8.0	11.0	10.0	18.0	14.0	16.0	14.0	12.0	11.0
24	6.0	6.0	9.0	7.0	10.0	10.0	18.0	15.0	16.0	15.0	12.0	11.0
25	6.0	5.0	8.0	6.0	11.0	9.0	16.0	14.0	15.0	14.0	12.0	11.0
26	7.0	5.0	8.0	7.0	11.0	10.0	16.0	13.0	15.0	13.0	12.0	11.0
27	8.0	7.0	8.0	7.0	11.0	10.0	17.0	14.0	14.0	14.0	12.0	10.0
28	8.0	6.0	7.0	7.0	11.0	10.0	17.0	14.0	14.0	14.0	12.0	10.0
29	6.0	5.0	8.0	7.0	12.0	10.0	17.0	14.0	14.0	14.0	12.0	11.0
30	6.0	5.0	8.0	7.0	13.0	11.0	17.0	14.0	15.0	14.0	11.0	11.0
31	--	--	9.0	6.0	--	--	17.0	14.0	15.0	14.0	--	--
AVG	7.1	6.1	8.0	6.8	11.3	10.2	15.5	12.9	15.3	13.7	13.2	11.8

14235500 WEST FORK TILTON RIVER NEAR MORTON, WASH.

LOCATION (revised).--Lat 46°36'40", long 122°14'36", in NE¼SE¼ sec.13, T.13 N., R.4 E., Lewis County, temperature recorder at gaging station on left bank, 0.9 mile upstream from mouth and 3.8 miles northeast of Morton.

DRAINAGE AREA.--16.4 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1950 to May 1956, July 1957 to September 1959, October 1960 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C July 23; minimum, 1.0°C on several days during December to February.

Period of record:
Water temperatures: Maximum (1950-59, 1960-62, 1963-69), 23.5°C Aug. 15-17, 1967; minimum (1950-59, 1960-63, 1964-69), freezing point on several days during February and March 1962, Jan. 27 to Feb. 1, 1963.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	9.0	7.0	6.0	4.0	3.0	2.0	1.0	1.0	1.0	4.0	3.0
2	10.0	8.0	7.0	7.0	4.0	3.0	3.0	2.0	1.0	1.0	4.0	3.0
3	11.0	8.0	7.0	6.0	6.0	4.0	4.0	3.0	2.0	1.0	4.0	4.0
4	11.0	9.0	6.0	5.0	6.0	5.0	4.0	4.0	2.0	2.0	5.0	4.0
5	9.0	8.0	7.0	6.0	6.0	5.0	4.0	4.0	2.0	2.0	4.0	4.0
6	9.0	9.0	6.0	5.0	5.0	5.0	5.0	4.0	2.0	1.0	6.0	4.0
7	9.0	8.0	6.0	6.0	6.0	5.0	4.0	4.0	2.0	2.0	6.0	4.0
8	8.0	7.0	7.0	6.0	6.0	6.0	4.0	3.0	2.0	2.0	5.0	4.0
9	8.0	7.0	7.0	7.0	6.0	6.0	3.0	2.0	2.0	2.0	6.0	3.0
10	7.0	7.0	7.0	7.0	6.0	6.0	3.0	2.0	3.0	2.0	5.0	3.0
11	7.0	7.0	7.0	7.0	6.0	5.0	3.0	3.0	3.0	2.0	6.0	3.0
12	7.0	7.0	7.0	6.0	5.0	5.0	3.0	3.0	4.0	3.0	6.0	3.0
13	7.0	7.0	7.0	6.0	5.0	5.0	3.0	3.0	4.0	3.0	6.0	3.0
14	7.0	7.0	6.0	6.0	6.0	5.0	3.0	3.0	4.0	3.0	6.0	4.0
15	7.0	7.0	6.0	5.0	6.0	6.0	3.0	2.0	4.0	3.0	7.0	5.0
16	7.0	7.0	6.0	5.0	6.0	5.0	2.0	1.0	4.0	3.0	5.0	4.0
17	8.0	7.0	6.0	5.0	5.0	4.0	2.0	1.0	4.0	3.0	5.0	4.0
18	8.0	7.0	7.0	6.0	4.0	4.0	2.0	2.0	4.0	3.0	5.0	5.0
19	7.0	7.0	7.0	7.0	4.0	3.0	2.0	2.0	4.0	3.0	6.0	5.0
20	8.0	7.0	7.0	6.0	3.0	3.0	2.0	2.0	4.0	3.0	7.0	5.0
21	8.0	7.0	7.0	6.0	3.0	3.0	2.0	2.0	4.0	3.0	7.0	5.0
22	8.0	8.0	7.0	6.0	3.0	3.0	2.0	1.0	4.0	3.0	5.0	5.0
23	9.0	8.0	6.0	6.0	3.0	3.0	1.0	1.0	4.0	3.0	6.0	5.0
24	9.0	8.0	6.0	6.0	4.0	3.0	1.0	1.0	3.0	2.0	7.0	4.0
25	9.0	8.0	6.0	6.0	4.0	4.0	1.0	1.0	4.0	3.0	7.0	5.0
26	8.0	7.0	6.0	6.0	4.0	4.0	1.0	1.0	4.0	3.0	7.0	5.0
27	8.0	7.0	6.0	6.0	4.0	3.0	2.0	1.0	4.0	2.0	7.0	5.0
28	9.0	8.0	6.0	5.0	3.0	2.0	2.0	1.0	4.0	3.0	7.0	5.0
29	9.0	8.0	6.0	5.0	2.0	2.0	1.0	1.0	--	--	7.0	5.0
30	9.0	8.0	5.0	3.0	2.0	2.0	2.0	1.0	--	--	7.0	6.0
31	8.0	6.0	--	--	2.0	1.0	1.0	1.0	--	--	6.0	6.0
AVG	8.3	7.5	6.4	5.8	4.4	3.9	2.4	2.0	3.1	2.3	5.8	4.2

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	6.0	7.0	6.0	14.0	9.0	18.0	12.0	20.0	14.0	19.0	13.0
2	6.0	6.0	7.0	5.0	16.0	11.0	16.0	13.0	19.0	14.0	17.0	13.0
3	7.0	6.0	7.0	6.0	17.0	11.0	13.0	12.0	19.0	13.0	13.0	12.0
4	6.0	6.0	10.0	5.0	18.0	12.0	14.0	12.0	16.0	14.0	12.0	12.0
5	7.0	6.0	11.0	6.0	16.0	13.0	16.0	13.0	15.0	13.0	16.0	11.0
6	7.0	6.0	11.0	6.0	14.0	13.0	16.0	13.0	18.0	12.0	17.0	10.0
7	7.0	6.0	11.0	7.0	13.0	12.0	16.0	13.0	14.0	13.0	18.0	11.0
8	8.0	5.0	11.0	7.0	17.0	12.0	19.0	13.0	19.0	13.0	18.0	13.0
9	7.0	6.0	11.0	7.0	19.0	13.0	19.0	13.0	20.0	13.0	17.0	14.0
10	8.0	6.0	11.0	7.0	17.0	14.0	17.0	14.0	20.0	14.0	19.0	14.0
11	9.0	6.0	11.0	7.0	19.0	14.0	14.0	13.0	16.0	14.0	19.0	14.0
12	7.0	6.0	12.0	8.0	16.0	14.0	13.0	12.0	16.0	13.0	18.0	13.0
13	7.0	6.0	11.0	8.0	19.0	13.0	14.0	11.0	21.0	14.0	16.0	12.0
14	7.0	6.0	11.0	9.0	19.0	14.0	15.0	11.0	21.0	14.0	14.0	11.0
15	8.0	6.0	11.0	7.0	21.0	13.0	17.0	11.0	18.0	14.0	15.0	9.0
16	8.0	6.0	9.0	8.0	21.0	14.0	17.0	11.0	18.0	13.0	14.0	12.0
17	7.0	6.0	13.0	8.0	21.0	15.0	18.0	12.0	18.0	12.0	13.0	12.0
18	6.0	6.0	11.0	9.0	21.0	15.0	19.0	12.0	17.0	14.0	13.0	12.0
19	6.0	6.0	9.0	9.0	21.0	16.0	20.0	13.0	17.0	14.0	13.0	12.0
20	7.0	6.0	11.0	9.0	17.0	15.0	18.0	13.0	19.0	14.0	12.0	11.0
21	9.0	7.0	13.0	9.0	15.0	13.0	19.0	13.0	19.0	15.0	13.0	11.0
22	9.0	7.0	14.0	9.0	14.0	14.0	21.0	13.0	19.0	13.0	12.0	12.0
23	7.0	6.0	15.0	11.0	14.0	13.0	22.0	14.0	21.0	13.0	12.0	11.0
24	7.0	6.0	13.0	11.0	13.0	12.0	21.0	15.0	18.0	14.0	12.0	11.0
25	7.0	6.0	12.0	9.0	13.0	12.0	18.0	14.0	17.0	13.0	12.0	11.0
26	9.0	5.0	13.0	10.0	14.0	11.0	20.0	12.0	16.0	12.0	12.0	10.0
27	9.0	7.0	11.0	9.0	14.0	12.0	21.0	14.0	14.0	13.0	12.0	11.0
28	8.0	6.0	11.0	8.0	13.0	12.0	19.0	15.0	15.0	12.0	12.0	10.0
29	7.0	6.0	10.0	9.0	14.0	12.0	20.0	13.0	17.0	10.0	11.0	10.0
30	7.0	6.0	9.0	8.0	18.0	11.0	21.0	13.0	17.0	11.0	11.0	10.0
31	--	--	12.0	8.0	--	--	20.0	14.0	18.0	12.0	--	--
AVG	7.3	6.0	10.9	7.9	16.6	12.8	17.7	12.8	17.8	13.1	14.4	11.6

14236200 TILTON RIVER ABOVE BEAR CANYON CREEK, NEAR CINEBAR, WASH.

LOCATION (revised).--Lat 46°35'44", long 122°27'30", in NE¼SW¼ sec.20, T.13 N., R.3 E., Lewis County, temperature recorder at gaging station on right bank, 0.9 mile upstream from Bear Canyon Creek, 3.5 miles southeast of Cinebar, and at mile 7.1.

DRAINAGE AREA.--141 sq mi.

PERIOD OF RECORD.--Water temperatures: May 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 20.0°C July 24, 27, 30, Aug. 14; minimum, 2.0°C Dec. 30 to Jan. 1, Jan. 31 to Feb. 3.

Period of record:
Water temperatures: Maximum, 24.5°C July 30, 1965; minimum, 2.0°C Jan. 28, 29, 1968, Dec. 30, 1968 to Jan. 1, 1969, Jan. 31 to Feb. 3, 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	10.0	7.0	7.0	6.0	6.0	3.0	2.0	2.0	2.0	4.0	4.0
2	11.0	9.0	7.0	7.0	6.0	6.0	3.0	3.0	2.0	2.0	4.0	4.0
3	11.0	9.0	7.0	7.0	6.0	6.0	3.0	3.0	3.0	2.0	4.0	4.0
4	11.0	10.0	7.0	6.0	6.0	6.0	4.0	3.0	3.0	3.0	4.0	4.0
5	10.0	9.0	6.0	6.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
6	10.0	10.0	6.0	6.0	6.0	6.0	4.0	4.0	3.0	3.0	5.0	4.0
7	10.0	9.0	6.0	6.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
8	10.0	9.0	7.0	6.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
9	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
10	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
11	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
12	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	4.0	4.0
13	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	4.0	3.0	4.0	4.0
14	9.0	8.0	7.0	6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
15	8.0	8.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0	4.0	6.0	4.0
16	8.0	8.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0	4.0	6.0	5.0
17	8.0	8.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0	4.0	5.0	5.0
18	8.0	8.0	7.0	6.0	6.0	6.0	4.0	4.0	4.0	4.0	5.0	4.0
19	8.0	8.0	7.0	6.0	6.0	5.0	4.0	4.0	4.0	4.0	5.0	4.0
20	8.0	8.0	7.0	7.0	5.0	4.0	4.0	4.0	4.0	4.0	6.0	5.0
21	8.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	4.0	4.0	6.0	5.0
22	8.0	8.0	7.0	7.0	4.0	4.0	4.0	3.0	4.0	4.0	6.0	5.0
23	8.0	8.0	7.0	7.0	4.0	4.0	3.0	3.0	4.0	4.0	6.0	5.0
24	8.0	8.0	7.0	7.0	4.0	4.0	3.0	3.0	4.0	4.0	6.0	5.0
25	8.0	8.0	7.0	7.0	4.0	4.0	3.0	3.0	4.0	4.0	6.0	5.0
26	8.0	8.0	7.0	7.0	4.0	4.0	3.0	3.0	4.0	4.0	7.0	5.0
27	8.0	8.0	7.0	7.0	4.0	4.0	3.0	3.0	4.0	4.0	7.0	5.0
28	8.0	8.0	7.0	7.0	4.0	4.0	3.0	3.0	4.0	4.0	6.0	5.0
29	9.0	8.0	7.0	7.0	4.0	3.0	3.0	3.0	--	--	6.0	5.0
30	9.0	8.0	7.0	6.0	3.0	2.0	3.0	3.0	--	--	6.0	6.0
31	8.0	7.0	--	--	2.0	2.0	3.0	2.0	--	--	6.0	6.0
AVG	8.9	8.4	6.8	6.6	5.1	5.0	3.6	3.4	3.5	3.4	5.0	4.5

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	6.0	7.0	7.0	12.0	9.0	16.0	12.0	18.0	15.0	19.0	14.0
2	6.0	6.0	8.0	7.0	13.0	10.0	14.0	12.0	18.0	14.0	17.0	14.0
3	6.0	5.0	8.0	7.0	14.0	11.0	12.0	12.0	18.0	13.0	14.0	13.0
4	6.0	6.0	10.0	7.0	16.0	12.0	14.0	12.0	17.0	14.0	13.0	12.0
5	6.0	6.0	11.0	8.0	14.0	13.0	14.0	12.0	16.0	14.0	16.0	12.0
6	6.0	6.0	11.0	8.0	13.0	12.0	14.0	12.0	18.0	13.0	17.0	12.0
7	7.0	6.0	11.0	8.0	12.0	12.0	13.0	12.0	16.0	13.0	18.0	12.0
8	7.0	5.0	11.0	8.0	14.0	12.0	17.0	13.0	18.0	14.0	17.0	13.0
9	7.0	6.0	10.0	8.0	17.0	13.0	17.0	13.0	19.0	14.0	17.0	14.0
10	7.0	6.0	10.0	8.0	16.0	14.0	16.0	14.0	18.0	14.0	18.0	14.0
11	8.0	6.0	10.0	7.0	14.0	13.0	14.0	13.0	17.0	15.0	17.0	14.0
12	7.0	6.0	10.0	8.0	14.0	14.0	13.0	12.0	15.0	13.0	16.0	14.0
13	7.0	7.0	10.0	8.0	17.0	13.0	16.0	12.0	19.0	13.0	16.0	13.0
14	7.0	6.0	10.0	8.0	18.0	14.0	14.0	12.0	20.0	15.0	16.0	12.0
15	8.0	6.0	10.0	7.0	18.0	14.0	16.0	12.0	18.0	15.0	14.0	11.0
16	7.0	7.0	10.0	8.0	18.0	14.0	16.0	12.0	18.0	13.0	13.0	12.0
17	7.0	7.0	12.0	8.0	18.0	14.0	17.0	12.0	18.0	13.0	13.0	12.0
18	7.0	7.0	11.0	9.0	18.0	14.0	18.0	12.0	17.0	14.0	13.0	12.0
19	7.0	6.0	9.0	9.0	17.0	15.0	18.0	13.0	16.0	14.0	13.0	12.0
20	7.0	6.0	10.0	8.0	16.0	14.0	17.0	14.0	16.0	14.0	12.0	12.0
21	8.0	7.0	12.0	9.0	14.0	13.0	18.0	13.0	19.0	15.0	12.0	12.0
22	8.0	7.0	13.0	9.0	13.0	13.0	19.0	13.0	19.0	14.0	12.0	12.0
23	8.0	7.0	13.0	10.0	13.0	12.0	19.0	14.0	19.0	14.0	12.0	11.0
24	7.0	6.0	13.0	11.0	12.0	12.0	20.0	14.0	18.0	14.0	11.0	10.0
25	7.0	6.0	11.0	9.0	12.0	11.0	18.0	15.0	17.0	14.0	11.0	11.0
26	8.0	6.0	12.0	10.0	11.0	11.0	19.0	13.0	16.0	13.0	11.0	10.0
27	8.0	7.0	12.0	9.0	12.0	11.0	20.0	15.0	15.0	14.0	11.0	11.0
28	8.0	7.0	9.0	9.0	12.0	11.0	18.0	16.0	15.0	13.0	11.0	11.0
29	7.0	6.0	9.0	9.0	12.0	11.0	19.0	14.0	17.0	12.0	11.0	11.0
30	7.0	7.0	9.0	8.0	14.0	11.0	20.0	14.0	18.0	13.0	11.0	11.0
31	--	--	11.0	8.0	--	--	18.0	15.0	19.0	13.0	--	--
AVG	7.0	6.2	10.4	8.2	14.4	12.4	16.5	13.0	17.4	13.7	14.0	12.1

14237500 WINSTON CREEK NEAR SILVER CREEK, WASH.

LOCATION.--Lat 46°28'57", long 122°31'13", about center of sec.35, T.12 N., R.2 E., Lewis County, temperature recorder at gaging station on left bank, 100 ft downstream from bridge, 3.2 miles upstream from mouth, and 4.4 miles southeast of town of Silver Creek.

DRAINAGE AREA.--37.8 sq mi.

PERIOD OF RECORD.--Water temperatures: April 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C June 15-19; minimum, 2.0°C on several days during December to February.

Period of record:
Water temperatures: Maximum, 22.0°C July 30, 1965, and on several days during June to August 1967; minimum, 2.0°C on several days during December 1965, January 1966, and December 1967 to February 1968, December 1968 to February 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.0	7.0	7.0	7.0	7.0	3.0	2.0	2.0	2.0	6.0	4.0
2	11.0	9.0	8.0	7.0	7.0	7.0	3.0	3.0	3.0	2.0	5.0	4.0
3	11.0	9.0	8.0	8.0	7.0	6.0	4.0	3.0	3.0	3.0	5.0	5.0
4	12.0	11.0	8.0	7.0	6.0	6.0	5.0	4.0	3.0	3.0	6.0	4.0
5	11.0	9.0	7.0	7.0	6.0	6.0	5.0	5.0	3.0	3.0	5.0	5.0
6	11.0	10.0	7.0	6.0	6.0	6.0	6.0	5.0	3.0	2.0	5.0	5.0
7	11.0	10.0	7.0	7.0	6.0	6.0	6.0	4.0	3.0	3.0	5.0	4.0
8	10.0	9.0	8.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	5.0	4.0
9	9.0	9.0	8.0	8.0	6.0	6.0	4.0	4.0	3.0	3.0	5.0	4.0
10	10.0	9.0	8.0	8.0	6.0	6.0	4.0	4.0	4.0	3.0	4.0	4.0
11	10.0	9.0	9.0	8.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
12	9.0	9.0	9.0	8.0	6.0	6.0	4.0	4.0	4.0	4.0	5.0	4.0
13	10.0	9.0	8.0	8.0	6.0	6.0	4.0	4.0	4.0	4.0	6.0	4.0
14	9.0	9.0	8.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0	6.0	4.0
15	9.0	9.0	7.0	6.0	6.0	6.0	4.0	4.0	5.0	4.0	8.0	6.0
16	9.0	9.0	7.0	6.0	6.0	5.0	4.0	4.0	5.0	4.0	7.0	6.0
17	10.0	9.0	7.0	6.0	5.0	5.0	4.0	3.0	5.0	4.0	7.0	7.0
18	9.0	9.0	8.0	7.0	5.0	5.0	3.0	3.0	5.0	4.0	7.0	7.0
19	9.0	9.0	8.0	8.0	5.0	4.0	3.0	3.0	5.0	4.0	7.0	7.0
20	10.0	9.0	8.0	7.0	4.0	3.0	3.0	3.0	5.0	4.0	7.0	6.0
21	9.0	9.0	8.0	8.0	3.0	3.0	4.0	3.0	5.0	4.0	8.0	6.0
22	10.0	9.0	8.0	8.0	3.0	3.0	3.0	2.0	5.0	4.0	7.0	6.0
23	11.0	10.0	8.0	8.0	4.0	3.0	2.0	2.0	5.0	4.0	7.0	6.0
24	10.0	9.0	8.0	7.0	5.0	4.0	2.0	2.0	4.0	4.0	7.0	5.0
25	10.0	10.0	7.0	7.0	5.0	4.0	2.0	2.0	4.0	4.0	8.0	6.0
26	10.0	9.0	7.0	7.0	4.0	4.0	2.0	2.0	4.0	4.0	9.0	6.0
27	9.0	9.0	7.0	7.0	4.0	4.0	2.0	2.0	4.0	4.0	9.0	7.0
28	10.0	9.0	7.0	7.0	4.0	3.0	2.0	2.0	5.0	4.0	9.0	6.0
29	10.0	10.0	7.0	7.0	3.0	2.0	2.0	2.0	--	--	8.0	7.0
30	10.0	9.0	7.0	7.0	2.0	2.0	2.0	2.0	--	--	9.0	7.0
31	9.0	7.0	--	--	2.0	2.0	2.0	2.0	--	--	9.0	8.0
AVG	10.0	9.2	7.6	7.2	5.0	4.7	3.4	3.1	4.0	3.5	6.6	5.4

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	8.0	9.0	9.0	17.0	14.0	17.0	14.0	17.0	15.0	18.0	14.0
2	8.0	7.0	9.0	9.0	18.0	15.0	16.0	15.0	17.0	14.0	17.0	14.0
3	8.0	7.0	10.0	9.0	19.0	16.0	15.0	14.0	17.0	13.0	14.0	13.0
4	8.0	7.0	12.0	8.0	20.0	17.0	15.0	14.0	16.0	15.0	14.0	13.0
5	9.0	7.0	13.0	10.0	19.0	18.0	15.0	14.0	16.0	15.0	16.0	12.0
6	9.0	8.0	14.0	11.0	18.0	16.0	14.0	14.0	16.0	13.0	16.0	11.0
7	10.0	8.0	16.0	12.0	16.0	16.0	15.0	14.0	16.0	14.0	17.0	12.0
8	10.0	7.0	16.0	13.0	18.0	16.0	17.0	14.0	17.0	14.0	17.0	13.0
9	9.0	8.0	16.0	14.0	20.0	17.0	18.0	16.0	18.0	14.0	18.0	15.0
10	9.0	8.0	16.0	14.0	19.0	17.0	17.0	16.0	17.0	15.0	19.0	15.0
11	12.0	8.0	16.0	14.0	17.0	17.0	16.0	16.0	17.0	16.0	18.0	14.0
12	11.0	9.0	17.0	13.0	17.0	17.0	16.0	15.0	16.0	15.0	17.0	14.0
13	9.0	9.0	15.0	13.0	19.0	16.0	16.0	13.0	19.0	14.0	16.0	14.0
14	9.0	8.0	16.0	13.0	20.0	17.0	16.0	13.0	20.0	16.0	15.0	12.0
15	11.0	8.0	14.0	11.0	21.0	17.0	17.0	13.0	18.0	16.0	14.0	10.0
16	10.0	8.0	14.0	12.0	21.0	17.0	17.0	13.0	18.0	14.0	13.0	12.0
17	9.0	9.0	16.0	12.0	21.0	18.0	17.0	13.0	18.0	13.0	14.0	12.0
18	9.0	9.0	16.0	14.0	21.0	19.0	17.0	14.0	17.0	15.0	14.0	13.0
19	9.0	8.0	14.0	13.0	21.0	18.0	18.0	14.0	17.0	16.0	13.0	12.0
20	9.0	8.0	14.0	13.0	18.0	17.0	18.0	16.0	19.0	16.0	13.0	12.0
21	12.0	9.0	16.0	12.0	17.0	16.0	18.0	15.0	19.0	17.0	13.0	12.0
22	12.0	10.0	18.0	14.0	16.0	16.0	19.0	15.0	19.0	15.0	14.0	13.0
23	12.0	10.0	18.0	15.0	16.0	14.0	20.0	16.0	20.0	15.0	14.0	13.0
24	10.0	9.0	18.0	16.0	14.0	14.0	19.0	17.0	18.0	16.0	13.0	12.0
25	9.0	8.0	16.0	13.0	14.0	13.0	18.0	16.0	18.0	16.0	14.0	13.0
26	11.0	8.0	16.0	14.0	13.0	13.0	18.0	14.0	16.0	13.0	14.0	12.0
27	12.0	10.0	14.0	13.0	13.0	13.0	19.0	16.0	14.0	13.0	13.0	12.0
28	11.0	9.0	13.0	13.0	13.0	13.0	18.0	16.0	16.0	13.0	14.0	13.0
29	9.0	8.0	13.0	13.0	13.0	13.0	18.0	14.0	16.0	11.0	14.0	13.0
30	9.0	9.0	13.0	13.0	16.0	13.0	19.0	14.0	17.0	13.0	14.0	13.0
31	--	--	15.0	12.0	--	--	18.0	16.0	18.0	12.0	--	--
AVG	9.7	8.3	14.6	12.4	17.5	15.7	17.1	14.6	17.3	14.4	15.0	12.7

14238000 COWLITZ RIVER BELOW MAYFIELD DAM, WASH.

LOCATION (revised).--Lat 46°30'38", long 122°36'54", in SE¼NE¼ sec.24, T.12 N., R.1 E., Lewis County, temperature recorder at gaging station on right bank, 1.4 miles downstream from Mayfield Dam, 1.5 miles upstream from Mill Creek, 2.1 miles downstream from Winston Creek, and at mile 50.6.

DRAINAGE AREA.--1,400 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1950 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 13.0°C Oct. 1, 2, July 21, 22; minimum, 4.0°C Jan. 29 to Mar. 14.

Period of record:
Water temperatures: Maximum, 21.0°C July 28, 29, 1958; minimum, 0.5°C Jan. 28 to Feb. 2, 1956.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	12.0	10.0	10.0	9.0	9.0	6.0	6.0	4.0	4.0	4.0	4.0
2	13.0	12.0	10.0	10.0	9.0	8.0	6.0	6.0	4.0	4.0	4.0	4.0
3	12.0	12.0	10.0	10.0	8.0	8.0	6.0	6.0	4.0	4.0	4.0	4.0
4	12.0	12.0	10.0	10.0	8.0	8.0	6.0	6.0	4.0	4.0	4.0	4.0
5	12.0	12.0	10.0	10.0	8.0	8.0	6.0	6.0	4.0	4.0	4.0	4.0
6	12.0	12.0	10.0	9.0	8.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0
7	12.0	12.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0
8	12.0	12.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0
9	12.0	12.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0
10	12.0	12.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0
11	12.0	12.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0
12	12.0	12.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0
13	12.0	12.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	4.0	4.0
14	12.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	5.0	4.0
15	11.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	5.0	5.0
16	11.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	5.0	5.0
17	11.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	5.0	5.0
18	11.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	5.0	5.0
19	11.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	5.0	5.0
20	11.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	5.0
21	11.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	6.0
22	11.0	10.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	6.0
23	10.0	10.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	6.0
24	10.0	10.0	9.0	9.0	7.0	7.0	6.0	5.0	4.0	4.0	6.0	6.0
25	10.0	10.0	9.0	9.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	6.0
26	10.0	10.0	9.0	9.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	6.0
27	10.0	10.0	9.0	9.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	6.0
28	10.0	10.0	9.0	9.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	6.0
29	10.0	10.0	9.0	9.0	7.0	7.0	5.0	4.0	--	--	6.0	6.0
30	10.0	10.0	9.0	9.0	7.0	7.0	4.0	4.0	--	--	6.0	6.0
31	11.0	10.0	--	--	7.0	6.0	4.0	4.0	--	--	6.0	6.0
AVG	11.2	11.0	9.2	9.1	7.2	7.1	5.7	5.6	4.0	4.0	4.9	4.9

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	6.0	7.0	7.0	9.0	8.0	11.0	9.0	12.0	11.0	12.0	11.0
2	7.0	6.0	7.0	7.0	9.0	8.0	11.0	9.0	12.0	11.0	11.0	11.0
3	7.0	6.0	7.0	7.0	9.0	8.0	10.0	9.0	12.0	11.0	11.0	11.0
4	7.0	6.0	7.0	7.0	9.0	9.0	11.0	10.0	12.0	11.0	11.0	11.0
5	7.0	7.0	8.0	7.0	9.0	9.0	10.0	9.0	12.0	11.0	12.0	11.0
6	7.0	6.0	9.0	8.0	9.0	9.0	10.0	10.0	12.0	11.0	11.0	11.0
7	7.0	6.0	9.0	7.0	9.0	9.0	10.0	10.0	11.0	11.0	11.0	11.0
8	7.0	7.0	8.0	7.0	9.0	8.0	11.0	9.0	12.0	11.0	11.0	11.0
9	7.0	7.0	8.0	7.0	8.0	8.0	11.0	9.0	12.0	11.0	11.0	11.0
10	7.0	7.0	8.0	7.0	9.0	8.0	11.0	10.0	12.0	11.0	11.0	11.0
11	8.0	7.0	9.0	8.0	9.0	8.0	11.0	11.0	12.0	11.0	11.0	11.0
12	8.0	7.0	9.0	8.0	8.0	8.0	11.0	11.0	12.0	11.0	11.0	11.0
13	7.0	6.0	9.0	8.0	9.0	8.0	11.0	11.0	12.0	11.0	11.0	11.0
14	7.0	6.0	8.0	8.0	9.0	8.0	11.0	11.0	12.0	11.0	12.0	11.0
15	7.0	7.0	9.0	8.0	9.0	8.0	11.0	10.0	12.0	11.0	12.0	11.0
16	7.0	7.0	9.0	8.0	10.0	9.0	11.0	9.0	12.0	11.0	12.0	11.0
17	7.0	7.0	9.0	9.0	10.0	9.0	11.0	10.0	12.0	11.0	12.0	11.0
18	7.0	7.0	9.0	8.0	9.0	9.0	11.0	10.0	12.0	11.0	11.0	11.0
19	7.0	7.0	8.0	8.0	9.0	9.0	11.0	9.0	12.0	11.0	11.0	11.0
20	7.0	7.0	8.0	8.0	9.0	9.0	12.0	9.0	11.0	11.0	11.0	11.0
21	7.0	7.0	9.0	8.0	11.0	9.0	13.0	11.0	12.0	11.0	11.0	11.0
22	7.0	7.0	11.0	9.0	11.0	9.0	13.0	11.0	12.0	11.0	12.0	11.0
23	7.0	7.0	10.0	9.0	10.0	9.0	12.0	11.0	11.0	11.0	11.0	11.0
24	7.0	7.0	9.0	9.0	9.0	9.0	12.0	11.0	11.0	11.0	11.0	11.0
25	8.0	7.0	10.0	9.0	9.0	9.0	12.0	11.0	12.0	10.0	11.0	11.0
26	8.0	8.0	9.0	8.0	10.0	9.0	12.0	11.0	12.0	11.0	12.0	11.0
27	8.0	8.0	9.0	8.0	10.0	10.0	12.0	11.0	12.0	11.0	12.0	11.0
28	8.0	7.0	11.0	8.0	10.0	9.0	12.0	11.0	11.0	11.0	11.0	11.0
29	7.0	7.0	11.0	9.0	10.0	9.0	12.0	11.0	11.0	11.0	11.0	11.0
30	7.0	7.0	9.0	8.0	10.0	9.0	12.0	11.0	12.0	11.0	11.0	10.0
31	--	--	9.0	8.0	--	--	12.0	11.0	12.0	11.0	--	--
AVG	7.1	6.8	8.7	7.9	9.3	8.6	11.3	10.1	11.8	10.9	11.3	10.9

14241200 COLDSPRING CREEK NEAR COUGAR, WASH.

LOCATION.--Lat 46°10'38", long 122°17'25", in NE¼SE¼ sec.15, T.8 N., R.4 E., Cowlitz County, Gifford Pinchot National Forest, temperature recorder at gaging station on right bank, 800 ft downstream from unnamed tributary, 1.0 mile north of Goat Mountain, and 8.5 miles north of Cougar.

DRAINAGE AREA.--5.47 sq mi.

PERIOD OF RECORD.--Water temperatures: June to September 1969.

REMARKS.--Recorder failed to ink properly on July 4-8, 19-24, 26-28, Aug. 5-11, 17-21, Sept. 17, 18; ranges in temperature not determined.

TEMPERATURE (°C) OF WATER, JUNE TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	--	--	14.0	8.0	10.0	7.0	8.0	6.0
2	--	--	--	--	--	--	11.0	9.0	10.0	7.0	8.0	6.0
3	--	--	--	--	--	--	9.0	8.0	10.0	7.0	6.0	6.0
4	--	--	--	--	--	--	--	8.0	8.0	7.0	6.0	6.0
5	--	--	--	--	--	--	--	--	--	7.0	6.0	5.0
6	--	--	--	--	--	--	--	8.0	--	--	7.0	5.0
7	--	--	--	--	--	--	--	9.0	--	--	7.0	6.0
8	--	--	--	--	--	--	--	--	--	--	8.0	6.0
9	--	--	--	--	--	--	14.0	9.0	--	--	8.0	7.0
10	--	--	--	--	--	--	11.0	10.0	--	--	8.0	7.0
11	--	--	--	--	--	--	10.0	9.0	--	--	8.0	7.0
12	--	--	--	--	--	--	10.0	8.0	8.0	6.0	7.0	6.0
13	--	--	--	--	--	--	10.0	7.0	10.0	6.0	7.0	6.0
14	--	--	--	--	--	--	11.0	7.0	9.0	7.0	6.0	5.0
15	--	--	--	--	--	--	11.0	7.0	9.0	7.0	6.0	4.0
16	--	--	--	--	--	--	11.0	7.0	8.0	6.0	8.0	6.0
17	--	--	--	--	--	--	12.0	7.0	--	6.0	--	--
18	--	--	--	--	--	--	12.0	7.0	--	--	--	--
19	--	--	--	--	--	--	--	8.0	--	--	9.0	8.0
20	--	--	--	--	--	--	--	--	--	--	8.0	8.0
21	--	--	--	--	--	--	--	--	8.0	--	8.0	8.0
22	--	--	--	--	--	--	--	--	9.0	6.0	9.0	8.0
23	--	--	--	--	--	--	--	--	9.0	6.0	9.0	8.0
24	--	--	--	--	8.0	7.0	--	9.0	8.0	7.0	8.0	8.0
25	--	--	--	--	10.0	7.0	10.0	7.0	8.0	7.0	8.0	7.0
26	--	--	--	--	10.0	7.0	--	7.0	7.0	6.0	8.0	7.0
27	--	--	--	--	9.0	7.0	--	--	7.0	6.0	7.0	7.0
28	--	--	--	--	9.0	7.0	11.0	--	7.0	5.0	7.0	7.0
29	--	--	--	--	10.0	7.0	11.0	7.0	7.0	5.0	7.0	7.0
30	--	--	--	--	13.0	7.0	11.0	7.0	7.0	6.0	8.0	7.0
31	--	--	--	--	--	--	10.0	7.0	8.0	6.0	--	--
AVG	--	--	--	--	--	--	--	7.8	--	--	7.5	6.5

14242500 TOUTLE RIVER NEAR SILVER LAKE, WASH.

LOCATION (revised).--Lat 46°20'11", long 122°43'27", in NW¼SE¼ sec.19, T.10 N., R.1 E., Cowlitz County, temperature recorder at gaging station on right bank just downstream from bridge on State Highway 504, 0.8 mile downstream from confluence of North and South Forks, 4.9 miles northeast of Silver Lake, and at mile 16.4.

DRAINAGE AREA.--474 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1950 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C July 23; minimum, 3.0°C on several days during December to March.

Period of record:
Water temperatures: Maximum (1950-62, 1963-69), 22.0°C Aug. 4, 1952, Aug. 15, 1967; minimum (1950-60, 1961-62, 1963-69), freezing point Jan. 4, 5, 1959.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.0	7.0	7.0	6.0	6.0	4.0	3.0	3.0	3.0	6.0	5.0
2	11.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	3.0	3.0	6.0	5.0
3	10.0	9.0	7.0	7.0	6.0	6.0	5.0	4.0	4.0	3.0	6.0	5.0
4	11.0	10.0	7.0	7.0	6.0	6.0	6.0	5.0	4.0	4.0	6.0	5.0
5	11.0	10.0	7.0	7.0	6.0	6.0	6.0	6.0	4.0	4.0	6.0	6.0
6	10.0	9.0	7.0	7.0	6.0	6.0	6.0	6.0	4.0	4.0	6.0	5.0
7	9.0	9.0	7.0	7.0	6.0	6.0	6.0	6.0	4.0	4.0	5.0	4.0
8	9.0	9.0	7.0	7.0	6.0	6.0	6.0	6.0	4.0	4.0	5.0	4.0
9	9.0	9.0	7.0	7.0	6.0	6.0	6.0	6.0	4.0	4.0	6.0	4.0
10	9.0	9.0	7.0	7.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0	3.0
11	9.0	9.0	7.0	7.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0	3.0
12	9.0	9.0	7.0	7.0	6.0	6.0	6.0	6.0	4.0	4.0	5.0	4.0
13	9.0	8.0	7.0	7.0	6.0	5.0	6.0	6.0	4.0	4.0	5.0	3.0
14	8.0	8.0	7.0	7.0	5.0	5.0	6.0	5.0	4.0	4.0	6.0	4.0
15	8.0	8.0	7.0	6.0	5.0	5.0	5.0	4.0	6.0	4.0	7.0	6.0
16	8.0	8.0	6.0	6.0	5.0	5.0	4.0	4.0	6.0	6.0	7.0	6.0
17	8.0	8.0	7.0	6.0	5.0	5.0	4.0	4.0	6.0	5.0	7.0	6.0
18	8.0	8.0	7.0	7.0	5.0	4.0	4.0	4.0	5.0	4.0	7.0	6.0
19	8.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	4.0	4.0	7.0	6.0
20	9.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	5.0	4.0	7.0	6.0
21	9.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	4.0	4.0	7.0	6.0
22	9.0	8.0	7.0	7.0	4.0	4.0	4.0	4.0	5.0	4.0	7.0	6.0
23	9.0	9.0	7.0	7.0	5.0	4.0	4.0	3.0	5.0	4.0	7.0	5.0
24	9.0	9.0	7.0	7.0	5.0	5.0	3.0	3.0	5.0	4.0	7.0	5.0
25	9.0	8.0	7.0	7.0	5.0	5.0	3.0	3.0	4.0	4.0	7.0	6.0
26	8.0	8.0	7.0	7.0	5.0	5.0	3.0	3.0	4.0	4.0	8.0	6.0
27	8.0	8.0	7.0	7.0	5.0	4.0	3.0	3.0	4.0	4.0	8.0	7.0
28	8.0	8.0	7.0	7.0	4.0	4.0	3.0	3.0	5.0	4.0	8.0	7.0
29	9.0	8.0	7.0	6.0	4.0	4.0	3.0	3.0	--	--	8.0	7.0
30	8.0	9.0	6.0	6.0	4.0	3.0	3.0	3.0	--	--	8.0	7.0
31	8.0	7.0	--	--	3.0	3.0	3.0	3.0	--	--	8.0	7.0
AVG	9.0	8.5	6.9	6.8	5.1	4.9	4.5	4.3	4.3	4.0	6.4	5.3

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	7.0	7.0	7.0	13.0	11.0	17.0	14.0	18.0	16.0	17.0	14.0
2	7.0	6.0	8.0	7.0	14.0	11.0	17.0	15.0	18.0	16.0	16.0	15.0
3	6.0	6.0	8.0	8.0	14.0	12.0	15.0	14.0	18.0	15.0	15.0	13.0
4	6.0	6.0	9.0	7.0	15.0	12.0	15.0	14.0	17.0	16.0	13.0	13.0
5	7.0	6.0	12.0	9.0	15.0	13.0	16.0	14.0	16.0	14.0	15.0	12.0
6	7.0	6.0	12.0	9.0	13.0	12.0	16.0	14.0	17.0	14.0	15.0	12.0
7	8.0	6.0	12.0	9.0	13.0	12.0	16.0	14.0	17.0	14.0	16.0	13.0
8	8.0	6.0	12.0	9.0	14.0	11.0	18.0	15.0	18.0	14.0	15.0	13.0
9	8.0	7.0	12.0	9.0	16.0	13.0	18.0	16.0	18.0	16.0	17.0	14.0
10	8.0	7.0	11.0	9.0	16.0	13.0	18.0	16.0	18.0	17.0	17.0	15.0
11	9.0	7.0	11.0	9.0	13.0	13.0	16.0	14.0	17.0	16.0	16.0	14.0
12	9.0	8.0	12.0	9.0	13.0	13.0	15.0	14.0	16.0	14.0	16.0	14.0
13	8.0	7.0	11.0	9.0	16.0	13.0	16.0	14.0	18.0	14.0	14.0	13.0
14	8.0	7.0	11.0	9.0	16.0	14.0	16.0	14.0	19.0	17.0	13.0	12.0
15	8.0	8.0	11.0	9.0	17.0	14.0	17.0	14.0	19.0	16.0	13.0	11.0
16	8.0	7.0	11.0	9.0	18.0	15.0	17.0	14.0	16.0	13.0	12.0	12.0
17	8.0	7.0	13.0	9.0	18.0	16.0	18.0	14.0	16.0	13.0	13.0	12.0
18	8.0	7.0	13.0	10.0	18.0	16.0	18.0	15.0	16.0	15.0	13.0	12.0
19	7.0	7.0	10.0	9.0	18.0	16.0	18.0	16.0	16.0	15.0	12.0	12.0
20	8.0	7.0	10.0	9.0	16.0	16.0	18.0	16.0	17.0	15.0	12.0	12.0
21	9.0	7.0	13.0	9.0	16.0	14.0	18.0	16.0	18.0	16.0	13.0	12.0
22	9.0	8.0	13.0	10.0	14.0	14.0	19.0	16.0	18.0	15.0	13.0	13.0
23	9.0	8.0	13.0	10.0	14.0	14.0	21.0	17.0	18.0	15.0	13.0	13.0
24	8.0	7.0	13.0	11.0	14.0	13.0	20.0	18.0	17.0	16.0	13.0	12.0
25	7.0	6.0	11.0	9.0	13.0	12.0	19.0	17.0	16.0	15.0	13.0	13.0
26	8.0	6.0	12.0	10.0	13.0	12.0	18.0	16.0	16.0	14.0	13.0	12.0
27	9.0	8.0	11.0	10.0	13.0	12.0	19.0	16.0	14.0	14.0	13.0	12.0
28	9.0	8.0	11.0	9.0	13.0	12.0	19.0	17.0	14.0	13.0	13.0	13.0
29	8.0	7.0	10.0	10.0	14.0	12.0	18.0	16.0	15.0	12.0	13.0	13.0
30	7.0	7.0	10.0	10.0	16.0	13.0	18.0	16.0	16.0	13.0	13.0	12.0
31	--	--	13.0	9.0	--	--	18.0	17.0	16.0	14.0	--	--
AVG	7.8	6.9	11.1	9.0	14.8	13.1	17.4	15.2	16.8	14.7	14.0	12.7

14242700 TOUTLE RIVER NEAR CASTLE ROCK, WASH.

LOCATION.--Lat 46°19'10", long 122°54'30", in NE¼SE¼ sec.27, T.10 N., R.2 W., Cowlitz County, at bridge on U.S. Highway 99, 2.6 miles north of Castle Rock and at mile 1.0.

DRAINAGE AREA.--512 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1960 to September 1962 (monthly), October 1963 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).

REMARKS.--Coliform, dissolved oxygen, and temperature data furnished by Washington State Water Pollution Control Commission. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L)
OCT.												
21...	14	3.5	1.1	3.1	.4	20	0	.0	1.6	.1	.2	--
JAN.												
27...	17	3.9	1.4	4.2	.4	24	0	1.6	2.0	.1	.1	40
APR.												
15...	13	3.6	1.1	3.5	.3	21	0	.4	2.0	.0	.6	--
AUG.												
20...	20	5.4	1.8	7.0	.9	34	0	2.8	4.9	.1	.1	--

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
21...	43	13	0	39	7.1	20	9	11.0	2100	--	--	--
JAN.												
27...	41	16	0	51	7.4	5	1	14.0	71	0	0	0
APR.												
15...	40	14	0	44	6.9	0	9	12.0	170	--	--	--
AUG.												
20...	60	21	0	77	7.4	0	17	9.7	300	0	0	10

14243000 COWLITZ RIVER AT CASTLE ROCK, WASH.
(International Hydrological Decade River Station)

LOCATION (revised).--Lat 46°16'30", long 122°54'48", in SW¼SE¼ sec.10, T.9 N., R.2 W., Cowlitz County, at gaging station 40 ft downstream from Arkansas Valley Road bridge in Castle Rock, 2.7 miles downstream from Toutle River, and at mile 17.3.

DRAINAGE AREA.--2,238 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1958 to September 1959, August 1966 to September 1969.
Water temperatures: August 1950 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 18.0°C July 24; minimum, 3.0°C Jan. 31, Feb. 4-10.

Period of record:
Water temperatures: Maximum (1950-62, 1963-69), 24.0°C July 28-30, 1958; minimum, freezing point Jan. 29, 30, 1951.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
08...	2790	14	8.6	1.6	10	.5	29	0	1.8	19	.1	.0
NOV.												
20...	12900	13	5.2	1.1	3.2	.4	25	0	2.0	1.6	.1	.4
DEC.												
10...	26600	12	4.1	1.0	3.1	.5	19	0	1.6	2.3	.1	.7
FEB.												
03...	8950	17	5.9	1.3	3.7	.5	27	0	1.0	2.2	.1	.5
MAR.												
21...	9960	14	5.8	1.2	3.1	.5	26	0	1.8	2.0	.1	.4
MAY												
02...	8770	14	5.6	1.2	3.7	.5	27	0	3.2	2.0	.0	.2
JUNE												
11...	10600	13	5.7	1.2	3.4	.5	27	0	3.2	2.0	.0	.1
AUG.												
04...	2930	14	8.9	1.5	9.9	.6	28	0	2.6	17	.0	.2
SEPT.												
03...	4870	13	6.8	1.2	6.0	.5	27	0	2.0	8.6	.1	.2

DATE	PHOS-PHATE (PO4) (MG/L)	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONDU-CTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM COBALT UNITS)	TEMPER-ATURE (DEG C)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.												
08...	.04	--	75	28	4	110	7.1	10	11	--	--	--
NOV.												
20...	.06	--	43	18	0	52	7.2	5	9	--	--	--
DEC.												
10...	.03	--	48	14	0	44	6.9	30	7	--	--	--
FEB.												
03...	.17	20	42	20	0	58	7.3	10	4	0	0	0
MAR.												
21...	.05	--	40	20	0	54	7.5	5	5	--	--	--
MAY												
02...	.06	--	40	19	0	55	7.2	0	7	--	--	--
JUNE												
11...	.04	--	42	19	0	55	7.2	0	11	--	--	--
AUG.												
04...	.02	--	78	28	5	114	7.2	0	16	--	--	--
SEPT.												
03...	.04	--	54	22	0	77	7.0	0	12	--	--	--

14243000 COWLITZ RIVER AT CASTLE ROCK, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.0	13.0	--	--	8.0	8.0	6.0	6.0	4.0	4.0	5.0	5.0
2	13.0	12.0	--	--	8.0	8.0	6.0	6.0	4.0	4.0	5.0	5.0
3	13.0	12.0	--	--	8.0	8.0	6.0	6.0	4.0	4.0	6.0	5.0
4	13.0	12.0	--	9.0	8.0	8.0	6.0	6.0	4.0	3.0	5.0	5.0
5	12.0	12.0	9.0	9.0	8.0	7.0	6.0	6.0	3.0	3.0	6.0	5.0
6	12.0	12.0	9.0	9.0	7.0	7.0	6.0	6.0	3.0	3.0	6.0	5.0
7	12.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	3.0	3.0	6.0	4.0
8	11.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	4.0	3.0	6.0	5.0
9	11.0	11.0	9.0	9.0	7.0	7.0	6.0	6.0	3.0	3.0	6.0	4.0
10	11.0	11.0	9.0	9.0	7.0	7.0	6.0	5.0	4.0	3.0	6.0	4.0
11	11.0	10.0	9.0	9.0	7.0	7.0	6.0	5.0	4.0	4.0	6.0	5.0
12	10.0	10.0	9.0	9.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	5.0
13	10.0	9.0	9.0	9.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	5.0
14	10.0	9.0	9.0	8.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	5.0
15	9.0	9.0	8.0	8.0	7.0	7.0	5.0	5.0	5.0	4.0	7.0	6.0
16	10.0	9.0	8.0	8.0	7.0	7.0	5.0	5.0	5.0	4.0	7.0	6.0
17	10.0	9.0	8.0	8.0	7.0	7.0	5.0	4.0	5.0	4.0	6.0	6.0
18	10.0	10.0	9.0	8.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	6.0
19	10.0	10.0	9.0	9.0	7.0	7.0	5.0	5.0	4.0	4.0	6.0	6.0
20	10.0	10.0	9.0	9.0	7.0	7.0	5.0	5.0	5.0	4.0	7.0	6.0
21	10.0	9.0	9.0	8.0	7.0	7.0	5.0	5.0	5.0	4.0	7.0	5.0
22	11.0	9.0	9.0	9.0	7.0	7.0	5.0	4.0	5.0	5.0	6.0	5.0
23	11.0	11.0	9.0	8.0	7.0	7.0	4.0	4.0	5.0	5.0	6.0	5.0
24	11.0	11.0	9.0	8.0	7.0	7.0	4.0	4.0	5.0	4.0	6.0	6.0
25	11.0	11.0	9.0	8.0	7.0	7.0	4.0	4.0	5.0	4.0	7.0	6.0
26	11.0	10.0	9.0	9.0	7.0	7.0	4.0	4.0	5.0	4.0	7.0	6.0
27	11.0	10.0	9.0	9.0	7.0	7.0	4.0	4.0	5.0	4.0	7.0	6.0
28	11.0	10.0	9.0	9.0	7.0	7.0	4.0	4.0	5.0	4.0	7.0	6.0
29	--	--	9.0	8.0	7.0	6.0	4.0	4.0	--	--	7.0	7.0
30	--	--	8.0	8.0	6.0	6.0	4.0	4.0	--	--	8.0	7.0
31	--	--	--	--	6.0	6.0	4.0	3.0	--	--	8.0	7.0
AVG	11.0	10.4	8.8	8.5	7.0	7.0	5.0	4.9	4.2	3.8	6.3	5.4

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	7.0	7.0	7.0	13.0	12.0	14.0	12.0	16.0	15.0	16.0	13.0
2	7.0	6.0	8.0	7.0	14.0	11.0	14.0	12.0	16.0	15.0	15.0	13.0
3	7.0	6.0	8.0	8.0	13.0	10.0	12.0	11.0	16.0	15.0	13.0	12.0
4	7.0	7.0	9.0	7.0	13.0	10.0	13.0	12.0	16.0	14.0	12.0	11.0
5	7.0	7.0	10.0	8.0	12.0	10.0	13.0	12.0	15.0	14.0	12.0	12.0
6	7.0	7.0	11.0	9.0	12.0	11.0	13.0	12.0	14.0	13.0	14.0	12.0
7	7.0	7.0	11.0	11.0	12.0	11.0	13.0	12.0	14.0	13.0	13.0	13.0
8	8.0	7.0	11.0	8.0	12.0	10.0	14.0	13.0	15.0	13.0	15.0	13.0
9	8.0	7.0	11.0	9.0	12.0	10.0	15.0	14.0	16.0	14.0	14.0	13.0
10	8.0	7.0	11.0	9.0	12.0	10.0	14.0	13.0	16.0	15.0	14.0	13.0
11	8.0	7.0	11.0	9.0	11.0	10.0	14.0	13.0	15.0	14.0	13.0	13.0
12	8.0	8.0	11.0	11.0	11.0	9.0	14.0	13.0	14.0	14.0	13.0	13.0
13	8.0	7.0	11.0	10.0	12.0	9.0	13.0	13.0	16.0	13.0	14.0	13.0
14	8.0	7.0	11.0	9.0	12.0	9.0	14.0	13.0	16.0	14.0	13.0	12.0
15	8.0	7.0	11.0	10.0	12.0	10.0	14.0	13.0	15.0	13.0	13.0	12.0
16	8.0	7.0	11.0	10.0	13.0	11.0	14.0	13.0	13.0	13.0	13.0	12.0
17	8.0	7.0	12.0	9.0	13.0	11.0	14.0	14.0	13.0	13.0	12.0	12.0
18	8.0	7.0	12.0	11.0	13.0	11.0	16.0	14.0	14.0	12.0	13.0	12.0
19	7.0	7.0	11.0	9.0	13.0	11.0	16.0	15.0	13.0	12.0	13.0	12.0
20	7.0	7.0	10.0	9.0	12.0	10.0	17.0	16.0	14.0	13.0	12.0	12.0
21	9.0	7.0	12.0	10.0	12.0	10.0	17.0	16.0	14.0	13.0	13.0	12.0
22	9.0	8.0	13.0	12.0	12.0	12.0	17.0	16.0	14.0	13.0	13.0	13.0
23	9.0	8.0	13.0	13.0	12.0	11.0	17.0	16.0	14.0	13.0	13.0	13.0
24	8.0	7.0	14.0	12.0	12.0	11.0	18.0	17.0	14.0	13.0	13.0	13.0
25	9.0	7.0	12.0	11.0	11.0	9.0	17.0	16.0	14.0	13.0	13.0	13.0
26	9.0	8.0	12.0	11.0	12.0	10.0	17.0	15.0	13.0	13.0	13.0	13.0
27	9.0	9.0	12.0	11.0	12.0	11.0	17.0	16.0	13.0	12.0	13.0	13.0
28	10.0	9.0	11.0	10.0	12.0	11.0	17.0	16.0	12.0	12.0	13.0	13.0
29	9.0	7.0	11.0	10.0	12.0	11.0	16.0	14.0	13.0	12.0	13.0	13.0
30	8.0	7.0	11.0	11.0	13.0	11.0	15.0	14.0	13.0	13.0	13.0	13.0
31	--	--	13.0	11.0	--	--	17.0	15.0	13.0	13.0	--	--
AVG	8.0	7.2	11.0	9.7	12.2	10.4	15.0	13.9	14.3	13.2	13.2	12.5

14245000 COWEMAN RIVER NEAR KELSO, WASH.

LOCATION.--Lat 46°08'15", long 122°53'45", in NW¼NE¼ sec.35, T.8 N., R.2 W., Cowlitz County, at bridge on U.S. Highway 99, 0.3 mile east of Kelso, 2.6 miles upstream from mouth, and 4.6 miles downstream from gaging station.

DRAINAGE AREA.--119 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: October 1961 to September 1969.
Water temperatures: July 1950 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 23.0°C June 16-18; minimum, 1.0°C Jan. 25-27, Feb. 1.

Period of record:
Water temperatures: Maximum, 28.0°C July 27, 28, 1958; minimum, freezing point on several days during some winter periods.

REMARKS.--Temperature recorder at gaging station 4.6 miles upstream from sampling site. Some inflow between gaging station and sampling point. Recorder was not inking during all missing record periods.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
21...	620	15	4.7	1.6	3.3	.4	25	0	1.0
NOV.									
12...	1810	13	3.9	1.2	2.8	.5	17	0	.2
DEC.									
11...	2460	13	3.5	1.2	2.8	.4	16	0	1.6
JAN.									
27...	255	16	4.9	1.6	3.5	.2	24	0	1.0
FEB.									
17...	908	17	4.2	1.4	3.1	.3	20	0	1.0
MAR.									
11...	409	16	4.9	1.6	3.5	.4	26	0	.0
APR.									
15...	295	14	4.6	1.4	3.4	.3	24	0	.4
MAY									
21...	225	13	4.4	1.2	2.7	.2	21	0	.0
JUNE									
25...	388	14	4.8	1.5	3.5	.4	25	0	1.2
JULY									
24...	73	17	6.8	2.0	4.7	.6	33	0	.2
AUG.									
20...	48	17	7.9	2.2	5.3	.5	37	0	.2
SEPT.									
24...	208	15	5.8	1.6	3.9	.6	27	0	.4

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	BORON (B) (UG/L	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
OCT.									
21...	2.0	.1	2.0	--	49	18	0	53	7.3
NOV.									
12...	1.5	.1	2.9	--	46	15	1	42	6.8
DEC.									
11...	1.4	.1	3.2	--	40	14	1	42	6.9
JAN.									
27...	2.4	.0	1.8	60	--	19	0	55	7.2
FEB.									
17...	1.9	.1	2.5	--	40	17	0	48	7.5
MAR.									
11...	2.4	.1	1.4	--	48	19	0	56	7.1
APR.									
15...	2.3	.0	1.2	--	43	18	0	51	6.9
MAY									
21...	2.2	.0	.5	--	36	16	0	45	7.0
JUNE									
25...	2.1	.0	1.3	--	46	18	0	53	7.2
JULY									
24...	4.4	.1	.6	--	59	25	0	74	6.8
AUG.									
20...	6.7	.1	.6	--	61	29	0	85	7.1
SEPT.									
24...	3.8	.0	1.7	--	56	21	0	62	7.3

14245000 COWEMAN RIVER NEAR KELSO, WASH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	COLOR (PLATINUM COBALT UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	COLIFORM (COLONIES PER 100 ML)	TOTAL CHROMIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.							
21...	20	10	10.9	600	--	--	--
NOV.							
12...	20	11	10.6	810	--	--	--
DEC.							
11...	30	11	9.4	4000	--	--	--
JAN.							
27...	5	0	15.0	190	0	0	0
FEB.							
17...	10	4	12.3	2300	--	--	--
MAR.							
11...	10	4	12.6	1000	--	--	--
APR.							
15...	5	10	10.9	100	--	--	--
MAY							
21...	5	16	10.2	280	--	--	--
JUNE							
25...	10	14	9.7	78000	0	0	0
JULY							
24...	0	23	7.3	2400	--	--	--
AUG.							
20...	5	19	7.9	7100	--	--	--
SEPT.							
24...	20	14	9.5	4200	--	--	--

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	12.0	8.0	7.0	7.0	7.0	4.0	3.0	2.0	1.0	6.0	5.0
2	13.0	11.0	9.0	7.0	7.0	7.0	5.0	4.0	3.0	2.0	6.0	6.0
3	11.0	9.0	9.0	8.0	7.0	7.0	5.0	5.0	3.0	3.0	6.0	6.0
4	11.0	11.0	8.0	7.0	7.0	7.0	6.0	5.0	3.0	3.0	6.0	6.0
5	--	--	7.0	7.0	7.0	7.0	7.0	6.0	4.0	3.0	6.0	6.0
6	--	--	7.0	7.0	7.0	6.0	7.0	7.0	3.0	3.0	6.0	6.0
7	--	--	8.0	7.0	7.0	6.0	7.0	6.0	3.0	3.0	6.0	6.0
8	--	--	9.0	8.0	7.0	7.0	6.0	6.0	3.0	3.0	6.0	5.0
9	--	--	10.0	9.0	7.0	7.0	6.0	6.0	4.0	3.0	6.0	6.0
10	--	--	9.0	9.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	5.0
11	--	--	10.0	9.0	7.0	7.0	6.0	6.0	5.0	4.0	6.0	4.0
12	--	--	10.0	9.0	7.0	7.0	6.0	6.0	5.0	5.0	6.0	5.0
13	--	--	9.0	9.0	7.0	7.0	6.0	6.0	5.0	5.0	6.0	5.0
14	--	--	9.0	8.0	7.0	7.0	6.0	5.0	5.0	5.0	6.0	5.0
15	--	--	8.0	7.0	7.0	7.0	5.0	4.0	6.0	5.0	8.0	6.0
16	--	--	7.0	7.0	7.0	7.0	4.0	4.0	6.0	5.0	8.0	7.0
17	--	--	8.0	7.0	7.0	6.0	4.0	4.0	6.0	6.0	8.0	7.0
18	--	--	9.0	8.0	6.0	6.0	4.0	4.0	6.0	5.0	8.0	7.0
19	--	--	9.0	9.0	6.0	5.0	4.0	4.0	6.0	5.0	7.0	7.0
20	--	--	9.0	9.0	5.0	4.0	4.0	4.0	6.0	6.0	7.0	6.0
21	--	--	9.0	9.0	4.0	4.0	4.0	3.0	6.0	6.0	7.0	5.0
22	--	--	9.0	9.0	4.0	4.0	3.0	2.0	6.0	6.0	6.0	6.0
23	--	--	9.0	9.0	6.0	4.0	2.0	2.0	6.0	6.0	6.0	5.0
24	--	--	9.0	8.0	7.0	6.0	2.0	2.0	6.0	4.0	6.0	4.0
25	--	--	8.0	8.0	7.0	6.0	2.0	1.0	5.0	4.0	7.0	5.0
26	--	--	8.0	8.0	6.0	6.0	1.0	1.0	5.0	5.0	7.0	6.0
27	--	--	8.0	8.0	6.0	5.0	2.0	1.0	5.0	4.0	7.0	6.0
28	--	--	8.0	8.0	5.0	4.0	2.0	2.0	5.0	4.0	7.0	6.0
29	11.0	10.0	8.0	8.0	4.0	3.0	2.0	2.0	--	--	7.0	6.0
30	11.0	10.0	8.0	7.0	3.0	2.0	2.0	2.0	--	--	8.0	7.0
31	10.0	8.0	--	--	3.0	2.0	2.0	2.0	--	--	8.0	8.0
AVG	--	--	8.5	8.0	6.1	5.7	4.2	3.9	4.7	4.2	6.6	5.8

14245000 COWEMAN RIVER NEAR KELSO, WASH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	7.0	8.0	7.0	17.0	14.0	18.0	14.0	19.0	17.0	19.0	16.0
2	7.0	6.0	8.0	7.0	18.0	16.0	18.0	15.0	19.0	16.0	18.0	17.0
3	6.0	5.0	8.0	8.0	20.0	16.0	15.0	14.0	18.0	16.0	17.0	14.0
4	6.0	6.0	11.0	7.0	21.0	17.0	15.0	13.0	18.0	17.0	14.0	13.0
5	7.0	6.0	12.0	9.0	21.0	18.0	16.0	14.0	17.0	15.0	15.0	13.0
6	7.0	7.0	13.0	11.0	18.0	16.0	16.0	14.0	18.0	14.0	15.0	12.0
7	8.0	6.0	16.0	12.0	17.0	15.0	16.0	14.0	18.0	16.0	17.0	13.0
8	8.0	6.0	16.0	13.0	18.0	16.0	18.0	16.0	18.0	15.0	16.0	15.0
9	8.0	7.0	16.0	14.0	19.0	18.0	19.0	17.0	19.0	16.0	18.0	16.0
10	8.0	7.0	16.0	14.0	19.0	18.0	19.0	17.0	19.0	17.0	19.0	16.0
11	9.0	7.0	16.0	14.0	18.0	17.0	17.0	16.0	18.0	17.0	18.0	16.0
12	9.0	8.0	16.0	14.0	18.0	17.0	17.0	16.0	17.0	16.0	17.0	16.0
13	9.0	8.0	16.0	14.0	21.0	17.0	17.0	14.0	19.0	16.0	17.0	15.0
14	8.0	7.0	15.0	13.0	21.0	18.0	17.0	14.0	21.0	18.0	15.0	13.0
15	--	7.0	14.0	12.0	22.0	19.0	18.0	14.0	21.0	18.0	13.0	11.0
16	8.0	7.0	14.0	13.0	23.0	20.0	18.0	16.0	18.0	15.0	13.0	12.0
17	8.0	8.0	17.0	13.0	23.0	20.0	19.0	16.0	17.0	14.0	13.0	12.0
18	8.0	7.0	17.0	14.0	23.0	21.0	20.0	17.0	18.0	16.0	13.0	13.0
19	8.0	7.0	14.0	12.0	22.0	20.0	20.0	17.0	17.0	16.0	13.0	12.0
20	7.0	7.0	14.0	12.0	20.0	19.0	20.0	17.0	19.0	17.0	12.0	12.0
21	8.0	7.0	17.0	12.0	19.0	17.0	19.0	17.0	21.0	18.0	12.0	12.0
22	10.0	--	18.0	14.0	17.0	17.0	21.0	17.0	20.0	17.0	12.0	12.0
23	10.0	9.0	18.0	16.0	17.0	15.0	22.0	18.0	20.0	17.0	12.0	12.0
24	--	7.0	18.0	16.0	15.0	14.0	22.0	19.0	19.0	17.0	12.0	12.0
25	--	6.0	17.0	14.0	14.0	13.0	20.0	17.0	18.0	17.0	13.0	12.0
26	--	--	16.0	14.0	14.0	13.0	19.0	16.0	18.0	15.0	13.0	12.0
27	--	--	16.0	14.0	14.0	13.0	19.0	17.0	16.0	15.0	13.0	12.0
28	--	--	14.0	13.0	13.0	13.0	19.0	17.0	16.0	14.0	13.0	13.0
29	9.0	7.0	13.0	13.0	13.0	13.0	19.0	15.0	16.0	13.0	13.0	13.0
30	9.0	7.0	13.0	13.0	16.0	13.0	19.0	16.0	18.0	14.0	13.0	13.0
31	--	--	15.0	12.0	--	--	19.0	17.0	18.0	14.0	--	--
AVG	8.0	6.8	14.5	12.3	18.3	16.4	18.4	15.8	18.3	15.9	14.6	13.3

14245300 COLUMBIA RIVER AT LONGVIEW, WASH.

LOCATION (revised).--Lat 46°06'22", long 122°57'34", in SE¼NW¼ sec.8, T.7 N., R.2 W., Cowlitz County, temperature recorder, on right pier of Interstate Toll bridge at Longview, 1.0 mile south of Longview, 2.0 miles downstream from Cowlitz River, 40.5 miles downstream from gaging station at Vancouver, Wash., and at mile 66.0.

DRAINAGE AREA.--256,700 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: February 1964 to September 1965.
Water temperatures: August 1967 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C on many days during July to August; minimum, freezing point Jan. 31, Feb. 1.

Period of record:
Water temperatures: Maximum, 23.0°C Aug. 16, 21-23, 1967; minimum, freezing point Jan. 31, Feb. 1, 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	17.0	17.0	12.0	12.0	8.0	8.0	--	--	1.0	0.0	4.0	3.0
2	17.0	16.0	12.0	11.0	8.0	7.0	--	--	1.0	1.0	4.0	4.0
3	17.0	16.0	12.0	11.0	8.0	8.0	--	--	2.0	1.0	4.0	4.0
4	16.0	16.0	11.0	10.0	8.0	7.0	--	--	2.0	2.0	4.0	4.0
5	16.0	15.0	11.0	10.0	8.0	7.0	--	--	2.0	2.0	4.0	4.0
6	16.0	15.0	11.0	10.0	7.0	7.0	--	--	2.0	1.0	4.0	4.0
7	16.0	15.0	11.0	10.0	7.0	7.0	--	--	2.0	2.0	4.0	4.0
8	16.0	15.0	10.0	10.0	7.0	7.0	4.0	4.0	2.0	2.0	4.0	4.0
9	15.0	15.0	10.0	10.0	7.0	7.0	4.0	4.0	2.0	2.0	4.0	4.0
10	15.0	15.0	10.0	10.0	7.0	7.0	4.0	3.0	3.0	2.0	4.0	4.0
11	15.0	14.0	10.0	10.0	7.0	7.0	3.0	3.0	4.0	3.0	4.0	4.0
12	15.0	14.0	10.0	10.0	7.0	7.0	3.0	3.0	3.0	3.0	4.0	4.0
13	14.0	13.0	10.0	10.0	7.0	7.0	4.0	3.0	3.0	2.0	5.0	4.0
14	14.0	13.0	10.0	10.0	7.0	7.0	3.0	3.0	3.0	2.0	5.0	4.0
15	14.0	13.0	10.0	9.0	7.0	7.0	3.0	3.0	3.0	2.0	5.0	5.0
16	13.0	13.0	9.0	9.0	7.0	7.0	3.0	3.0	3.0	2.0	5.0	5.0
17	13.0	12.0	9.0	9.0	7.0	6.0	3.0	3.0	3.0	3.0	6.0	5.0
18	13.0	12.0	9.0	9.0	7.0	6.0	3.0	3.0	4.0	3.0	6.0	6.0
19	13.0	12.0	9.0	9.0	6.0	6.0	3.0	3.0	4.0	3.0	6.0	6.0
20	13.0	12.0	9.0	9.0	6.0	6.0	3.0	3.0	4.0	3.0	6.0	6.0
21	13.0	12.0	9.0	9.0	6.0	6.0	--	--	3.0	3.0	6.0	6.0
22	13.0	12.0	9.0	9.0	6.0	5.0	--	--	4.0	3.0	6.0	6.0
23	13.0	12.0	10.0	9.0	5.0	5.0	--	--	4.0	3.0	6.0	6.0
24	13.0	12.0	9.0	9.0	5.0	5.0	--	--	4.0	3.0	6.0	6.0
25	13.0	12.0	9.0	9.0	5.0	5.0	--	--	3.0	3.0	7.0	6.0
26	13.0	12.0	9.0	9.0	5.0	5.0	--	--	3.0	3.0	7.0	6.0
27	13.0	12.0	9.0	9.0	5.0	5.0	--	--	4.0	3.0	7.0	7.0
28	13.0	12.0	9.0	9.0	--	--	--	--	4.0	3.0	8.0	7.0
29	12.0	12.0	9.0	8.0	--	--	--	--	--	--	8.0	7.0
30	12.0	12.0	8.0	8.0	--	--	--	--	--	--	8.0	8.0
31	12.0	12.0	--	--	--	--	0.0	0.0	--	--	8.0	8.0
AVG	14.1	13.3	9.8	9.5	6.6	6.4	--	--	2.9	2.3	5.4	5.1

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	7.0	10.0	10.0	--	--	18.0	17.0	21.0	21.0	20.0	20.0
2	8.0	7.0	10.0	10.0	--	--	18.0	18.0	21.0	21.0	20.0	20.0
3	8.0	7.0	--	--	16.0	16.0	18.0	17.0	21.0	21.0	20.0	20.0
4	8.0	7.0	--	--	16.0	16.0	18.0	17.0	21.0	21.0	20.0	19.0
5	8.0	8.0	11.0	11.0	16.0	16.0	--	--	21.0	20.0	19.0	19.0
6	8.0	8.0	12.0	11.0	16.0	16.0	--	--	21.0	20.0	19.0	19.0
7	8.0	8.0	12.0	11.0	16.0	16.0	--	--	20.0	20.0	19.0	19.0
8	9.0	8.0	12.0	11.0	16.0	16.0	18.0	18.0	20.0	20.0	20.0	19.0
9	9.0	8.0	12.0	12.0	17.0	16.0	19.0	18.0	20.0	20.0	20.0	19.0
10	9.0	8.0	12.0	12.0	17.0	17.0	19.0	18.0	21.0	20.0	20.0	19.0
11	9.0	9.0	13.0	12.0	17.0	17.0	19.0	18.0	21.0	20.0	20.0	19.0
12	9.0	9.0	13.0	12.0	17.0	17.0	--	--	21.0	20.0	20.0	19.0
13	9.0	9.0	13.0	13.0	18.0	17.0	--	--	21.0	20.0	20.0	20.0
14	9.0	9.0	13.0	13.0	18.0	18.0	--	--	21.0	20.0	20.0	19.0
15	9.0	9.0	13.0	13.0	--	--	--	--	21.0	20.0	20.0	19.0
16	10.0	9.0	14.0	14.0	--	--	--	--	21.0	20.0	19.0	18.0
17	10.0	10.0	14.0	14.0	19.0	19.0	19.0	19.0	20.0	20.0	19.0	18.0
18	10.0	10.0	14.0	14.0	19.0	19.0	19.0	19.0	20.0	20.0	19.0	18.0
19	10.0	10.0	14.0	13.0	19.0	18.0	19.0	19.0	20.0	20.0	18.0	18.0
20	10.0	9.0	14.0	13.0	19.0	18.0	20.0	19.0	20.0	20.0	18.0	17.0
21	10.0	10.0	14.0	14.0	18.0	18.0	20.0	19.0	21.0	20.0	18.0	18.0
22	11.0	10.0	14.0	14.0	18.0	18.0	20.0	19.0	21.0	20.0	18.0	17.0
23	11.0	10.0	14.0	14.0	--	--	20.0	20.0	21.0	20.0	18.0	18.0
24	11.0	11.0	14.0	14.0	--	--	21.0	20.0	21.0	21.0	18.0	18.0
25	11.0	10.0	14.0	14.0	--	--	21.0	21.0	21.0	20.0	19.0	18.0
26	11.0	10.0	14.0	14.0	--	--	21.0	20.0	21.0	20.0	18.0	18.0
27	11.0	11.0	14.0	14.0	--	--	21.0	20.0	21.0	20.0	18.0	18.0
28	11.0	11.0	14.0	14.0	18.0	17.0	21.0	21.0	21.0	20.0	18.0	18.0
29	11.0	11.0	14.0	14.0	17.0	17.0	21.0	21.0	20.0	20.0	18.0	17.0
30	11.0	10.0	15.0	14.0	18.0	17.0	21.0	20.0	20.0	20.0	18.0	18.0
31	--	--	15.0	14.0	--	--	21.0	21.0	20.0	20.0	--	--
AVG	9.5	9.1	13.1	12.8	--	--	19.6	19.0	20.6	20.1	19.0	18.5

14245400 COLUMBIA RIVER AT FISHER ISLAND, NEAR LONGVIEW, WASH.

LOCATION.--Lat 46°09'20", long 123°03'20", in W½ sec.22, T.8 N., R.3 W., Cowlitz County, midpoint at Fisher Channel, 0.5 mile south of Fisher Island, 3 miles west of Longview, and 3.5 miles upstream from Coal Creek.

PERIOD OF RECORD.--Chemical analyses: October 1962 to September 1969.

REMARKS.--No discharge records available. Sampling point subject to tidal influence.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)
OCT.										
04...	5.8	18	4.7	7.5	1.1	71	0	16	4.6	.2
FEB.										
12...	14	14	4.2	5.8	1.1	57	0	15	2.4	.2
MAR.										
14...	16	20	5.6	7.3	1.4	80	0	17	4.0	.3
APR.										
10...	15	20	5.8	8.0	1.7	83	0	16	4.1	.3
MAY										
30...	11	14	3.4	4.5	1.0	56	0	9.6	3.0	.2
JULY										
16...	6.2	16	3.8	3.4	1.0	63	0	12	1.0	.2
AUG.										
29...	6.7	16	3.9	5.0	1.1	65	0	10	2.8	.2

DATE	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM COBALT UNITS)	TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	ZINC (ZN) (UG/L)
OCT.										
04...	.2	95	65	7	163	7.2	10	--	--	--
FEB.										
12...	1.4	94	53	6	136	7.7	10	--	--	--
MAR.										
14...	1.3	--	73	8	181	7.4	5	--	--	--
APR.										
10...	2.1	120	74	6	183	7.7	10	--	--	--
MAY										
30...	.2	79	49	3	120	7.0	5	--	--	--
JULY										
16...	.2	81	56	4	130	7.4	0	0	0	0
AUG.										
29...	.6	70	56	3	139	7.2	5	--	--	--

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OREG.

LOCATION.--Lat 46°10'55", long 123°10'50", in NE¼ sec.16, T.8 N., R.4 W., Columbia County, temperature recorder on left bank 0.7 mile downstream from Crims Island, 3.0 miles northwest of Quincy, 52.7 miles downstream from gaging station at Vancouver, Wash., and at mile 53.8.

DRAINAGE AREA.--256,900 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: August 1967 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C on many days during July to August; minimum, freezing point Jan. 31, Feb. 1.

Period of record:
Water temperatures: Maximum, 23.5°C Aug. 19, 21, 22, 1967; minimum, freezing point Jan. 31, Feb. 1, 1969.

REMARKS.--Thermograph not operating properly Oct. 12-14, Jan. 1-6, Feb. 15-17, May 24-26, May 31 to June 2, June 6-9, 15-17, June to July 7, and July 11-14.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	17.0	17.0	12.0	12.0	8.0	8.0	--	--	1.0	0.0	4.0	4.0
2	17.0	16.0	12.0	12.0	8.0	8.0	--	--	2.0	1.0	4.0	4.0
3	17.0	16.0	12.0	11.0	8.0	8.0	--	--	2.0	2.0	4.0	4.0
4	16.0	16.0	11.0	11.0	8.0	8.0	--	--	2.0	2.0	4.0	4.0
5	16.0	16.0	11.0	10.0	8.0	7.0	--	--	3.0	2.0	5.0	4.0
6	16.0	15.0	11.0	10.0	7.0	7.0	--	--	3.0	2.0	4.0	4.0
7	15.0	15.0	10.0	10.0	7.0	7.0	5.0	4.0	2.0	2.0	5.0	4.0
8	15.0	15.0	10.0	10.0	7.0	7.0	5.0	5.0	3.0	2.0	5.0	4.0
9	15.0	15.0	10.0	10.0	7.0	7.0	5.0	5.0	3.0	2.0	5.0	5.0
10	15.0	14.0	10.0	10.0	7.0	7.0	5.0	4.0	3.0	2.0	5.0	5.0
11	14.0	14.0	10.0	10.0	7.0	7.0	5.0	4.0	4.0	3.0	5.0	4.0
12	--	--	10.0	10.0	7.0	7.0	4.0	4.0	4.0	4.0	6.0	5.0
13	--	--	10.0	10.0	7.0	7.0	4.0	4.0	4.0	4.0	6.0	5.0
14	--	--	10.0	10.0	7.0	7.0	4.0	3.0	4.0	4.0	6.0	5.0
15	13.0	13.0	10.0	9.0	7.0	7.0	4.0	3.0	--	--	6.0	5.0
16	13.0	13.0	9.0	9.0	7.0	6.0	3.0	3.0	--	--	6.0	5.0
17	13.0	12.0	9.0	9.0	7.0	6.0	3.0	3.0	--	--	6.0	6.0
18	13.0	12.0	9.0	9.0	7.0	6.0	3.0	3.0	4.0	4.0	6.0	6.0
19	12.0	12.0	9.0	9.0	6.0	6.0	3.0	3.0	5.0	4.0	6.0	6.0
20	12.0	12.0	9.0	9.0	6.0	6.0	3.0	3.0	5.0	4.0	7.0	6.0
21	12.0	12.0	9.0	9.0	6.0	5.0	3.0	3.0	5.0	4.0	7.0	7.0
22	12.0	12.0	10.0	9.0	6.0	5.0	3.0	3.0	5.0	4.0	7.0	7.0
23	13.0	12.0	10.0	10.0	5.0	5.0	3.0	3.0	5.0	4.0	7.0	7.0
24	12.0	12.0	10.0	10.0	5.0	5.0	3.0	2.0	5.0	4.0	7.0	7.0
25	12.0	12.0	10.0	10.0	5.0	5.0	2.0	2.0	4.0	4.0	8.0	7.0
26	12.0	12.0	10.0	10.0	5.0	4.0	2.0	1.0	4.0	4.0	8.0	8.0
27	12.0	12.0	10.0	9.0	5.0	5.0	1.0	1.0	4.0	4.0	8.0	8.0
28	13.0	12.0	9.0	9.0	5.0	5.0	2.0	1.0	4.0	4.0	8.0	8.0
29	13.0	12.0	9.0	9.0	5.0	4.0	2.0	1.0	--	--	9.0	8.0
30	12.0	12.0	9.0	8.0	4.0	4.0	1.0	1.0	--	--	9.0	8.0
31	12.0	12.0	--	--	4.0	2.0	1.0	0.0	--	--	9.0	8.0
AVG	13.7	13.3	10.0	9.7	6.3	6.0	3.1	2.7	3.6	3.0	6.1	5.7

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	8.0	11.0	11.0	--	--	--	--	21.0	20.0	20.0	20.0
2	9.0	8.0	11.0	11.0	--	--	--	--	21.0	20.0	20.0	20.0
3	8.0	8.0	11.0	11.0	17.0	16.0	--	--	21.0	20.0	20.0	20.0
4	8.0	8.0	11.0	11.0	17.0	16.0	--	--	21.0	20.0	20.0	20.0
5	8.0	8.0	12.0	11.0	16.0	16.0	--	--	21.0	20.0	20.0	19.0
6	9.0	8.0	12.0	11.0	--	--	--	--	21.0	20.0	19.0	19.0
7	9.0	9.0	12.0	12.0	--	--	--	--	21.0	20.0	20.0	19.0
8	9.0	9.0	13.0	12.0	--	--	18.0	18.0	20.0	20.0	20.0	19.0
9	9.0	9.0	12.0	12.0	--	--	18.0	18.0	20.0	20.0	20.0	19.0
10	9.0	9.0	13.0	12.0	17.0	17.0	18.0	18.0	21.0	20.0	20.0	19.0
11	10.0	9.0	14.0	13.0	17.0	17.0	--	--	21.0	20.0	20.0	20.0
12	9.0	9.0	14.0	13.0	18.0	17.0	--	--	20.0	20.0	20.0	19.0
13	10.0	9.0	14.0	14.0	18.0	18.0	--	--	21.0	20.0	20.0	20.0
14	10.0	9.0	14.0	14.0	19.0	18.0	--	--	21.0	20.0	20.0	20.0
15	10.0	10.0	14.0	14.0	--	--	19.0	19.0	21.0	21.0	20.0	20.0
16	10.0	10.0	14.0	14.0	--	--	19.0	19.0	21.0	20.0	20.0	19.0
17	10.0	10.0	15.0	14.0	--	--	19.0	19.0	21.0	20.0	19.0	19.0
18	10.0	10.0	14.0	14.0	19.0	19.0	19.0	19.0	21.0	20.0	19.0	18.0
19	10.0	10.0	14.0	14.0	19.0	19.0	20.0	19.0	20.0	20.0	18.0	18.0
20	10.0	10.0	14.0	14.0	19.0	19.0	20.0	19.0	21.0	20.0	18.0	18.0
21	11.0	10.0	14.0	14.0	19.0	18.0	20.0	19.0	21.0	20.0	18.0	18.0
22	11.0	11.0	15.0	14.0	19.0	18.0	20.0	20.0	21.0	21.0	18.0	18.0
23	11.0	11.0	15.0	14.0	18.0	18.0	20.0	20.0	21.0	21.0	18.0	18.0
24	11.0	11.0	--	--	18.0	18.0	21.0	20.0	21.0	21.0	18.0	18.0
25	11.0	11.0	--	--	18.0	18.0	21.0	20.0	21.0	21.0	18.0	18.0
26	11.0	11.0	--	--	18.0	17.0	21.0	21.0	21.0	21.0	18.0	18.0
27	11.0	11.0	15.0	15.0	--	--	21.0	21.0	21.0	20.0	18.0	18.0
28	11.0	11.0	15.0	15.0	--	--	21.0	21.0	21.0	20.0	18.0	18.0
29	11.0	11.0	15.0	15.0	--	--	21.0	21.0	20.0	20.0	18.0	18.0
30	11.0	11.0	15.0	15.0	--	--	21.0	21.0	20.0	20.0	18.0	18.0
31	--	--	--	--	--	--	21.0	20.0	20.0	20.0	--	--
AVG	9.8	9.6	13.4	13.1	--	--	--	--	20.7	20.1	19.1	18.8

14247500 ELOCHOMAN RIVER NEAR CATHLAMET, WASH.

LOCATION.--Lat 46°13'17", long 123°20'28", in NE¼SE¼ sec.31, T.9 N., R.5 W., Wahkiakum County, temperature recorder at gaging station on right bank, 125 ft upstream from railroad bridge, 2.4 miles northeast of Cathlamet, and at mile 5.0.

DRAINAGE AREA.--65.8 sq mi.

PERIOD OF RECORD.--Water temperatures: June 1950 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C June 16, 17; minimum, 1.0°C Dec. 31, Jan. 1.

Period of record:
Water temperatures: Maximum, 24.0°C July 11, 12, 1961; minimum, freezing point Feb. 17, 1956.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.0	8.0	8.0	7.0	7.0	3.0	1.0	3.0	2.0	6.0	5.0
2	11.0	10.0	9.0	8.0	7.0	7.0	4.0	3.0	3.0	3.0	6.0	6.0
3	11.0	10.0	9.0	8.0	8.0	7.0	4.0	4.0	4.0	3.0	6.0	6.0
4	12.0	11.0	8.0	8.0	7.0	7.0	5.0	4.0	4.0	4.0	6.0	6.0
5	11.0	10.0	8.0	8.0	7.0	7.0	6.0	5.0	4.0	4.0	6.0	6.0
6	11.0	11.0	8.0	7.0	7.0	7.0	6.0	6.0	4.0	3.0	6.0	6.0
7	11.0	10.0	8.0	8.0	7.0	7.0	6.0	6.0	4.0	3.0	6.0	5.0
8	11.0	10.0	9.0	8.0	7.0	7.0	6.0	5.0	4.0	4.0	6.0	5.0
9	10.0	9.0	9.0	9.0	7.0	7.0	5.0	4.0	4.0	4.0	6.0	5.0
10	10.0	9.0	9.0	8.0	7.0	7.0	4.0	4.0	5.0	4.0	6.0	4.0
11	10.0	10.0	9.0	9.0	7.0	7.0	4.0	4.0	5.0	5.0	6.0	4.0
12	10.0	10.0	9.0	8.0	7.0	7.0	4.0	4.0	5.0	5.0	6.0	4.0
13	10.0	10.0	8.0	8.0	7.0	7.0	4.0	4.0	5.0	5.0	6.0	4.0
14	10.0	10.0	8.0	8.0	7.0	7.0	4.0	4.0	5.0	5.0	6.0	5.0
15	10.0	10.0	8.0	7.0	7.0	7.0	4.0	3.0	6.0	5.0	7.0	6.0
16	10.0	10.0	8.0	7.0	7.0	6.0	4.0	3.0	6.0	5.0	7.0	6.0
17	10.0	9.0	8.0	8.0	6.0	6.0	4.0	3.0	6.0	5.0	6.0	6.0
18	10.0	9.0	9.0	8.0	6.0	6.0	4.0	4.0	6.0	5.0	6.0	6.0
19	9.0	9.0	9.0	9.0	6.0	5.0	4.0	4.0	6.0	5.0	7.0	6.0
20	10.0	9.0	9.0	9.0	5.0	4.0	4.0	4.0	6.0	5.0	7.0	6.0
21	10.0	9.0	9.0	9.0	4.0	4.0	4.0	3.0	6.0	5.0	7.0	6.0
22	10.0	9.0	9.0	9.0	4.0	4.0	3.0	3.0	6.0	5.0	7.0	7.0
23	11.0	10.0	9.0	8.0	5.0	4.0	3.0	3.0	6.0	5.0	7.0	6.0
24	11.0	10.0	8.0	8.0	6.0	5.0	3.0	3.0	6.0	4.0	7.0	6.0
25	11.0	11.0	8.0	8.0	6.0	5.0	3.0	2.0	5.0	4.0	8.0	6.0
26	11.0	9.0	8.0	8.0	6.0	5.0	2.0	2.0	5.0	5.0	8.0	6.0
27	9.0	9.0	8.0	8.0	5.0	5.0	2.0	2.0	5.0	4.0	8.0	7.0
28	10.0	9.0	8.0	8.0	5.0	4.0	3.0	2.0	5.0	5.0	8.0	7.0
29	11.0	10.0	8.0	7.0	4.0	3.0	3.0	2.0	--	--	8.0	7.0
30	11.0	10.0	7.0	7.0	3.0	2.0	2.0	2.0	--	--	8.0	7.0
31	10.0	8.0	--	--	2.0	1.0	2.0	2.0	--	--	8.0	7.0
AVG	10.4	9.7	8.4	8.0	6.0	5.6	3.8	3.3	4.9	4.3	6.7	5.7

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	7.0	8.0	7.0	16.0	13.0	18.0	15.0	18.0	16.0	17.0	15.0
2	7.0	6.0	8.0	7.0	16.0	14.0	17.0	15.0	18.0	15.0	17.0	16.0
3	7.0	6.0	8.0	8.0	18.0	15.0	15.0	14.0	17.0	15.0	16.0	14.0
4	7.0	6.0	9.0	7.0	18.0	16.0	16.0	14.0	16.0	15.0	14.0	14.0
5	7.0	6.0	11.0	9.0	17.0	15.0	16.0	14.0	16.0	15.0	14.0	13.0
6	7.0	6.0	12.0	10.0	16.0	15.0	15.0	14.0	16.0	14.0	15.0	13.0
7	8.0	6.0	13.0	11.0	16.0	14.0	15.0	13.0	16.0	14.0	16.0	14.0
8	8.0	6.0	14.0	12.0	17.0	15.0	17.0	14.0	17.0	14.0	16.0	15.0
9	8.0	7.0	14.0	12.0	17.0	16.0	17.0	16.0	17.0	15.0	17.0	16.0
10	7.0	7.0	14.0	12.0	16.0	16.0	16.0	14.0	17.0	15.0	17.0	16.0
11	9.0	7.0	14.0	12.0	16.0	16.0	15.0	14.0	17.0	15.0	17.0	16.0
12	9.0	8.0	14.0	12.0	16.0	15.0	15.0	14.0	16.0	15.0	16.0	16.0
13	8.0	7.0	13.0	12.0	18.0	14.0	15.0	13.0	18.0	15.0	16.0	15.0
14	8.0	7.0	13.0	12.0	18.0	16.0	16.0	13.0	18.0	17.0	15.0	13.0
15	9.0	7.0	12.0	11.0	19.0	16.0	16.0	13.0	18.0	17.0	14.0	12.0
16	8.0	7.0	12.0	11.0	21.0	17.0	17.0	13.0	17.0	14.0	13.0	13.0
17	8.0	8.0	15.0	12.0	21.0	18.0	17.0	13.0	16.0	14.0	13.0	13.0
18	8.0	7.0	15.0	13.0	20.0	18.0	18.0	14.0	16.0	15.0	13.0	13.0
19	7.0	7.0	13.0	12.0	18.0	17.0	18.0	14.0	16.0	15.0	13.0	13.0
20	7.0	6.0	14.0	12.0	17.0	16.0	18.0	16.0	16.0	16.0	13.0	13.0
21	8.0	7.0	16.0	13.0	16.0	15.0	18.0	14.0	18.0	16.0	13.0	13.0
22	8.0	8.0	17.0	14.0	15.0	15.0	19.0	15.0	18.0	15.0	13.0	13.0
23	8.0	8.0	16.0	15.0	15.0	14.0	20.0	16.0	18.0	15.0	13.0	13.0
24	8.0	7.0	15.0	14.0	14.0	14.0	19.0	17.0	17.0	16.0	13.0	13.0
25	8.0	6.0	14.0	13.0	14.0	13.0	18.0	16.0	17.0	16.0	13.0	13.0
26	8.0	6.0	14.0	13.0	14.0	13.0	18.0	14.0	16.0	14.0	13.0	12.0
27	9.0	8.0	13.0	13.0	14.0	13.0	18.0	16.0	15.0	14.0	13.0	12.0
28	9.0	8.0	13.0	12.0	14.0	13.0	18.0	16.0	16.0	14.0	13.0	13.0
29	8.0	7.0	12.0	12.0	14.0	13.0	18.0	14.0	15.0	13.0	13.0	13.0
30	7.0	7.0	12.0	12.0	16.0	13.0	18.0	15.0	16.0	14.0	13.0	12.0
31	--	--	13.0	11.0	--	--	17.0	16.0	17.0	14.0	--	--
AVG	7.8	6.8	12.9	11.4	16.5	14.9	17.0	14.4	16.7	14.9	14.4	13.6

14248700 BEAR CREEK NEAR SVENSEN, OREG.

LOCATION.--Lat 46°06'48", long 123°37'55", in NE¼NE¼ sec.11, T.7 N., R.8 W., Clatsop County, temperature recorder at gaging station on right bank, 0.5 mile upstream from Astoria Reservoir Dam, 3.8 miles southeast of Svensen, and at mile 5.4.

DRAINAGE AREA.--3.33 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 13.0°C June 3, 16-18; minimum, 2.0°C on several days during December and January.

Period of record:
Water temperatures: Maximum, 18.5°C Aug. 22, 1967; minimum, 2.0°C on several days during December 1968 and January 1969.

REMARKS.--Chemical-quality data in "Analyses of Samples Collected at Miscellaneous Sites." Temperature recorder stopped Oct. 1; no record available.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	--	8	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	9	9	8	8	8	8	9	9	8	8
MINIMUM	--	7	8	9	8	8	8	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	7	8
NOVEMBER																																
MAXIMUM	7	8	8	7	7	7	7	8	8	8	9	9	8	7	7	7	7	8	8	8	8	8	8	7	7	7	7	7	7	7	--	8
MINIMUM	7	7	7	6	7	7	7	7	8	8	8	8	7	7	6	7	7	7	8	7	7	8	7	7	7	7	7	7	7	6	--	7
DECEMBER																																
MAXIMUM	6	6	7	7	6	6	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	7	7	7	7	6	6	5	5	4	6
MINIMUM	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	7	7	6	6	5	5	2	2	6
JANUARY																																
MAXIMUM	6	6	7	7	7	7	7	6	6	6	6	6	6	5	5	5	6	5	4	4	4	4	4	3	2	3	3	3	3	4	4	5
MINIMUM	4	6	6	7	7	7	6	6	6	6	5	6	5	5	4	4	4	4	4	4	3	3	3	2	2	2	3	3	3	3	2	4
FEBRUARY																																
MAXIMUM	3	4	4	4	4	4	4	4	5	5	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	--	--	--	5
MINIMUM	3	3	4	4	3	3	4	4	4	5	5	5	5	5	6	6	6	6	5	6	6	6	6	5	5	5	4	5	--	--	--	5
MARCH																																
MAXIMUM	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	9	8	9	8	9	8	8
MINIMUM	6	6	7	6	6	6	6	6	6	5	5	5	5	5	6	7	7	7	7	6	6	7	6	6	7	7	6	6	7	8	7	6
APRIL																																
MAXIMUM	7	7	7	7	8	8	8	8	7	8	9	8	8	8	8	8	8	7	7	8	9	8	8	8	8	9	9	8	7	7	--	8
MINIMUM	7	6	6	6	7	6	6	6	6	6	7	7	6	6	7	6	7	7	7	6	7	7	7	6	6	6	7	6	6	6	--	6
MAY																																
MAXIMUM	7	8	8	9	9	11	12	11	11	11	11	11	9	9	9	9	11	11	9	10	12	12	11	11	9	9	9	9	9	11	12	10
MINIMUM	6	6	6	6	7	7	8	9	8	8	8	8	8	8	7	7	8	9	8	8	8	9	9	8	8	8	8	9	9	8	9	8
JUNE																																
MAXIMUM	12	12	13	12	11	10	11	12	12	11	10	10	10	10	11	13	13	13	12	11	10	11	11	11	10	10	9	9	9	11	--	11
MINIMUM	10	9	11	11	10	9	9	9	10	10	9	9	9	9	9	9	11	11	11	10	9	10	10	10	9	9	9	9	9	8	--	10
JULY																																
MAXIMUM	11	11	10	10	10	10	10	11	11	11	10	11	11	11	11	11	12	12	12	12	12	12	12	12	11	12	12	12	12	12	12	11
MINIMUM	9	10	9	9	9	9	9	9	10	9	10	9	9	9	9	9	9	9	9	11	10	9	10	10	9	9	10	10	9	9	10	9
AUGUST																																
MAXIMUM	12	12	10	11	11	11	11	12	12	11	11	11	12	12	12	11	11	11	11	11	11	12	12	12	11	11	11	11	11	11	11	11
MINIMUM	10	9	9	9	10	9	10	9	10	10	11	10	10	11	11	9	9	11	11	11	11	9	9	9	11	9	10	9	8	9	9	10
SEPTEMBER																																
MAXIMUM	12	12	11	10	10	11	12	12	12	12	11	11	11	10	9	10	11	11	11	11	11	11	11	11	11	11	10	10	11	11	--	11
MINIMUM	10	11	10	10	9	9	10	11	11	10	10	11	10	9	8	9	10	11	11	11	10	11	11	11	11	9	9	10	10	11	--	10

14250500 WEST FORK GRAYS RIVER NEAR GRAYS RIVER, WASH.

LOCATION.--Lat 46°23'07", long 123°33'30", in SW¼SW¼ sec.33, T.11 N., R.7 W., Pacific County (revised), temperature recorder at gaging station on right bank, 1.2 miles upstream from mouth and 3.1 miles northeast of town of Grays River.

DRAINAGE AREA.--15.2 sq mi.

PERIOD OF RECORD.--Water temperatures: June 1950 to December 1958, August 1961 to September 1969 (discontinued).

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C June 16, 17, July 23; minimum, 2.0°C on several days during December to January.

Period of record:
Water temperatures: Maximum (1950-58, 1962-69), 21.0°C Aug. 17, 1967; minimum (1961-69), 0.5°C Jan. 30, 1963.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	10.0	8.0	8.0	7.0	7.0	4.0	3.0	3.0	3.0	6.0	5.0
2	12.0	9.0	9.0	8.0	8.0	7.0	5.0	4.0	4.0	3.0	6.0	5.0
3	12.0	9.0	9.0	8.0	8.0	8.0	5.0	5.0	4.0	4.0	6.0	5.0
4	12.0	11.0	8.0	7.0	8.0	8.0	6.0	5.0	4.0	4.0	6.0	5.0
5	11.0	9.0	9.0	8.0	8.0	7.0	6.0	6.0	4.0	4.0	6.0	5.0
6	11.0	10.0	8.0	7.0	9.0	7.0	6.0	6.0	4.0	4.0	6.0	5.0
7	11.0	9.0	8.0	8.0	7.0	7.0	6.0	6.0	4.0	4.0	6.0	5.0
8	10.0	8.0	9.0	8.0	7.0	7.0	6.0	5.0	4.0	4.0	6.0	5.0
9	9.0	9.0	9.0	9.0	8.0	7.0	6.0	5.0	4.0	4.0	6.0	4.0
10	11.0	9.0	9.0	9.0	8.0	7.0	6.0	5.0	4.0	4.0	6.0	4.0
11	10.0	9.0	9.0	9.0	8.0	7.0	6.0	6.0	5.0	4.0	6.0	4.0
12	10.0	9.0	9.0	9.0	7.0	7.0	6.0	6.0	5.0	5.0	6.0	4.0
13	9.0	9.0	9.0	8.0	7.0	7.0	6.0	6.0	5.0	5.0	6.0	4.0
14	9.0	9.0	8.0	8.0	8.0	7.0	6.0	4.0	5.0	5.0	6.0	4.0
15	9.0	9.0	8.0	8.0	7.0	7.0	4.0	4.0	6.0	5.0	7.0	6.0
16	9.0	9.0	8.0	8.0	7.0	7.0	4.0	3.0	6.0	5.0	6.0	5.0
17	9.0	9.0	8.0	8.0	7.0	7.0	4.0	4.0	6.0	5.0	6.0	6.0
18	9.0	8.0	9.0	8.0	7.0	6.0	4.0	4.0	6.0	5.0	7.0	6.0
19	9.0	9.0	9.0	9.0	6.0	6.0	4.0	4.0	6.0	5.0	7.0	6.0
20	9.0	9.0	9.0	9.0	6.0	6.0	4.0	4.0	6.0	5.0	7.0	6.0
21	9.0	9.0	9.0	9.0	6.0	6.0	4.0	3.0	6.0	5.0	7.0	6.0
22	10.0	9.0	9.0	9.0	6.0	4.0	4.0	3.0	6.0	5.0	7.0	6.0
23	11.0	9.0	9.0	9.0	6.0	4.0	3.0	3.0	6.0	5.0	7.0	6.0
24	11.0	10.0	9.0	9.0	7.0	6.0	3.0	3.0	6.0	4.0	7.0	6.0
25	11.0	9.0	9.0	8.0	7.0	7.0	3.0	3.0	6.0	4.0	8.0	6.0
26	9.0	8.0	8.0	8.0	7.0	7.0	3.0	2.0	6.0	4.0	8.0	6.0
27	10.0	9.0	8.0	8.0	7.0	6.0	2.0	2.0	5.0	4.0	8.0	7.0
28	11.0	9.0	8.0	8.0	6.0	5.0	3.0	2.0	6.0	4.0	8.0	7.0
29	11.0	10.0	8.0	7.0	5.0	4.0	3.0	2.0	--	--	8.0	7.0
30	10.0	9.0	7.0	7.0	4.0	2.0	3.0	3.0	--	--	8.0	8.0
31	9.0	9.0	--	--	3.0	2.0	3.0	2.0	--	--	8.0	7.0
AVG	10.1	9.0	8.5	8.2	6.7	6.1	4.4	3.9	5.0	4.3	6.7	5.5

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	7.0	8.0	7.0	14.0	11.0	15.0	12.0	17.0	13.0	16.0	13.0
2	7.0	6.0	8.0	7.0	14.0	12.0	14.0	13.0	16.0	13.0	15.0	13.0
3	7.0	6.0	9.0	7.0	16.0	12.0	13.0	12.0	14.0	12.0	13.0	12.0
4	7.0	7.0	11.0	7.0	16.0	13.0	13.0	12.0	15.0	13.0	14.0	12.0
5	8.0	7.0	12.0	8.0	14.0	13.0	13.0	12.0	15.0	13.0	14.0	12.0
6	8.0	6.0	12.0	8.0	13.0	13.0	13.0	12.0	15.0	12.0	15.0	12.0
7	9.0	7.0	13.0	9.0	14.0	13.0	13.0	12.0	14.0	13.0	16.0	12.0
8	9.0	6.0	13.0	11.0	16.0	13.0	16.0	13.0	17.0	12.0	16.0	13.0
9	7.0	7.0	13.0	11.0	14.0	14.0	15.0	13.0	15.0	13.0	16.0	14.0
10	8.0	7.0	14.0	11.0	14.0	13.0	14.0	13.0	16.0	13.0	16.0	13.0
11	10.0	7.0	14.0	11.0	14.0	13.0	13.0	13.0	16.0	13.0	16.0	13.0
12	8.0	8.0	15.0	11.0	13.0	13.0	14.0	12.0	14.0	13.0	14.0	13.0
13	8.0	7.0	13.0	11.0	17.0	13.0	14.0	12.0	17.0	13.0	14.0	13.0
14	9.0	7.0	13.0	11.0	16.0	14.0	14.0	12.0	17.0	14.0	13.0	12.0
15	8.0	7.0	14.0	11.0	18.0	14.0	16.0	12.0	16.0	14.0	13.0	11.0
16	8.0	7.0	12.0	11.0	19.0	15.0	16.0	12.0	16.0	12.0	13.0	12.0
17	8.0	7.0	16.0	11.0	19.0	16.0	16.0	12.0	16.0	12.0	12.0	12.0
18	7.0	7.0	13.0	12.0	17.0	15.0	17.0	13.0	15.0	13.0	12.0	12.0
19	7.0	7.0	12.0	12.0	15.0	14.0	17.0	13.0	15.0	14.0	12.0	12.0
20	8.0	7.0	13.0	12.0	14.0	14.0	17.0	14.0	15.0	14.0	12.0	12.0
21	9.0	7.0	16.0	11.0	14.0	14.0	17.0	13.0	16.0	14.0	12.0	12.0
22	9.0	8.0	17.0	12.0	14.0	14.0	18.0	13.0	17.0	13.0	12.0	12.0
23	9.0	8.0	16.0	13.0	14.0	13.0	19.0	14.0	17.0	13.0	12.0	12.0
24	8.0	7.0	16.0	13.0	13.0	12.0	17.0	14.0	16.0	14.0	12.0	11.0
25	9.0	7.0	14.0	12.0	13.0	12.0	17.0	14.0	16.0	14.0	11.0	11.0
26	9.0	7.0	13.0	12.0	12.0	12.0	18.0	13.0	14.0	13.0	11.0	11.0
27	10.0	8.0	12.0	11.0	13.0	12.0	18.0	14.0	14.0	13.0	11.0	11.0
28	9.0	7.0	12.0	11.0	12.0	12.0	18.0	14.0	14.0	12.0	12.0	11.0
29	8.0	7.0	11.0	11.0	13.0	12.0	18.0	13.0	15.0	11.0	12.0	11.0
30	8.0	7.0	11.0	10.0	14.0	12.0	18.0	13.0	15.0	12.0	11.0	11.0
31	--	--	13.0	10.0	--	--	16.0	14.0	16.0	12.0	--	--
AVG	8.2	7.0	12.8	10.4	14.6	13.1	15.7	12.8	15.5	12.9	13.2	12.0

14302500 TRASK RIVER NEAR TILLAMOOK, OREG.

LOCATION.--Lat 45°26'25", long 123°43'00", in NW¼NW¼ sec.31, T.1 S., R.8 W., Tillamook County, temperature recorder at gaging station on right bank, 0.6 mile upstream from Gold Creek, 6.2 miles east of Tillamook, and at mile 10.4.

DRAINAGE AREA.--145 sq mi.

PERIOD OF RECORD.--Water temperatures: April 1962 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 19.0°C on several days during June to August; minimum, 1.0°C on several days during December and January.

Period of record:
Water temperatures: Maximum (1962-64, 1965-69), 22.0°C July 31, 1967, July 27, 28, 30, 31, 1968; minimum, 0.5°C Jan. 11-13, 30, 31, 1963.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	12	12	13	12	12	12	11	11	11	11	11	10	10	10	10	10	10	9	11	10	11	11	11	10	10	9	9	10	10	9	11
MINIMUM	12	10	10	11	11	11	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	9	10	10	10	8	8	9	9	9	8	10
NOVEMBER																																
MAXIMUM	8	9	9	8	8	8	9	9	9	9	9	9	8	8	8	8	8	9	9	9	9	9	9	8	8	8	8	8	8	7	--	8
MINIMUM	7	8	8	7	8	7	8	8	8	8	9	8	8	8	7	7	8	8	9	9	8	9	8	8	8	8	8	8	7	7	--	8
DECEMBER																																
MAXIMUM	7	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	6	7	6	5	5	6	7	7	7	6	6	6	5	4	4	7
MINIMUM	7	7	8	8	8	7	7	8	7	7	7	7	7	7	7	6	6	6	5	4	4	4	5	7	6	6	6	5	4	1	1	6
JANUARY																																
MAXIMUM	6	6	7	7	7	7	7	6	6	6	6	6	6	5	4	4	4	4	4	4	4	3	3	2	2	2	2	2	2	2	3	4
MINIMUM	4	6	6	7	7	7	6	6	5	6	6	5	5	4	4	4	4	4	3	4	3	3	2	2	1	1	1	1	1	2	2	4
FEBRUARY																																
MAXIMUM	3	4	4	4	4	4	4	4	4	5	6	6	6	6	6	6	6	7	7	7	7	6	6	6	6	6	6	6	--	--	--	5
MINIMUM	2	3	4	4	3	3	4	4	4	4	5	6	5	6	6	6	6	6	6	6	6	6	6	4	5	5	5	6	--	--	--	5
MARCH																																
MAXIMUM	7	7	7	7	7	7	7	7	7	7	7	8	7	7	8	8	8	8	9	9	9	9	9	9	9	10	9	9	9	10	10	8
MINIMUM	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	8	8	8	7	7	8	7	7	7	7	7	7	8	8	8	7
APRIL																																
MAXIMUM	8	8	8	8	8	9	9	9	9	9	10	10	9	8	10	9	9	9	8	9	11	11	10	9	9	10	11	11	9	9	--	9
MINIMUM	8	7	6	7	8	7	7	7	8	7	8	8	7	8	8	7	8	8	8	7	8	9	9	8	8	7	9	9	8	8	--	8
MAY																																
MAXIMUM	9	9	9	11	12	13	13	13	13	14	14	14	14	11	12	12	14	14	12	14	14	15	14	13	13	12	12	11	11	12	13	13
MINIMUM	8	8	8	8	9	11	11	11	12	12	13	12	11	11	10	11	11	12	11	11	12	13	13	13	12	11	11	10	11	10	11	11
JUNE																																
MAXIMUM	14	15	16	16	15	13	14	16	15	14	13	13	16	16	18	19	19	19	17	15	15	15	14	13	12	12	12	12	13	14	--	15
MINIMUM	11	13	13	14	13	12	12	13	14	13	13	13	13	16	16	17	17	17	15	14	14	14	13	12	12	12	12	12	11	12	--	13
JULY																																
MAXIMUM	14	14	13	14	16	15	15	17	16	16	14	14	15	16	17	17	17	17	18	18	18	18	19	19	18	18	18	17	18	17	17	16
MINIMUM	12	13	12	12	14	14	14	14	15	14	14	13	13	13	14	14	14	14	16	16	15	15	16	17	16	15	16	16	14	14	16	14
AUGUST																																
MAXIMUM	18	19	17	16	17	17	16	17	16	17	17	14	17	19	18	17	17	16	17	17	18	18	18	17	17	17	14	15	16	16	17	17
MINIMUM	14	14	14	14	14	13	14	13	14	13	14	13	13	16	17	13	13	14	14	15	16	15	14	14	14	13	13	12	12	13	13	14
SEPTEMBER																																
MAXIMUM	17	17	17	14	14	16	16	17	16	17	17	17	17	17	15	14	13	13	13	13	13	13	13	13	14	13	13	14	14	14	--	15
MINIMUM	14	15	14	13	12	12	13	14	14	14	14	14	15	13	12	12	12	13	13	13	13	13	13	13	13	12	12	13	14	13	--	13

14303600 NESTUCCA RIVER NEAR BEAVER, OREG.

LOCATION.--Lat 45°16'00", long 123°50'45", in SE¼NE¼ sec.36, T.3 S., R.10 W., Tillamook County, temperature recorder at gaging station on right bank, 150 ft upstream from Saling Creek, 1.2 miles southwest of Beaver, and at mile 13.5.

DRAINAGE AREA.--180 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1964 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C June 17; minimum, 1.0°C sometime during period Dec. 28 to Feb. 8.

Period of record:
Water temperatures: Maximum, 24.0°C July 1-3, 1967; minimum, 1.0°C sometime during period Dec. 28, 1968 to Feb. 8, 1969.

REMARKS.--Recorder stopped Nov. 27 to Dec. 26, Dec. 28 to Feb. 7, Feb. 8 to Mar. 26, Apr. 22-24, Apr. 25 to May 10, May 11-22; ranges in temperature, 6.0°C to 9.0°C, 1.0°C to 8.0°C, 3.0°C to 6.0°C, 9.0°C to 11.0°C, 7.0°C to 14.0°C, and 10.0°C to 17.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	12	11	11	11	11	11	11	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
MINIMUM	12	11	9	10	11	11	11	10	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	10	10	9	10
NOVEMBER																																
MAXIMUM	9	8	8	8	8	8	8	9	9	9	9	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	--	--	--	--	--	9
MINIMUM	8	8	8	8	8	8	8	8	9	9	9	9	10	9	9	9	9	9	8	8	9	9	9	9	9	8	--	--	--	--	--	9
DECEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	--	--	--	--
JANUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FEBRUARY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MARCH																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	9	9	9	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	7	8	8	8	--
APRIL																																
MAXIMUM	9	8	8	8	9	9	10	9	9	10	11	11	9	9	11	10	10	10	9	10	11	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	8	8	7	8	8	8	8	8	9	8	9	9	9	8	9	9	9	9	9	8	9	--	--	--	--	--	--	--	--	--	--	--
MAY																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	16	16	14	14	13	12	12	13	13	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14	13	13	12	12	11	12	11	11	--
JUNE																																
MAXIMUM	15	17	17	17	15	14	14	16	16	14	14	14	14	14	16	19	21	19	17	16	15	15	14	13	12	12	13	12	12	13	--	15
MINIMUM	12	13	14	15	14	13	13	13	14	13	13	13	13	14	14	15	17	17	16	14	14	14	13	12	11	11	11	11	11	11	--	13
JULY																																
MAXIMUM	13	13	12	13	14	14	14	16	16	14	14	15	16	16	17	17	17	17	18	19	18	18	19	19	18	19	18	17	18	17	16	16
MINIMUM	12	12	12	12	13	13	13	13	14	14	13	13	13	13	13	13	13	13	14	16	14	14	15	17	14	14	16	16	14	14	15	14
AUGUST																																
MAXIMUM	18	18	18	16	17	18	17	18	17	18	17	16	19	19	19	17	17	17	18	19	19	19	19	18	18	17	16	17	16	17	18	17
MINIMUM	14	14	14	14	14	14	14	14	14	14	15	14	14	16	17	14	14	15	16	16	17	16	16	16	16	14	14	14	13	14	14	15
SEPTEMBER																																
MAXIMUM	18	18	17	16	16	17	17	17	17	18	18	18	18	17	16	15	14	14	14	14	14	15	15	15	15	14	14	16	16	16	--	16
MINIMUM	15	16	14	14	13	13	14	16	16	16	16	16	17	15	13	14	14	14	14	14	13	13	14	14	14	13	13	14	15	15	--	14

14306600 DRIFT CREEK NEAR SALADO, OREG.

LOCATION.--Lat 44°30'50", long 123°50'50", in NE¼ sec.24, T.12 S., R.10 W., Lincoln County, temperature recorder at gaging station on right bank, 0.2 mile downstream from Cape Horn Creek, 4.1 miles southwest of Salado, 8.5 miles southeast of Toledo, and at mile 21.8.

DRAINAGE AREA.--20.5 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1958 to September 1963, August 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 21.0°C July 23 and sometime during period Aug. 4 to Sept. 30; minimum, 2.0°C on several days during January.

Period of record:
Water temperatures: Maximum, 23.5°C July 12, 1961; minimum (1958-63, 1966-69), 1.0°C Jan. 21, 22, 1962, Jan. 11-13, 30, 1963.

REMARKS.--Recorder stopped Oct. 21 to Dec. 4, Feb. 10 to Mar. 4, Aug. 4 to Sept. 30; ranges in temperature, 8.0°C to 17.0°C, 6.0°C to 7.0°C, and 11.0°C to 21.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	12	12	13	12	12	12	12	11	12	11	11	11	11	11	11	11	11	11	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	11	9	9	11	9	11	9	9	9	11	11	10	10	9	10	10	9	9	10	--	--	--	--	--	--	--	--	--	--	--	--	--
NOVEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DECEMBER																																
MAXIMUM	--	--	--	--	9	9	9	9	9	9	9	8	8	8	8	8	8	8	7	7	7	8	8	8	8	8	8	8	7	6	7	8
MINIMUM	--	--	--	--	9	8	8	8	8	8	8	8	8	8	7	7	7	7	6	6	7	7	8	8	8	8	7	7	6	5	4	7
JANUARY																																
MAXIMUM	8	8	9	9	10	9	9	8	7	8	8	7	7	7	6	6	7	6	7	7	6	6	5	4	4	3	4	3	3	3	4	6
MINIMUM	7	7	8	9	9	9	8	7	6	7	7	7	6	5	5	6	6	6	6	6	5	4	4	3	2	2	2	2	2	2	3	5
FEBRUARY																																
MAXIMUM	6	6	6	6	6	7	7	7	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	4	5	6	5	6	6	6	6	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MARCH																																
MAXIMUM	--	--	--	7	7	7	7	8	8	9	9	9	9	9	9	9	9	9	8	9	9	9	8	9	9	11	10	10	11	11	10	9
MINIMUM	--	--	--	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	6	6	7	7	6	7	6	6	6	6	7	8	8	6
APRIL																																
MAXIMUM	9	8	8	9	10	10	11	11	9	11	12	10	10	9	11	11	10	9	9	11	12	11	11	10	10	12	12	10	11	8	--	10
MINIMUM	7	6	6	7	8	7	6	6	8	6	7	8	7	7	7	7	8	8	8	7	8	9	8	8	7	7	8	8	7	6	--	7
MAY																																
MAXIMUM	9	10	9	12	13	14	16	15	14	16	16	16	13	12	14	14	10	14	13	15	17	17	15	15	14	15	13	12	13	13	14	14
MINIMUM	6	7	7	7	7	8	10	11	11	11	11	11	11	10	9	10	10	11	11	11	11	12	13	12	11	11	11	9	11	11	9	10
JUNE																																
MAXIMUM	16	17	17	17	14	13	14	16	14	13	13	13	13	14	17	19	20	19	17	16	18	16	15	14	14	13	13	12	13	15	--	15
MINIMUM	10	12	12	13	13	12	12	12	13	12	12	12	12	13	14	15	16	15	14	14	14	13	12	12	11	11	11	11	11	11	--	12
JULY																																
MAXIMUM	13	13	14	14	16	14	15	18	18	16	14	15	16	16	17	16	17	18	19	19	18	19	21	20	19	19	19	16	18	18	16	17
MINIMUM	12	12	12	11	12	12	13	13	14	13	13	13	12	12	12	12	12	12	13	14	13	13	14	16	14	13	14	13	12	13	13	13
AUGUST																																
MAXIMUM	19	18	18	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	13	13	12	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEPTEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

14306700 NEEDLE BRANCH NEAR SALADO, OREG.

LOCATION.--Lat 44°30'35", long 123°51'20", in SW¼ sec.24, T.12 S., R.10 W., Lincoln County, at gaging station on right bank, 500 ft upstream from mouth, 4.6 miles southwest of Salado, and 8.5 miles southeast of Toledo.

DRAINAGE AREA.--0.27 sq mi (computed as 174.64 acres on basis of field survey by Oregon State University).

PERIOD OF RECORD.--Water temperatures: October 1958 to September 1969.
Sediment records: November 1958 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C June 16, 17; minimum, 5.0°C Dec. 31.
Sediment concentrations: Maximum daily, 338 mg/l Feb. 8; minimum daily, 1 mg/l on many days.
Sediment loads: Maximum daily, 16 tons Feb. 8; minimum daily, 0 ton on many days.

Period of record:
Water temperatures: Maximum, 26.0°C July 1, 1967; minimum, 1.5°C Jan. 30, 1963.
Sediment concentrations: Maximum daily, 1,260 mg/l Feb. 18, 1968; minimum daily, less than 1 mg/l on many days during 1958-63, 1965.
Sediment loads: Maximum daily, 41 tons Jan. 27, 1967; minimum daily, 0 ton on many days in 1968-69.

REMARKS.--Temperature recorder stopped Feb. 26 to Mar. 3, July 10-18; ranges in temperature, 8.0°C to 9.0°C, and 9.0°C to 18.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	15	14	14	14	14	13	13	13	12	13	12	12	13	11	12	12	12	12	11	12	12	12	13	13	12	12	12	13	12	12	12	12
MINIMUM	9	8	8	8	9	11	10	9	9	11	11	11	11	11	11	10	10	9	9	10	10	11	11	11	11	10	9	10	11	11	10	10
NOVEMBER																																
MAXIMUM	11	12	12	11	12	11	11	12	12	13	13	13	11	11	11	11	11	11	12	12	12	12	12	12	11	11	12	12	12	11	--	12
MINIMUM	9	11	10	9	9	9	11	11	12	12	13	11	11	10	11	11	11	11	11	12	12	12	12	11	11	11	11	11	9	9	--	11
DECEMBER																																
MAXIMUM	9	10	10	12	12	12	11	11	11	12	12	10	10	12	11	11	12	10	11	11	11	11	10	11	11	12	9	11	11	11	10	11
MINIMUM	8	9	9	9	9	11	10	10	9	9	9	9	9	10	10	8	10	9	9	11	11	7	9	10	11	9	9	9	9	10	5	9
JANUARY																																
MAXIMUM	11	12	12	12	13	13	13	12	12	12	12	12	12	12	12	11	12	12	12	11	11	11	9	9	8	8	8	7	7	8	11	11
MINIMUM	7	11	12	12	12	13	10	8	7	8	12	12	11	11	11	11	11	11	11	11	10	9	8	7	6	6	6	6	7	7	7	9
FEBRUARY																																
MAXIMUM	11	11	12	11	11	12	11	11	11	9	9	9	9	9	9	9	9	9	9	8	8	9	9	7	8	--	--	--	--	--	--	10
MINIMUM	11	11	11	10	11	11	10	11	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	6	6	--	--	--	--	--	--	8
MARCH																																
MAXIMUM	--	--	--	9	8	8	9	10	10	10	9	11	11	11	13	9	10	9	11	12	13	10	13	13	14	14	14	14	13	13	13	11
MINIMUM	--	--	--	6	7	7	8	7	7	6	6	6	6	6	6	7	8	7	8	7	7	8	7	7	7	7	7	7	8	9	8	7
APRIL																																
MAXIMUM	11	10	11	11	12	12	14	13	11	13	14	11	12	11	13	12	10	11	10	12	14	12	13	11	12	15	14	11	13	9	--	12
MINIMUM	8	8	6	7	8	7	7	7	8	6	7	8	7	8	8	7	8	8	8	7	7	8	8	7	7	7	7	8	7	7	--	7
MAY																																
MAXIMUM	13	13	12	16	17	18	19	18	14	19	20	18	12	12	17	17	20	14	13	19	21	21	16	16	16	17	13	14	15	17	18	16
MINIMUM	7	8	8	7	8	8	9	11	11	10	11	10	11	10	9	9	9	11	10	10	11	11	12	11	9	9	10	8	12	11	9	10
JUNE																																
MAXIMUM	20	21	21	18	15	14	16	17	14	13	14	13	14	15	18	22	22	19	15	14	18	15	14	13	14	13	14	13	14	16	--	16
MINIMUM	11	11	12	13	13	12	12	12	13	12	12	12	12	13	12	13	13	14	14	13	13	14	13	12	12	11	11	11	11	11	--	12
JULY																																
MAXIMUM	13	13	14	14	16	13	15	18	18	--	--	--	--	--	--	--	--	--	19	19	18	20	21	19	19	20	18	16	18	18	16	--
MINIMUM	12	11	11	11	12	11	12	12	13	--	--	--	--	--	--	--	--	--	12	13	11	12	13	14	12	11	13	13	11	12	13	--
AUGUST																																
MAXIMUM	19	18	18	17	17	17	15	18	16	17	16	16	18	19	17	16	16	16	18	17	18	17	17	17	17	15	15	15	15	18	16	17
MINIMUM	12	12	11	13	12	12	11	11	13	13	13	11	12	13	14	10	11	14	13	13	14	12	12	13	14	12	13	12	9	11	11	12
SEPTEMBER																																
MAXIMUM	17	16	14	14	14	14	16	16	16	17	16	16	15	13	12	13	15	14	14	14	14	14	14	15	14	14	14	16	14	14	--	15
MINIMUM	13	13	11	10	9	9	11	14	14	14	12	12	12	11	8	10	13	12	13	12	12	13	13	12	12	11	11	12	14	13	--	12

14306700 NEEDLE BRANCH NEAR SALADO, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(WHERE NO CONCENTRATIONS ARE REPORTED, LOADS ARE ESTIMATED)

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	.29	2	0	2.1	9	.05	6.2	32	.54
2	.27	2	0	2.4	9	.06	6.0	12	.19
3	.27	2	0	2.5	9	.06	5.3	16	.23
4	.39	24	.03	2.3	9	.06	14	225	10
5	.29	--	0	1.9	9	.05	13	70	2.5
6	.39	15	.02	1.8	11	.05	6.4	26	.45
7	.31	2	0	1.6	--	.02	4.2	10	.11
8	.27	--	0	12	309	11	3.3	9	.08
9	.27	2	0	14	71	3.4	7.6	102	2.3
10	.37	27	.03	6.8	16	.29	18	266	13
11	.98	130	.34	8.3	30	.67	15	74	3.0
12	1.9	56	.29	7.6	--	.25	7.9	32	.68
13	2.2	14	.08	6.2	6	.10	5.0	16	.22
14	2.5	36	.24	4.7	8	.10	3.7	9	.09
15	3.5	7	.07	3.6	7	.07	4.9	25	.33
16	2.8	6	.05	2.6	4	.03	6.7	24	.43
17	2.2	--	.02	2.2	19	.11	5.6	16	.24
18	1.6	2	.01	3.1	24	.20	6.7	50	.90
19	1.8	32	.16	3.3	15	.13	5.5	17	.25
20	3.7	44	.44	2.8	6	.05	4.0	13	.14
21	3.3	5	.04	4.2	107	1.6	3.0	3	.02
22	3.5	--	.06	6.2	35	.59	3.0	4	.03
23	3.1	10	.08	4.5	11	.13	3.6	6	.06
24	2.5	--	.03	4.4	13	.15	5.2	17	.24
25	2.0	2	.01	4.5	8	.10	4.9	--	.05
26	1.6	--	.01	3.8	8	.08	4.0	2	.02
27	1.4	--	.01	3.1	7	.06	5.2	54	.91
28	1.2	3	.01	2.5	4	.03	6.7	41	.74
29	1.3	5	.02	3.2	18	.16	4.7	14	.18
30	2.8	33	.25	4.4	24	.29	3.3	6	.05
31	2.6	9	.06	--	--	--	4.7	92	1.6
TOTAL	51.60	--	2.36	132.6	--	19.94	197.3	--	39.58

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	8.4	73	1.7	6.5	35	.61	.68	1	0
2	5.1	11	.15	4.7	30	.38	.81	4	.01
3	3.6	7	.07	4.9	18	.24	.88	5	.01
4	2.9	4	.03	5.2	35	.49	.84	1	0
5	2.6	4	.03	5.0	28	.38	2.1	143	.91
6	4.2	23	.26	3.8	10	.10	4.6	39	.48
7	16	306	13	3.1	4	.03	4.1	7	.08
8	8.7	33	.78	14	338	16	3.1	10	.08
9	16	285	12	15	130	5.7	2.4	2	.01
10	14	189	8.1	11	70	2.1	2.0	1	.01
11	14	75	3.3	8.5	50	1.1	1.6	1	0
12	6.9	--	.22	5.3	25	.36	1.3	--	0
13	5.3	10	.14	3.6	8	.08	1.1	2	.01
14	5.8	17	.27	2.7	4	.03	.96	1	0
15	4.9	12	.16	2.5	5	.03	.84	1	0
16	4.9	15	.20	2.7	8	.06	.84	1	0
17	7.2	32	.62	2.4	6	.04	1.0	6	.02
18	5.2	8	.11	2.0	2	.01	2.0	25	.13
19	3.7	10	.10	1.7	2	.01	2.0	8	.04
20	2.8	8	.06	1.5	2	.01	1.7	2	.01
21	2.1	4	.02	1.3	2	.01	1.5	8	.03
22	1.7	2	.01	1.1	1	0	1.3	2	.01
23	1.4	1	0	1.1	1	0	1.1	2	.01
24	1.2	1	0	.92	2	0	1.0	1	0
25	1.1	1	0	.84	2	0	.88	1	0
26	.92	2	0	.88	2	0	.81	1	0
27	.84	1	0	.78	4	.01	.74	--	0
28	.78	1	0	.71	--	.01	.71	1	0
29	.74	1	0	--	--	--	.65	1	0
30	.71	4	.01	--	--	--	.63	1	0
31	11	180	5.8	--	--	--	.60	1	0
TOTAL	164.69	--	47.14	113.73	--	27.79	44.77	--	1.85

14306700 NEEDLE BRANCH NEAR SALADO, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	.60	1	0	.88	1	0	.51	3	0
2	.71	1	0	.84	2	0	.48	3	0
3	.57	1	0	.88	2	0	.44	3	0
4	.52	1	0	.78	1	0	.42	3	0
5	.57	1	0	.71	1	0	.42	3	0
6	.49	2	0	.65	1	0	.40	3	0
7	.47	2	0	.63	2	0	.39	3	0
8	.47	2	0	.60	1	0	.37	3	0
9	.47	1	0	.57	1	0	.37	3	0
10	.47	1	0	.52	2	0	.36	3	0
11	.44	2	0	.49	1	0	.35	3	0
12	.54	13	.02	.47	1	0	.34	3	0
13	.57	8	.01	.49	1	0	.33	3	0
14	.49	1	0	.63	1	0	.32	3	0
15	.49	1	0	.44	1	0	.30	3	0
16	.47	1	0	.40	1	0	.28	3	0
17	.57	6	.01	.38	1	0	.26	3	0
18	.68	2	0	.40	2	0	.26	3	0
19	.96	29	.08	.38	1	0	.26	3	0
20	1.1	2	.01	.34	1	0	.26	3	0
21	1.0	5	.01	.32	1	0	.24	3	0
22	.88	4	.01	.31	1	0	.27	3	0
23	1.0	9	.02	.31	1	0	.62	5	.01
24	.92	2	0	.32	2	0	.58	10	.02
25	.92	2	0	.31	1	0	.75	2	0
26	.88	2	0	.32	1	0	.86	3	.01
27	.81	2	0	.38	2	0	1.1	2	.01
28	.96	2	.01	.31	2	0	1.1	2	.01
29	.92	2	0	.74	97	.19	1.1	2	.01
30	.88	2	0	.80	11	.02	1.0	2	.01
31	--	--	--	.58	3	0	--	--	--
TOTAL	20.82	--	.18	16.18	--	.21	14.74	--	.08

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	.93	2	.01	.18	2	0	.06	2	0
2	.83	2	0	.17	2	0	.06	2	0
3	.77	2	0	.16	2	0	.06	2	0
4	.71	2	0	.20	2	0	.06	2	0
5	.65	2	0	.17	2	0	.06	2	0
6	.61	2	0	.15	2	0	.05	2	0
7	.57	2	0	.16	2	0	.04	2	0
8	.54	2	0	.15	2	0	.04	2	0
9	.52	2	0	.15	2	0	.05	2	0
10	.50	2	0	.15	2	0	.05	2	0
11	.50	2	0	.14	2	0	.04	2	0
12	.46	2	0	.13	2	0	.04	2	0
13	.42	2	0	.12	2	0	.06	2	0
14	.40	2	0	.12	2	0	.04	2	0
15	.37	2	0	.13	2	0	.04	2	0
16	.35	2	0	.11	2	0	.05	2	0
17	.34	2	0	.11	2	0	.26	12	.01
18	.32	2	0	.11	2	0	.31	9	.01
19	.31	2	0	.11	2	0	.27	--	0
20	.29	2	0	.10	2	0	.14	--	0
21	.28	2	0	.07	2	0	.10	--	0
22	.26	2	0	.07	2	0	.10	--	0
23	.25	2	0	.07	2	0	.49	6	.01
24	.24	2	0	.07	2	0	.17	--	0
25	.23	2	0	.08	2	0	.14	--	0
26	.22	2	0	.08	2	0	.12	--	0
27	.22	2	0	.08	2	0	.10	--	0
28	.22	2	0	.07	2	0	.09	--	0
29	.20	2	0	.07	2	0	.09	--	0
30	.20	2	0	.06	2	0	.17	4	0
31	.19	2	0	.06	2	0	--	--	--
TOTAL	12.90	--	.01	3.60	--	0	3.35	--	.03

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 776.28
TOTAL LOAD FOR YEAR (TONS) 139.17

14306800 FLYNN CREEK NEAR SALADO, OREG.

LOCATION.--Lat 44°32'20", long 123°51'05", in SW¼ sec.12, T.12 S., R.10 W., Lincoln County, at gaging station on right bank, 1,000 ft upstream from mouth, 3.4 miles west of Salado, and 6.9 miles southeast of Toledo.

DRAINAGE AREA.--0.78 sq mi (computed as 501.96 acres on basis of field survey by Oregon State University).

PERIOD OF RECORD.--Water temperatures: September 1958 to September 1969.
Sediment records: November 1958 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 13.0°C on several days during June, July, and September; minimum, 3.0°C on several days during January.
Sediment concentrations: Maximum daily, 170 mg/l Nov. 8; minimum daily, 1 mg/l on many days.
Sediment loads: Maximum daily, 13 tons Nov. 8, 19; minimum daily, 0 ton on many days.

Period of record:
Water temperatures: Maximum, 16.5°C Aug. 3, 20, 21, Sept. 4, 1961; minimum, 2.0°C Jan. 30, 1963.
Sediment concentrations: Maximum daily, 1,580 mg/l Jan. 28, 1965; minimum daily, less than 1 mg/l on many days during 1959-65.
Sediment loads: Maximum daily, 491 tons Jan. 28, 1965; minimum daily, 0 ton on many days in 1968-69.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	11	10	10	11	10	10	11	9	9	9	10	10	9	9	10	10	10	10	10	10	10	10	10	11	11	10	10	11	11	11	9	10
MINIMUM	9	9	9	10	8	9	9	8	8	9	9	9	9	9	9	9	9	9	9	9	9	10	10	10	10	9	9	10	11	9	8	9
NOVEMBER																																
MAXIMUM	9	10	10	9	9	9	10	11	11	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	--	9
MINIMUM	8	9	9	8	9	9	9	10	10	9	10	9	9	9	8	9	9	9	9	9	9	9	9	9	9	8	9	8	8	8	--	9
DECEMBER																																
MAXIMUM	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	7	7	7	8	8	8	8	8	8	8	7	7	7	8
MINIMUM	8	8	8	8	8	8	8	9	9	9	9	8	8	9	8	8	8	7	7	7	7	7	8	8	8	8	8	7	7	6	6	8
JANUARY																																
MAXIMUM	8	8	8	9	9	9	9	8	8	8	8	8	8	7	7	7	8	8	7	7	7	7	6	6	4	4	4	4	4	4	6	7
MINIMUM	7	8	8	8	9	9	8	8	7	8	8	8	7	6	6	7	7	7	7	7	7	6	6	4	3	3	3	3	3	3	4	6
FEBRUARY																																
MAXIMUM	7	7	7	7	7	7	7	7	7	8	8	8	7	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	--	--	--	7
MINIMUM	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	--	--	--	6
MARCH																																
MAXIMUM	7	7	7	7	7	7	7	7	6	6	7	7	7	7	7	8	8	7	8	8	8	8	8	8	9	9	8	9	9	9	9	7
MINIMUM	6	6	6	6	6	6	6	6	6	5	5	5	5	5	6	6	7	7	7	7	7	7	6	6	7	7	7	6	8	8	8	6
APRIL																																
MAXIMUM	8	8	7	8	8	8	8	8	8	8	9	9	8	8	8	8	8	8	8	8	9	9	9	8	8	9	9	9	8	7	--	8
MINIMUM	8	6	6	7	7	7	6	6	7	6	7	8	7	7	7	7	8	7	7	7	7	8	8	7	7	7	8	8	7	6	--	7
MAY																																
MAXIMUM	8	8	8	9	9	10	11	11	10	11	11	11	10	9	10	10	11	11	10	11	11	12	11	11	11	11	10	9	11	11	11	10
MINIMUM	7	7	7	7	7	8	9	9	9	9	9	9	9	9	9	9	9	10	10	9	10	10	11	10	9	9	9	9	9	10	9	9
JUNE																																
MAXIMUM	11	12	12	12	11	11	11	11	11	11	11	11	11	11	11	12	13	13	12	12	12	12	12	12	11	11	11	11	11	11	--	11
MINIMUM	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	12	12	12	11	11	11	10	10	10	10	--	11
JULY																																
MAXIMUM	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	12	13	12	12	12	12	12	12	12	11	11
MINIMUM	11	11	11	10	10	10	11	11	11	11	11	10	10	9	10	10	10	11	11	10	11	12	12	11	11	12	10	11	11			11
AUGUST																																
MAXIMUM	11	11	11	11	11	11	11	11	11	11	11	11	12	12	12	11	11	12	12	12	12	12	12	12	12	12	12	12	11	11	12	11
MINIMUM	10	10	9	11	10	9	10	9	11	11	11	10	11	11	11	9	10	11	11	11	12	11	11	11	12	11	11	11	9	10	10	10
SEPTEMBER																																
MAXIMUM	12	12	12	11	11	11	12	13	12	13	12	13	13	12	11	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	--	12
MINIMUM	11	11	11	9	9	9	11	12	12	12	12	12	12	10	9	10	11	12	12	12	11	12	12	11	12	11	11	11	12	12	--	11

ALSEA RIVER BASIN

14306800 FLYNN CREEK NEAR SALADO, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(WHERE NO CONCENTRATIONS ARE REPORTED, LOADS ARE ESTIMATED)

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	.44	1	0	3.0	3	.02	9.8	4	.11
2	.44	1	0	3.8	3	.03	11	--	.18
3	.42	1	0	4.1	3	.03	12	9	.29
4	.64	1	0	4.0	3	.03	30	97	9.2
5	.47	1	0	3.7	3	.03	32	53	5.0
6	.55	1	0	3.6	3	.03	18	20	.97
7	.47	1	0	3.4	3	.03	13	10	.35
8	.44	1	0	16	170	13	9.7	4	.10
9	.44	1	0	27	157	13	13	16	.69
10	.64	1	0	18	12	.58	35	72	7.2
11	1.4	8	.03	21	18	1.0	30	38	3.1
12	2.2	3	.02	20	12	.65	20	15	.81
13	2.4	--	.01	16	6	.26	15	8	.32
14	2.6	4	.03	13	6	.21	11	7	.21
15	3.1	--	.01	10	6	.16	10	6	.16
16	3.0	2	.02	7.9	6	.13	12	8	.26
17	2.8	4	.03	6.4	2	.03	13	6	.21
18	2.5	6	.04	7.1	6	.12	13	16	.56
19	2.9	6	.05	7.1	4	.08	12	8	.26
20	5.5	9	.13	6.6	--	.05	10	6	.16
21	5.2	8	.11	7.9	9	.19	8.4	5	.11
22	5.4	3	.04	11	6	.18	7.8	6	.13
23	4.7	3	.04	9.9	4	.11	7.6	5	.10
24	4.1	3	.03	9.5	2	.05	8.3	9	.20
25	3.5	3	.03	9.3	2	.05	8.6	--	.16
26	3.1	3	.03	8.6	2	.05	8.1	6	.13
27	2.7	3	.02	7.4	1	.02	10	16	.43
28	2.4	3	.02	6.4	--	.02	14	10	.38
29	2.5	3	.02	7.3	3	.06	12	4	.13
30	3.5	3	.03	8.4	2	.05	9.7	4	.10
31	3.1	3	.03	--	--	--	11	14	.42
TOTAL	73.55	--	.77	287.4	--	30.25	435.0	--	32.43

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	23	41	2.5	9.9	1	.03	2.8	4	.03
2	17	26	1.2	8.6	1	.02	2.8	--	.03
3	13	8	.28	9.5	1	.03	2.7	4	.03
4	9.9	4	.11	10	1	.03	2.5	2	.01
5	8.4	4	.09	10	1	.03	3.3	6	.05
6	9.9	3	.08	8.8	1	.02	4.2	--	.06
7	35	98	9.3	7.6	1	.02	4.5	4	.05
8	26	23	1.6	23	50	4.1	4.5	4	.05
9	28	110	8.3	31	32	2.7	4.2	1	.01
10	30	34	2.8	30	8	.65	4.0	8	.09
11	33	30	2.7	30	13	1.1	3.7	12	.12
12	22	33	2.0	22	8	.48	3.4	2	.02
13	16	7	.30	16	2	.09	3.2	2	.02
14	15	6	.24	12	1	.03	2.9	--	.04
15	13	4	.14	10	1	.03	2.6	10	.07
16	13	--	.14	9.9	2	.05	2.5	6	.04
17	16	3	.13	9.5	2	.05	2.8	6	.05
18	14	4	.15	8.4	1	.02	3.7	6	.06
19	11	4	.12	7.6	1	.02	3.6	5	.05
20	8.6	3	.07	6.7	1	.02	3.4	4	.04
21	7.2	3	.06	5.8	1	.02	3.2	--	.04
22	6.0	4	.06	5.1	1	.01	3.2	6	.05
23	5.1	--	.04	4.7	1	.01	2.9	6	.05
24	4.2	2	.02	4.2	1	.01	2.7	6	.04
25	3.8	2	.02	3.8	1	.01	2.6	--	.04
26	3.5	1	.01	3.6	8	.08	2.4	6	.04
27	3.2	4	.03	3.2	1	.01	2.2	--	.02
28	2.8	--	.02	3.1	1	.01	2.1	3	.02
29	2.7	--	.02	--	--	--	2.1	4	.02
30	2.8	--	.02	--	--	--	2.0	3	.02
31	12	10	.32	--	--	--	1.9	4	.02
TOTAL	415.1	--	32.87	314.0	--	9.68	94.6	--	1.28

14306800 FLYNN CREEK NEAR SALADO, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	1.9	4	.02	2.5	1	.01	1.3	1	0
2	2.1	3	.02	2.4	1	.01	1.2	1	0
3	1.8	2	.01	2.5	2	.01	1.1	1	0
4	1.8	1	0	2.2	1	.01	1.1	1	0
5	1.7	1	0	2.1	2	.01	1.1	1	0
6	1.6	1	0	2.0	1	.01	1.0	1	0
7	1.6	1	0	1.9	2	.01	1.0	1	0
8	1.6	--	0	1.8	2	.01	.94	1	0
9	1.6	1	0	1.7	1	0	.94	1	0
10	1.5	1	0	1.7	1	0	.92	1	0
11	1.4	1	0	1.5	1	0	.89	1	0
12	1.7	4	.02	1.5	1	0	.88	1	0
13	1.5	2	.01	1.5	1	0	.85	1	0
14	1.4	1	0	1.7	1	0	.84	1	0
15	1.4	1	0	1.4	1	0	.81	1	0
16	1.3	4	.01	1.3	1	0	.77	1	0
17	1.5	2	.01	1.2	1	0	.73	1	0
18	1.6	2	.01	1.2	2	.01	.72	1	0
19	2.0	4	.02	1.2	1	0	.71	1	0
20	1.9	2	.01	1.1	1	0	.73	1	0
21	1.9	2	.01	1.1	--	0	.68	1	0
22	1.9	5	.03	.99	2	.01	.73	1	0
23	2.1	2	.01	.99	1	0	1.6	4	.02
24	2.1	2	.01	.99	1	0	1.6	3	.01
25	2.1	2	.01	.95	1	0	2.4	2	.01
26	2.1	2	.01	.95	--	0	2.7	2	.01
27	2.1	--	.01	1.2	2	.01	3.0	2	.02
28	2.5	3	.02	.98	1	0	3.2	2	.02
29	2.6	2	.01	1.5	6	.02	3.2	2	.02
30	2.6	1	.01	2.0	4	.02	2.9	2	.02
31	--	--	--	1.5	1	0	--	--	--
TOTAL	54.9	--	.27	47.55	--	.15	40.54	--	.13

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	2.6	2	.01	.50	2	0	.21	2	0
2	2.4	2	.01	.47	2	0	.21	2	0
3	2.3	2	.01	.46	2	0	.20	2	0
4	2.1	2	.01	.48	2	0	.20	2	0
5	1.9	2	.01	.45	2	0	.20	2	0
6	1.8	2	.01	.43	2	0	.19	2	0
7	1.7	2	.01	.42	2	0	.19	2	0
8	1.5	2	.01	.41	2	0	.19	2	0
9	1.4	2	.01	.41	2	0	.19	2	0
10	1.3	2	.01	.39	2	0	.19	2	0
11	1.3	2	.01	.38	2	0	.18	2	0
12	1.2	2	.01	.37	2	0	.18	2	0
13	1.1	2	.01	.36	2	0	.20	2	0
14	1.0	2	.01	.35	2	0	.18	2	0
15	.99	2	.01	.36	2	0	.18	2	0
16	.95	2	.01	.34	2	0	.18	2	0
17	.90	2	0	.33	2	0	.65	7	.01
18	.85	2	0	.32	2	0	.75	5	.01
19	.83	2	0	.32	2	0	.62	--	0
20	.79	2	0	.31	2	0	.35	--	0
21	.76	2	0	.27	2	0	.29	--	0
22	.73	2	0	.27	2	0	.29	--	0
23	.70	2	0	.25	2	0	1.0	6	.02
24	.67	2	0	.25	2	0	.39	--	0
25	.64	2	0	.27	2	0	.35	--	0
26	.62	2	0	.25	2	0	.29	--	0
27	.60	2	0	.25	2	0	.27	--	0
28	.60	2	0	.25	2	0	.27	--	0
29	.57	2	0	.23	2	0	.25	--	0
30	.56	2	0	.23	2	0	.41	--	0
31	.54	2	0	.21	2	0	--	--	--
TOTAL	35.90	--	.16	10.59	--	0	9.25	--	.04

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 1818.38
TOTAL LOAD FOR YEAR (TONS) 108.03

14306810 DEER CREEK NEAR SALADO, OREG.

LOCATION.--Lat 44°32'05", long 123°52'35", in SW¼ sec.11, T.12 S., R.10 W., Lincoln County, Siuslaw National Forest, at gaging station on right bank, 1,000 ft upstream from mouth, 4.6 miles west of Salado, and 6.5 miles southeast of Toledo.

DRAINAGE AREA.--1.17 sq mi (computed as 749.5 acres on basis of field survey by Oregon State University).

PERIOD OF RECORD.--Water temperatures: September 1958 to September 1969.
Sediment records: November 1958 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 17.0°C June 17; minimum, 2.0°C Jan. 25, 26.
Sediment concentrations: Maximum daily, 197 mg/l Nov. 8; minimum daily, 1 mg/l on many days.
Sediment loads: Maximum daily, 23 tons Jan. 7; minimum daily, 0 ton on many days.

Period of record:
Water temperatures: Maximum, 18.0°C Aug. 12-15, 17, 1967; minimum, 1.0°C Jan. 30, 1963.
Sediment concentrations: Maximum daily, 1,220 mg/l Jan. 28, 1965; minimum daily, less than 1 mg/l on many days during 1959-62.
Sediment loads: Maximum daily, 583 tons Jan. 28, 1965; minimum daily, 0 ton on many days in 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	13	13	13	13	12	12	11	11	11	11	11	11	12	11	11	11	11	11	10	11	11	11	12	12	11	11	11	12	11	11	10	11
MINIMUM	10	9	9	11	9	11	9	8	9	10	11	11	10	10	10	9	9	9	8	9	9	10	10	10	10	9	9	9	11	9	8	9
NOVEMBER																																
MAXIMUM	9	10	10	9	10	9	9	11	11	11	11	10	9	8	9	9	9	10	10	10	10	10	10	9	9	9	9	9	9	8	--	9
MINIMUM	8	9	9	8	8	8	9	9	9	9	10	9	8	8	7	8	9	9	9	9	9	9	9	9	9	8	9	8	8	7	--	9
DECEMBER																																
MAXIMUM	8	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	8	9	9	8	8	8	8	7	7	7	8
MINIMUM	8	8	9	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	8	8	8	7	8	7	7	5	5	7
JANUARY																																
MAXIMUM	9	9	9	10	10	10	9	9	8	8	8	7	8	7	7	7	7	7	7	7	7	6	6	5	4	4	4	4	4	4	5	7
MINIMUM	8	8	9	9	9	9	8	8	7	8	7	7	7	7	6	6	6	6	6	6	6	5	4	4	2	2	3	3	3	3	4	6
FEBRUARY																																
MAXIMUM	6	6	7	6	7	7	6	6	7	7	8	7	7	8	8	8	8	8	8	7	7	7	7	6	7	7	7	7	--	--	--	7
MINIMUM	5	6	6	6	6	6	5	6	6	7	7	6	6	6	7	6	6	6	6	6	6	6	6	5	4	5	5	6	--	--	--	6
MARCH																																
MAXIMUM	7	7	8	8	7	7	7	8	8	8	7	8	8	8	10	8	8	8	9	10	11	8	10	11	12	12	12	12	11	11	11	9
MINIMUM	4	6	6	6	6	6	6	5	4	4	4	4	4	4	4	6	7	6	6	6	6	7	6	6	6	6	6	6	7	8	8	6
APRIL																																
MAXIMUM	9	8	8	9	10	10	11	11	9	11	13	9	10	9	11	10	9	9	9	11	12	10	11	9	10	12	12	10	10	8	--	10
MINIMUM	8	6	5	7	7	7	6	6	8	6	6	8	7	7	7	6	8	7	7	6	7	8	8	7	6	7	7	7	7	6	--	7
MAY																																
MAXIMUM	10	10	9	12	13	14	15	13	11	14	15	14	11	11	13	13	14	13	11	13	16	16	13	13	12	13	11	11	12	13	13	13
MINIMUM	7	7	7	6	7	8	9	10	10	9	9	10	10	9	9	9	9	11	10	9	10	10	11	11	9	9	10	9	10	10	9	9
JUNE																																
MAXIMUM	14	15	16	13	12	12	12	13	13	11	11	11	11	12	13	16	17	15	12	12	14	13	12	12	11	11	11	11	12	13	--	13
MINIMUM	9	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	12	13	12	12	11	12	12	11	11	10	10	10	10	10	--	11
JULY																																
MAXIMUM	11	11	11	11	13	12	12	13	13	12	11	12	13	12	13	12	13	13	13	13	13	14	14	14	13	13	12	12	12	11	11	12
MINIMUM	10	10	10	10	10	10	10	11	11	11	11	10	9	9	9	9	9	9	9	11	9	9	10	11	9	9	11	11	9	9	10	10
AUGUST																																
MAXIMUM	14	13	13	12	13	13	12	13	12	13	12	12	14	14	13	12	13	12	14	14	14	14	14	13	13	11	12	12	12	13	13	13
MINIMUM	9	9	8	10	9	10	9	8	11	10	10	9	9	11	12	8	9	11	11	10	11	10	9	11	11	9	10	9	8	9	9	10
SEPTEMBER																																
MAXIMUM	14	13	12	11	11	12	13	13	13	15	14	14	14	12	12	11	13	12	12	12	12	12	12	12	12	12	12	13	12	12	--	12
MINIMUM	9	11	9	8	7	8	9	11	11	11	11	11	12	8	8	9	11	11	12	11	11	11	12	10	12	12	9	11	12	11	--	10

14306810 DEER CREEK NEAR SALADO, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(WHERE NO CONCENTRATIONS ARE REPORTED, LOADS ARE ESTIMATED)

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	1.0	--	.01	5.2	3	.04	14	6	.23
2	1.1	4	.01	6.8	3	.06	15	6	.24
3	.91	--	.01	8.0	3	.06	17	7	.32
4	1.3	15	.05	7.4	3	.06	47	146	22
5	.99	--	.01	6.3	3	.05	46	72	10
6	1.2	--	.01	5.7	3	.05	25	24	1.6
7	1.0	4	.01	5.2	15	.21	17	10	.46
8	.94	--	.02	25	197	21	13	6	.21
9	.94	13	.03	45	68	9.0	20	28	1.5
10	1.3	13	.05	25	24	1.6	56	106	17
11	2.3	27	.17	34	22	2.0	41	33	3.7
12	4.1	37	.44	29	9	.70	26	23	1.6
13	5.5	34	.50	22	6	.36	19	8	.41
14	6.2	30	.50	17	9	.41	14	8	.30
15	7.4	8	.16	12	8	.26	14	8	.30
16	6.9	6	.11	9.9	4	.11	18	8	.39
17	6.0	--	.05	8.5	4	.09	18	4	.19
18	5.1	2	.03	11	7	.21	19	10	.51
19	5.3	27	.39	11	8	.24	17	4	.18
20	9.9	42	1.1	10	4	.11	13	5	.18
21	9.3	6	.15	11	11	.33	11	8	.24
22	9.3	6	.15	16	7	.30	10	6	.16
23	8.2	6	.13	14	3	.11	11	4	.12
24	7.0	6	.11	13	6	.21	13	6	.21
25	5.8	3	.05	13	6	.21	13	--	.18
26	4.8	3	.04	12	3	.10	12	4	.13
27	4.0	3	.03	9.9	4	.11	16	22	1.1
28	3.6	3	.03	8.5	4	.09	23	13	.81
29	3.6	3	.03	9.6	8	.21	16	8	.35
30	5.6	3	.05	12	7	.23	12	5	.16
31	5.3	3	.04	--	--	--	17	35	2.6
TOTAL	135.88	--	4.47	423.0	--	38.52	623	--	67.38

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	37	51	5.1	16	8	.35	3.6	4	.04
2	22	8	.48	12	4	.13	3.5	2	.02
3	15	5	.20	13	6	.21	3.6	2	.02
4	12	3	.10	15	--	.24	3.3	3	.03
5	12	8	.26	15	5	.20	4.4	6	.07
6	17	20	1.1	12	3	.10	5.7	4	.06
7	59	143	23	9.6	5	.13	6.5	3	.05
8	34	24	2.2	31	134	18	6.3	2	.03
9	39	33	3.5	45	45	5.5	5.8	3	.05
10	40	22	2.4	40	19	2.1	5.1	10	.14
11	41	20	2.2	40	24	2.6	4.5	2	.02
12	27	9	.66	27	8	.58	4.1	2	.02
13	21	4	.23	19	9	.46	3.7	2	.02
14	21	4	.23	14	4	.15	3.4	1	.01
15	18	4	.19	13	2	.07	3.2	1	.01
16	16	4	.17	12	2	.06	3.1	2	.02
17	20	4	.22	10	--	.05	3.7	5	.05
18	17	4	.18	9.1	2	.05	5.4	7	.10
19	13	4	.14	8.1	1	.02	5.6	1	.02
20	10	4	.11	7.6	1	.02	5.3	1	.01
21	8.7	2	.05	6.7	2	.04	4.8	2	.03
22	7.5	2	.04	6.0	2	.03	4.5	1	.01
23	6.6	2	.04	5.6	2	.03	4.0	1	.01
24	5.8	2	.03	5.2	2	.03	3.7	1	.01
25	5.2	2	.03	4.7	2	.03	3.4	1	.01
26	4.9	2	.03	4.5	2	.02	3.1	1	.01
27	4.5	2	.02	4.1	1	.01	2.9	2	.02
28	4.0	2	.02	3.8	2	.02	2.7	--	.01
29	3.8	2	.02	--	--	--	2.6	2	.01
30	3.7	2	.02	--	--	--	2.5	2	.01
31	15	33	1.4	--	--	--	2.4	4	.03
TOTAL	560.7	--	44.37	409.0	--	31.23	126.4	--	.95

14306810 DEER CREEK NEAR SALADO, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	2.4	2	.01	3.8	4	.04	2.7	4	.03
2	2.9	4	.03	3.7	4	.04	2.4	4	.03
3	2.5	2	.01	3.7	1	.01	2.2	4	.02
4	2.3	2	.01	3.2	2	.02	2.0	4	.02
5	2.4	3	.02	2.9	1	.01	1.9	4	.02
6	2.3	3	.02	2.7	1	.01	1.8	4	.02
7	2.1	3	.02	2.5	1	.01	1.7	4	.02
8	2.1	2	.01	2.3	7	.04	1.6	4	.02
9	2.1	5	.03	2.2	1	.01	1.6	4	.02
10	2.0	--	.02	2.1	1	.01	1.5	4	.02
11	2.0	3	.02	2.0	2	.01	1.5	4	.02
12	2.1	2	.01	1.8	2	.01	1.4	4	.02
13	2.2	2	.01	2.0	2	.01	1.4	4	.02
14	2.0	2	.01	2.4	4	.03	1.3	4	.01
15	2.0	1	.01	1.9	6	.03	1.3	4	.01
16	1.8	1	0	1.7	2	.01	1.2	4	.01
17	2.1	4	.02	1.6	4	.02	1.1	4	.01
18	2.4	2	.01	1.7	2	.01	1.1	4	.01
19	3.3	7	.06	1.6	12	.05	1.1	4	.01
20	3.5	3	.03	1.5	1	0	1.1	4	.01
21	3.4	2	.02	1.6	6	.03	1.1	4	.01
22	3.4	4	.04	1.3	2	.01	1.1	4	.01
23	3.6	2	.02	1.3	--	.01	2.8	14	.11
24	3.6	2	.02	1.3	2	.01	3.0	10	.08
25	3.4	1	.01	1.3	1	0	4.9	16	.21
26	3.4	1	.01	1.3	1	0	6.8	10	.18
27	3.2	2	.02	1.7	4	.02	7.5	2	.04
28	3.8	5	.05	1.4	2	.01	7.5	2	.04
29	4.0	3	.03	2.3	16	.10	7.4	2	.04
30	4.0	2	.02	4.0	4	.04	6.5	2	.04
31	--	--	--	3.1	4	.03	--	--	--
TOTAL	82.3	--	.60	67.9	--	.64	80.5	--	1.11

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	5.4	2	.03	.90	2	0	.40	2	0
2	4.6	2	.02	.86	2	0	.40	2	0
3	4.0	2	.02	.84	2	0	.38	2	0
4	3.5	2	.02	.88	2	0	.38	2	0
5	3.1	2	.02	.83	2	0	.38	2	0
6	2.8	2	.02	.79	2	0	.38	2	0
7	2.5	2	.01	.78	2	0	.36	2	0
8	2.4	2	.01	.75	2	0	.36	2	0
9	2.2	2	.01	.75	2	0	.36	2	0
10	2.1	2	.01	.74	2	0	.36	2	0
11	2.0	2	.01	.72	2	0	.34	2	0
12	1.9	2	.01	.70	2	0	.38	2	0
13	1.8	2	.01	.67	2	0	.38	2	0
14	1.7	2	.01	.65	2	0	.34	2	0
15	1.6	2	.01	.66	2	0	.32	2	0
16	1.5	2	.01	.64	2	0	.34	2	0
17	1.4	2	.01	.61	2	0	1.0	8	.02
18	1.4	2	.01	.61	2	0	1.6	6	.03
19	1.3	2	.01	.60	2	0	1.4	--	.01
20	1.3	2	.01	.58	2	0	.92	--	0
21	1.2	2	.01	.48	2	0	.75	--	0
22	1.2	2	.01	.51	2	0	.68	--	0
23	1.2	2	.01	.48	2	0	2.1	11	.06
24	1.1	2	.01	.45	2	0	1.2	--	.01
25	1.1	2	.01	.51	2	0	1.0	--	.01
26	1.0	2	.01	.48	2	0	.88	--	0
27	1.0	2	.01	.48	2	0	.78	--	0
28	1.0	2	.01	.45	2	0	.72	--	0
29	.98	2	.01	.43	2	0	.65	--	0
30	.96	2	.01	.43	2	0	.92	--	.01
31	.93	2	.01	.40	2	0	--	--	--
TOTAL	60.17	--	.38	19.66	--	0	20.46	--	.15

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 2608.97
TOTAL LOAD FOR YEAR (TONS) 189.80

14307620 SIUSLAW RIVER NEAR MAPLETON, OREG.

LOCATION.--Lat 44°03'45", long 123°52'55", in SW¼NW¼ sec.27, T.17 S., R.10 W., Lane County, at gaging station on right bank, 250 ft upstream from Shoemaker Creek, 2.5 miles northwest of Mapleton, and at mile 23.7.

DRAINAGE AREA.--588 sq mi.

PERIOD OF RECORD.--Water temperatures: November 1967 to September 1969.
Sediment records: November 1967 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 23.0°C July 24, Aug. 21; minimum, 1.0°C Jan. 26-28.
Sediment concentrations: Maximum daily, 284 mg/l Dec. 4; minimum daily, 1 mg/l on several days.
Sediment loads: Maximum daily, 17,800 tons Dec. 4; minimum daily, 0.45 ton Sept. 16.

Period of record:
Water temperatures: Maximum, 25.5°C July 28, 1968; minimum, 1.0°C Jan. 26-28, 1969.
Sediment concentrations: Maximum daily, 284 mg/l Dec. 4, 1968; minimum daily, 1 mg/l on many days each year.
Sediment loads: Maximum daily, 17,800 tons Dec. 4, 1968; minimum daily, 0.36 ton Aug. 13, 1968.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
OCTOBER..	13	--	11	--	--	13	--	11	--	12	12	11	10	10	10	11	11	11	--	11	10	11	12	12	13	13	10	10	11	12	9	11
NOVEMBER.	9	10	--	8	8	9	9	12	12	11	12	9	9	9	8	8	9	10	10	11	11	10	10	9	9	8	9	8	9	7	--	9
DECEMBER.	--	8	9	10	9	8	8	8	9	9	8	8	8	8	8	7	6	7	6	6	6	6	7	8	7	7	8	7	6	4	4	7
JANUARY..	7	7	8	9	9	9	8	7	7	8	7	6	6	6	6	6	6	6	6	6	5	6	4	3	2	1	1	1	2	2	3	5
FEBRUARY.	3	4	4	5	4	6	5	6	6	6	6	6	6	6	7	6	6	6	6	6	6	6	--	6	5	6	6	6	--	--	--	6
MARCH....	6	6	7	6	8	7	7	6	6	5	4	5	5	5	5	7	9	8	8	7	7	8	7	7	7	9	8	8	10	11	11	7
APRIL....	10	9	8	9	9	9	8	9	11	8	9	12	9	9	10	10	11	9	10	12	9	11	11	9	9	9	11	12	8	8	--	10
MAY.....	14	9	9	9	10	12	13	14	--	14	16	16	15	13	12	13	13	16	14	13	14	16	16	14	14	14	14	13	15	13	--	13
JUNE.....	16	16	18	17	16	15	15	16	16	15	15	14	14	16	16	17	19	18	18	18	17	18	16	16	15	15	14	14	14	15	--	16
JULY.....	17	17	16	16	--	--	16	18	19	19	17	19	16	17	17	18	19	19	20	18	20	21	22	23	18	--	--	18	20	19	19	18
AUGUST...	--	21	--	19	--	21	--	19	--	18	--	16	--	--	21	--	18	--	19	--	23	--	19	--	20	--	18	--	16	--	--	--
SEPTEMBER	--	--	--	15	--	15	--	18	--	16	--	17	--	16	--	15	17	18	12	15	15	16	16	15	17	15	14	16	17	16	--	--

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(WHERE NO CONCENTRATIONS ARE REPORTED, LOADS ARE ESTIMATED)

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	218	1	.59	1470	6	24	3490	--	380
2	212	1	.57	1820	16	79	4370	26	307
3	206	1	.56	2250	--	150	4150	17	190
4	218	1	.59	1920	11	57	15600	284	17800
5	224	1	.60	1630	5	22	23100	276	17200
6	224	1	.60	1440	3	12	12100	98	3200
7	231	1	.62	1600	7	30	7610	48	986
8	224	1	.60	5780	245	5730	5690	28	430
9	215	1	.58	12100	190	7010	5790	68	1200
10	224	1	.60	6550	56	990	18200	257	13300
11	728	60	200	8030	110	2600	17700	131	6260
12	2110	120	680	8560	43	994	13100	73	2580
13	2240	34	206	6820	32	589	9260	59	1480
14	1890	12	61	5070	28	383	7480	38	767
15	2780	20	150	3780	17	174	6410	37	640
16	2810	14	106	2900	14	110	7620	80	1700
17	1970	6	32	2410	10	65	8410	44	999
18	1520	6	25	2440	10	66	7530	33	671
19	1240	--	17	2570	25	173	7080	32	612
20	2430	46	300	2430	10	66	5700	24	369
21	2400	18	117	2420	29	220	4550	20	246
22	2000	14	76	3760	71	721	4130	20	223
23	1760	4	19	3480	15	141	6360	48	820
24	1500	3	12	3230	20	170	7860	76	1600
25	1290	1	3.5	3770	22	224	8730	53	1250
26	1120	1	3.0	3420	12	111	7160	28	541
27	1010	1	2.7	2900	8	63	7410	45	900
28	914	1	2.5	2460	6	40	12500	131	4420
29	928	6	15	2370	5	32	9690	58	1520
30	1330	3	11	2590	19	133	6830	36	664
31	1620	18	79	--	--	--	5250	23	326
TOTAL	37786	--	2123.61	111970	--	21179	270860	--	83581

14307620 SIUSLAW RIVER NEAR MAPLETON, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	6470	43	751	4130	19	212	2540	11	75
2	6460	29	506	3580	12	116	2470	4	27
3	5370	19	275	4020	12	130	2630	8	57
4	4560	16	197	4400	14	166	2690	6	44
5	4110	16	178	4420	10	119	2860	9	69
6	4080	16	176	3900	14	147	4230	33	377
7	7730	80	1770	3290	12	107	4590	21	260
8	8100	54	1180	5360	67	1800	3930	11	117
9	8450	52	1190	15100	180	7300	3310	10	89
10	14300	146	6400	13700	110	4070	2850	8	62
11	21800	217	12800	14700	75	2980	2520	7	48
12	14800	93	3720	11900	58	1860	2280	6	37
13	12100	69	2250	8840	44	1050	2100	5	28
14	11700	49	1550	6930	34	636	1960	4	21
15	9650	42	1090	6480	24	420	1850	6	30
16	7870	32	680	7750	27	565	1790	6	29
17	8800	37	879	7160	16	309	2260	13	79
18	8140	27	593	6030	14	228	5410	92	1500
19	6550	22	389	5180	14	196	5810	50	784
20	5260	22	312	4670	14	177	4280	23	266
21	4340	18	211	4340	14	164	3400	14	129
22	3720	14	141	4040	12	131	2870	19	147
23	3170	16	137	3850	10	104	2500	12	81
24	2790	12	90	3670	8	79	2240	8	48
25	2570	12	83	3390	8	73	2050	6	33
26	2570	12	83	3100	9	75	1920	13	67
27	2370	10	64	2850	8	62	1810	14	68
28	2140	12	69	2670	5	36	1710	6	28
29	2000	10	54	--	--	--	1630	4	18
30	1900	12	62	--	--	--	1560	4	17
31	2560	25	173	--	--	--	1510	5	20
TOTAL	206430	--	38053	169450	--	23312	85560	--	4655

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	1440	4	16	1070	11	32	688	12	22
2	1470	4	16	1060	8	23	622	11	18
3	1430	2	7.7	1010	5	14	573	13	20
4	1340	4	14	995	4	11	543	13	19
5	1330	4	14	935	1	2.5	513	8	11
6	1290	4	14	870	6	14	496	4	5.4
7	1220	4	13	822	4	8.9	494	4	5.3
8	1150	4	12	777	10	21	479	4	5.2
9	1120	3	9.1	754	--	14	535	4	5.8
10	1080	2	5.8	726	4	7.8	552	4	6.0
11	1030	3	8.3	694	4	7.5	526	4	5.7
12	1010	4	11	665	3	5.4	519	4	5.6
13	1150	6	19	641	6	10	483	6	7.8
14	1080	4	12	1200	6	19	467	6	7.6
15	1030	4	11	1000	9	24	445	5	6.0
16	984	3	8.0	850	4	9.2	424	4	4.6
17	990	2	5.3	700	6	11	397	6	6.4
18	1180	9	29	700	8	15	372	4	4.0
19	1280	6	21	900	8	19	363	4	3.9
20	1380	4	15	877	7	17	353	4	3.8
21	1270	6	21	839	6	14	352	2	1.9
22	1170	8	25	760	5	10	346	3	2.8
23	1230	8	27	685	7	13	393	4	4.2
24	1230	6	20	655	6	11	459	4	5.0
25	1230	6	20	625	6	10	512	8	11
26	1200	8	26	618	8	13	611	8	13
27	1120	17	51	650	6	11	632	8	14
28	1070	18	52	668	8	14	619	9	15
29	1070	14	40	631	4	6.8	585	6	9.5
30	1070	4	12	882	12	29	528	4	5.7
31	--	--	--	766	--	25	--	--	--
TOTAL	35644	--	555.2	25025	--	442.1	14881	--	255.2

14307620 SIUSLAW RIVER NEAR MAPLETON, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	479	3	3.9	173	6	2.8	106	4	1.1
2	435	4	4.7	167	6	2.7	106	4	1.1
3	409	4	4.4	164	6	2.7	100	4	1.1
4	382	2	2.1	164	6	2.7	102	4	1.1
5	363	--	2.0	164	6	2.7	100	4	1.1
6	345	--	.93	164	6	2.7	97	2	.52
7	333	1	.90	156	6	2.5	97	2	.52
8	324	2	1.7	153	6	2.5	97	2	.52
9	313	2	1.7	153	6	2.5	97	2	.52
10	299	2	1.6	153	6	2.5	93	2	.50
11	292	4	3.2	151	6	2.4	91	2	.49
12	291	2	1.6	151	6	2.4	91	2	.49
13	282	4	3.0	151	6	2.4	89	2	.48
14	272	2	1.5	148	4	1.6	87	2	.47
15	266	1	.72	141	4	1.5	85	2	.46
16	258	2	1.4	138	4	1.5	83	2	.45
17	251	2	1.4	136	4	1.5	115	4	1.2
18	244	2	1.3	133	4	1.4	420	14	16
19	234	2	1.3	131	4	1.4	555	18	27
20	228	2	1.2	126	4	1.4	525	10	14
21	218	12	7.1	126	4	1.4	336	4	3.6
22	215	2	1.2	122	4	1.3	271	5	3.7
23	212	1	.57	122	4	1.3	313	6	5.1
24	200	2	1.1	117	4	1.3	336	4	3.6
25	188	6	3.0	117	4	1.3	282	4	3.0
26	179	6	2.9	117	4	1.3	240	2	1.3
27	185	6	3.0	117	4	1.3	218	6	3.5
28	182	6	2.9	115	4	1.2	203	2	1.1
29	185	6	3.0	115	4	1.2	191	1	.52
30	185	6	3.0	112	4	1.2	200	1	.54
31	185	6	3.0	108	4	1.2	--	--	--
TOTAL	8434	--	71.32	4305	--	57.8	5726	--	95.08

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 976071
TOTAL LOAD FOR YEAR (TONS) 174380.31

UMPQUA RIVER BASIN

14310000 COW CREEK NEAR RIDDLE, OREG.

LOCATION.--Lat 42°55'25", long 123°25'40", in NE¼ sec.32, T.30 S., R.6 W., Douglas County, at gaging station 0.4 mile upstream from Council Creek, 3.8 miles southwest of Riddle, and at mile 6.7.

DRAINAGE AREA.--456 sq mi.

PERIOD OF RECORD.--Chemical analyses: August 1967 to June 1969 (discontinued).

CHEMICAL ANALYSES, OCTOBER 1968 TO JUNE 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
DEC.												
12...	3060	14	5.5	4.4	3.6	1.2	39	0	3.0	3.5	.1	1.4
JAN.												
14...	6110	15	4.6	3.9	2.7	1.0	34	0	2.6	2.0	.1	1.0
APR.												
11...	615	15	5.9	3.8	3.3	.6	42	0	3.0	2.0	.0	.0
MAY												
16...	256	16	7.6	4.9	4.1	.4	52	0	3.6	3.0	.2	.0
JUNE												
12...	141	13	9.3	6.5	5.2	.9	62	0	5.0	5.0	.0	.3

DATE	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	COLOR (PLAT-INUM COBALT UNITS)	TEMPER-ATURE (DEG C)	PH (UNITS)
DEC.												
12...	0	60	.08	496	32	0	81	.3	20	10	8	6.9
JAN.												
14...	20	49	.07	808	28	0	65	.2	17	--	--	7.3
APR.												
11...	50	51	.07	84.7	30	0	77	.3	18	5	12	7.4
MAY												
16...	40	63	.09	43.5	39	0	98	.3	19	5	19	7.6
JUNE												
12...	--	79	.11	30.1	50	0	118	.3	19	5	--	7.6

UMPQUA RIVER BASIN

14312000 SOUTH UMPQUA RIVER NEAR BROCKWAY, OREG.

LOCATION.--Lat 43°08'00", long 123°23'50", in SW¼ sec.15, T.28 S., R.6 W., Douglas County, at gaging station 40 ft downstream from Winston bridge on U.S. Highway 99, 2.5 miles northeast of Brockway, 4.2 miles downstream from Lookingglass Creek, and at mile 132.8.

DRAINAGE AREA.--1,670 sq mi.

PERIOD OF RECORD.--Chemical analyses: August 1967 to May 1969 (discontinued).

CHEMICAL ANALYSES, OCTOBER 1968 TO MAY 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
NOV.												
04...	1310	14	11	4.2	5.6	.9	50	0	7.0	6.0	.1	.4
DEC.												
17...	9790	15	6.7	3.8	3.6	.8	40	0	3.6	2.5	.1	.4
FEB.												
10...	14500	16	6.1	3.9	3.4	1.1	38	0	3.4	2.5	.1	.6
APR.												
01...	5530	14	5.4	2.1	3.0	.6	32	0	3.0	2.0	.0	.2
MAY												
13...	2350	14	5.9	2.1	3.1	.2	32	0	3.4	2.0	.0	.2

DATE	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	COLOR (PLAT-INUM COBALT UNITS)	TEMPER-ATURE (DEG C)	PH (UNITS)
NOV.												
04...	20	78	.11	276	45	4	114	.4	21	10	--	7.2
DEC.												
17...	20	62	.08	1640	32	0	78	.3	20	10	--	7.1
FEB.												
10...	40	51	.07	2000	31	0	74	.3	19	--	6	7.2
APR.												
01...	60	50	.07	747	22	0	59	.3	22	5	8	7.4
MAY												
13...	20	50	.07	317	23	0	63	.3	22	5	--	7.2

14312250 SOUTH UMPQUA RIVER AT ROSEBURG, OREG.

LOCATION.--Lat 43°13'05", long 123°21'55", in SE¼ sec.33, T.26 S., R.5 W., Douglas County, on Veteran's Hospital access road bridge in Roseburg.

DRAINAGE AREA.--1,784 sq mi.

PERIOD OF RECORD.--Chemical analyses: August 1967 to April 1969 (discontinued).

CHEMICAL ANALYSES, OCTOBER 1968 TO APRIL 1969

DATE	DIS-CHARGE (CFS)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)
NOV.								
04...	--	10	4.6	5.3	50	0	79	.11
DEC.								
18...	--	7.1	4.1	3.8	42	0	64	.09
FEB.								
11...	--	5.7	3.9	3.2	36	0	55	.07
APR.								
01...	3820	5.8	2.4	2.6	33	0	57	.08

DATE	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	TEMPER-ATURE (DEG C)	PH (UNITS)
NOV.								
04...	--	44	3	113	.3	21	--	7.5
DEC.								
18...	--	40	5	85	.3	19	--	7.2
FEB.								
11...	--	30	0	68	.3	19	7	7.1
APR.								
01...	588	24	0	61	.2	19	--	7.2

UMPQUA RIVER BASIN

14319500 NORTH UMPQUA RIVER AT WINCHESTER, OREG.

LOCATION.--Lat 43°16'20", long 123°24'40", in NW¼NE¼ sec.33, T.26 S., R.6 W., Douglas County, at gaging station 400 ft downstream from county bridge, 3 miles west of Winchester, and at mile 1.8.

DRAINAGE AREA.--1,344 sq mi.

PERIOD OF RECORD.--Chemical analyses: August 1967 to May 1969 (discontinued).

CHEMICAL ANALYSES, OCTOBER 1968 TO MAY 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
NOV.												
04...	2720	17	6.0	1.8	3.9	.8	32	0	2.6	3.0	.0	.2
DEC.												
17...	6050	16	5.7	2.3	3.4	.7	33	0	2.0	2.0	.1	.2
FEB.												
10...	6770	18	6.1	2.6	3.5	.8	34	0	2.8	2.0	.1	.3
APR.												
02...	6670	15	4.3	1.2	2.7	.3	24	0	.0	1.0	.7	.0
MAY												
13...	6940	15	3.8	1.1	2.5	.3	23	0	.4	1.5	.1	.0

DATE	BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	COLOR (PLAT-INUM COBALT UNITS)	TEMPER-ATURE (DEG C)	PH (UNITS)
NOV.												
04...	20	50	.07	367	22	0	64	.4	27	5	--	7.4
DEC.												
17...	10	52	.07	849	24	0	61	.3	23	20	--	7.7
FEB.												
10...	40	58	.08	1060	26	0	65	.3	22	--	5	7.3
APR.												
02...	40	34	.05	612	16	0	44	.3	27	5	7	7.4
MAY												
13...	20	37	.05	693	14	0	40	.3	28	5	--	7.2

14320950 UMPQUA RIVER NEAR TYEE, OREG.

LOCATION.--Lat 43°25'55", long 123°33'55", in NE¼NE¼ sec.6, T.24 S., R.7 W., Douglas County, on Tyee access road bridge southeast of Tyee.

PERIOD OF RECORD.--Chemical analyses: August 1967 to April 1969 (discontinued).

CHEMICAL ANALYSES, OCTOBER 1968 TO APRIL 1969

DATE	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)
NOV.							
04...	8.5	3.3	5.0	42	0	63	.09
DEC.							
17...	6.2	3.2	3.6	36	0	62	.08
APR.							
01...	5.0	1.6	2.0	26	0	40	.05

DATE	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	SODIUM ADSORPTION RATIO	PERCENT SODIUM	PH (UNITS)
NOV.						
04...	34	0	94	.4	24	7.0
DEC.						
17...	28	0	72	.3	21	7.7
APR.						
01...	19	0	50	.2	19	7.1

UMPQUA RIVER BASIN

14321000 UMPQUA RIVER NEAR ELKTON, OREG.
(International Hydrological Decade River Station)

LOCATION.--Lat 43°35'10", long 123°33'30", in NW¼ sec.8, T.23 S., R.7 W., Douglas County, at gaging station on right bank, 3.5 miles south of Elkton, 8.2 miles upstream from Elk Creek, and at mile 56.8.

DRAINAGE AREA.--3,683 sq mi.

PERIOD OF RECORD.--Chemical analyses: December 1965 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DISCHARGE (CFS)	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
NOV.												
04...	4930	18	8.0	2.9	5.2	.9	42	0	4.2	4.0	.0	.1
25...	13400	16	6.7	2.6	4.0	.8	36	0	3.6	3.0	.1	.2
DEC.												
26...	22700	15	5.6	3.0	3.4	.8	33	0	2.8	2.0	.1	.4
JAN.												
29...	9400	17	6.8	3.3	3.8	.6	40	0	4.2	2.5	.1	.3
MAR.												
25...	9260	16	5.6	2.1	3.5	.3	32	0	2.2	2.0	.0	.0
JUNE												
27...	4170	19	6.4	2.4	4.3	.7	34	2	2.2	3.0	.0	.0
JULY												
25...	1310	19	6.0	2.5	4.8	.7	32	4	2.0	3.5	.0	.0
AUG.												
25...	1020	18	5.8	2.6	5.4	1.0	34	3	1.8	4.0	.0	.0
SEPT.												
25...	1240	19	7.4	3.1	5.9	1.1	44	0	3.8	5.0	.0	.3

DATE	PHOSPHATE (PO4) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	SODIUM ADSORPTION RATIO	PERCENT SODIUM	COLOR (PLATINUM COBALT UNITS)	TEMPERATURE (DEG C)	PH (UNITS)
NOV.												
04...	.11	68	.09	905	32	0	91	.4	26	5	--	7.5
25...	.06	60	.08	2170	27	0	74	.3	23	20	8	7.5
DEC.												
26...	.16	51	.07	3130	26	0	65	.3	21	10	--	7.1
JAN.												
29...	.12	65	.09	1650	30	0	76	.3	21	20	3	7.2
MAR.												
25...	--	54	.07	1350	22	0	61	.3	25	5	9	7.4
JUNE												
27...	.01	62	.08	698	26	0	74	.4	26	0	--	8.6
JULY												
25...	.00	58	.08	205	26	0	73	.4	29	0	--	8.7
AUG.												
25...	.06	57	.08	157	25	0	75	.5	31	0	--	8.7
SEPT.												
25...	.13	64	.09	214	32	0	93	.5	28	0	--	7.5

14324500 WEST FORK MILLICOMA RIVER NEAR ALLEGANY, OREG.

LOCATION.--Lat 43°28'35", long 124°03'20", in SW¼NW¼ sec.19, T.24 S., R.11 W., Coos County, at gaging station on left bank at highway bridge, 40 ft upstream from Daggett Creek, 3.8 miles north of Allegany, and at mile 6.82.

DRAINAGE AREA.--46.5 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1963 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
17...	666	9.6	3.0	1.2	4.3	1.0	13	0	1.8	4.0	.0	4.3
NOV.												
11...	820	9.8	2.5	.9	3.8	.7	12	0	1.4	4.0	.0	3.0
DEC.												
16...	1300	8.6	2.9	.9	3.3	.5	10	0	1.2	4.0	.1	2.3
FEB.												
02...	546	11	2.1	.8	3.2	.4	9	0	1.6	5.5	.0	1.8
23...	336	8.5	2.2	.8	3.3	.4	10	0	2.0	5.0	.0	2.2
MAR.												
21...	251	7.1	2.3	.7	3.6	.2	12	0	1.4	4.0	.0	1.5
MAY												
06...	80	7.8	2.6	.8	3.9	.2	13	0	12	4.5	.0	1.8
JUNE												
01...	83	3.1	2.6	.9	4.0	.4	17	0	1.2	3.0	.0	1.4
JULY												
13...	39	3.6	2.7	1.0	4.3	.5	3	8	1.2	3.0	.0	.2
AUG.												
21...	7.7	3.6	3.2	1.2	5.2	.6	22	0	1.0	5.0	.0	.1
SEPT.												
21...	40	8.0	3.4	1.3	4.7	.6	17	0	1.6	5.5	.1	4.2

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONDU-CTANCE (MICRO-MHOS)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	COLOR (PLAT-INUM COBALT UNITS)	TEMPER-ATURE (DEG C)	PH (UNITS)	TUR-BID-ITY (JTU)
OCT.												
17...	34	.05	61.1	12	2	49	.5	41	10	12	6.9	.0
NOV.												
11...	35	.05	77.5	10	0	43	.5	43	5	12	6.8	5.0
DEC.												
16...	28	.04	98.3	10	2	40	.4	38	10	8	7.0	5.0
FEB.												
02...	31	.04	45.7	8	1	37	.5	43	5	6	6.6	--
23...	30	.04	27.2	9	1	37	.5	44	5	6	6.7	.0
MAR.												
21...	29	.04	19.7	8	0	38	.5	47	5	9	7.2	.0
MAY												
06...	26	.03	5.62	10	0	42	.5	46	5	14	6.9	--
JUNE												
01...	28	.04	6.27	10	0	43	.5	45	0	16	7.5	--
JULY												
13...	27	.04	2.84	10	0	50	.6	45	5	18	9.7	--
AUG.												
21...	29	.04	.60	13	0	53	.6	45	0	19	7.2	--
SEPT.												
21...	36	.05	3.89	14	0	54	.5	41	5	15	7.4	--

ANALYSES OF ADDITIONAL SAMPLES

DATE	DIS-CHARGE (CFS)	COLOR (PLATI-NUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	TURBID-ITY (JTU)	DATE	DIS-CHARGE (CFS)	COLOR (PLATI-NUM-COBALT UNITS)	TEMPER-ATURE (DEG C)	TURBID-ITY (JTU)
OCT.					APR.				
01...	24	10	16	.0	10...	85	10	13	.0
08...	23	10	11	.0	20...	198	10	10	.0
22...	198	10	12	.0	27...	108	5	14	.0
29...	100	15	12	.0	MAY				
NOV.					11...	55	5	18	.0
05...	212	15	11	.0	25...	254	10	14	.0
17...	245	10	9	.0	JUNE				
24...	392	10	9	5.0	08...	41	10	16	1.0
DEC.					15...	37	10	17	1.0
06...	820	10	8	5.0	22...	24	10	18	1.0
10...	4430	--	--	--	29...	136	10	18	1.0
23...	800	15	8	15	JULY				
JAN.					07...	21	10	21	1.0
04...	328	5	10	.0	24...	20	10	18	--
13...	1210	--	--	--	29...	17	10	16	--
29...	671	--	--	--	AUG.				
FEB.					07...	12	5	19	--
16...	991	10	7	.0	12...	11	10	18	--
MAR.					28...	6.5	10	16	--
02...	198	5	6	.0	SEPT.				
09...	346	5	7	.0	04...	5.0	10	14	--
23...	182	5	8	.0	14...	4.2	10	16	--
30...	94	5	13	.0	28...	20	10	15	1.0

14324900 SOUTH FORK COQUILLE RIVER NEAR POWERS, OREG.

LOCATION.--lat 42°47'05", long 124°02'25", in SW¼SW¼ sec.18, T.32 S., R.11 W., Coos County, Siskiyou National Forest, temperature recorder at gaging station on right bank, 0.8 mile upstream from Hall Creek, 7.0 miles southeast of Powers, and at mile 76.1.

DRAINAGE AREA.--93.2 sq mi.

PERIOD OF RECORD.--Water temperatures: November 1956 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C on several days during June and July; minimum, 1.0°C Jan. 25-30.

Period of record:
Water temperatures: Maximum, 25.0°C July 2, 1967; minimum, 1.0°C Jan. 12, 13, 1963, Jan. 28, 29, 1968, Jan. 25-30, 1969.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	16	15	14	14	14	13	13	12	12	12	12	11	10	9	10	11	11	11	9	11	11	11	11	11	12	12	12	11	11	11	9	12
MINIMUM	14	12	12	13	13	13	12	11	10	11	11	10	9	9	9	9	9	9	9	9	9	9	9	9	10	9	9	9	11	9	9	10
NOVEMBER																																
MAXIMUM	9	9	9	8	9	9	9	11	11	11	11	10	9	8	8	8	9	9	9	9	9	9	9	9	8	8	8	8	8	7	--	9
MINIMUM	8	9	8	8	9	8	8	9	11	10	10	9	8	7	7	7	8	9	9	9	9	9	9	8	8	8	8	8	7	7	--	8
DECEMBER																																
MAXIMUM	7	7	7	8	8	8	8	8	8	9	8	7	7	7	7	7	7	7	6	6	4	6	7	7	7	7	7	7	6	6	7	7
MINIMUM	7	7	7	7	8	7	7	8	8	8	7	7	7	7	7	7	7	6	5	4	4	4	6	7	7	7	7	6	6	6	6	6
JANUARY																																
MAXIMUM	7	7	7	8	8	8	8	6	6	6	6	6	6	6	5	5	6	6	6	6	5	5	3	3	3	1	1	2	2	2	2	5
MINIMUM	7	7	7	7	8	8	6	6	5	6	6	6	6	5	5	5	5	5	6	5	5	3	3	2	1	1	1	1	1	1	2	4
FEBRUARY																																
MAXIMUM	3	4	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	6	6	7	6	6	6	6	6	6	7	7	--	--	--	5
MINIMUM	2	3	3	3	3	4	4	4	4	4	5	5	4	5	6	6	6	6	6	6	6	6	5	5	5	5	6	6	--	--	--	5
MARCH																																
MAXIMUM	6	6	6	7	7	6	6	7	7	6	6	7	7	7	7	7	7	7	7	7	8	7	7	8	8	8	8	8	8	8	8	7
MINIMUM	5	6	6	6	6	6	6	6	6	4	4	4	4	5	5	6	7	6	6	6	6	6	6	6	6	6	6	7	7	7	7	6
APRIL																																
MAXIMUM	7	7	7	7	8	8	8	9	8	9	9	9	7	7	9	9	8	8	8	9	10	9	8	8	9	11	11	10	9	8	--	8
MINIMUM	7	6	6	7	7	7	6	7	7	7	7	7	6	7	7	7	7	7	7	6	7	8	7	7	6	7	8	8	7	7	--	7
MAY																																
MAXIMUM	8	10	8	11	13	14	14	14	14	16	16	16	13	12	15	16	17	16	14	17	18	19	17	16	14	13	14	16	15	19	19	15
MINIMUM	7	7	7	7	8	9	9	11	11	11	12	12	11	11	10	11	12	13	12	11	12	14	15	14	13	12	12	11	12	14	14	11
JUNE																																
MAXIMUM	19	21	21	21	19	18	16	15	15	15	17	19	19	20	19	22	21	22	21	22	22	20	19	18	17	16	15	16	19	21	--	19
MINIMUM	14	15	16	17	17	16	14	14	14	14	14	16	16	17	17	17	18	18	18	18	18	18	17	16	15	14	14	13	14	16	--	16
JULY																																
MAXIMUM	18	18	19	21	20	18	21	22	22	22	21	21	21	20	21	21	21	21	22	21	21	22	22	22	21	21	21	21	21	20	19	20
MINIMUM	17	16	15	17	17	17	16	17	18	18	18	17	17	17	17	17	17	17	17	18	17	18	19	19	17	18	18	18	18	18	18	17
AUGUST																																
MAXIMUM	20	20	19	19	18	18	18	19	18	18	18	18	19	20	19	19	18	19	19	19	19	20	20	19	18	18	18	18	17	17	18	19
MINIMUM	17	17	16	17	16	16	16	16	17	16	17	16	17	18	18	18	16	17	18	17	17	17	17	17	16	16	17	17	15	14	15	17
SEPTEMBER																																
MAXIMUM	19	19	18	17	16	17	18	19	18	18	18	17	17	17	15	16	17	17	16	16	16	16	16	17	16	16	16	16	17	16	--	17
MINIMUM	16	17	16	14	14	14	15	17	16	16	17	16	17	15	13	13	16	15	14	14	14	14	15	14	15	14	14	14	16	14	--	15

14327150 SIXES RIVER AT SIXES, OREG.

LOCATION.--Lat 42°49'05", long 124°29'00", in NE¼SW¼ sec.9, T.32 S., R.15 W., Curry County, 0.1 mile upstream from gaging station, 0.15 mile south of town of Sixes, 0.2 mile upstream from Crystal Creek, and at mile 5.3.

DRAINAGE AREA.--116 sq mi (at gaging station).

PERIOD OF RECORD.--Water temperatures: October 1967 to September 1969.
Sediment records: October 1967 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C Aug. 18-20; minimum, 6.0°C Feb. 4, 5, 26.
Sediment concentrations: Maximum daily, 1,750 mg/l Feb. 8; minimum daily, 1 mg/l on many days.
Sediment loads: Maximum daily, 48,000 tons Dec. 10; minimum daily, 0.06 ton Aug. 11-13, 15.

Period of record:
Water temperatures: Maximum, 22.0°C June 26, 1968, Aug. 18-20, 1969; minimum, 1.0°C Jan. 27, 1968.
Sediment concentrations: Maximum daily, 1,750 mg/l Feb. 8, 1969; minimum daily, 1 mg/l on many days each year.
Sediment loads: Maximum daily, 48,000 tons Dec. 10, 1969; minimum daily, 0.05 ton Aug. 11-13, 1968.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	15	--	16	--	15	--	14	--	14	--	13	12	11	10	11	11	11	10	11	12	12	12	11	11	11	11	12	12	11	11	11	12
NOVEMBER.	9	11	11	11	11	9	11	12	12	12	12	--	--	7	11	11	11	12	11	11	12	11	11	9	11	10	11	10	9	8	--	11
DECEMBER.	8	7	10	10	10	8	9	9	9	9	9	9	9	9	8	9	8	8	8	8	7	8	9	9	8	8	8	7	6	7	8	8
JANUARY..	--	9	10	11	11	11	8	9	7	8	8	7	8	7	8	8	7	8	7	7	8	8	--	--	--	--	--	--	--	--	--	--
FEBRUARY.	7	7	7	6	6	7	8	7	7	9	9	7	8	8	8	8	8	10	10	8	9	8	8	8	7	6	9	9	--	--	--	8
MARCH....	9	8	6	8	8	8	8	9	9	9	9	9	11	11	11	11	11	7	9	9	12	9	12	14	14	14	13	12	13	14	13	10
APRIL....	12	12	9	11	11	13	14	14	11	14	14	12	11	12	12	13	12	11	11	12	14	13	11	13	14	14	14	12	12	12	--	12
MAY.....	14	14	13	12	16	16	16	14	14	15	18	14	--	14	17	18	19	14	18	16	19	15	13	14	13	17	17	18	16	14	18	15
JUNE.....	18	20	16	17	18	18	17	16	17	14	16	15	16	18	17	19	18	18	18	20	19	19	19	19	18	18	18	18	19	19	--	18
JULY.....	19	19	19	19	20	19	18	17	17	16	17	19	21	20	20	21	19	21	21	19	18	19	19	18	19	18	17	19	19	18	18	19
AUGUST...	18	19	19	20	19	19	19	19	--	19	19	19	18	19	19	19	20	22	22	22	16	19	19	19	19	19	20	19	18	19	18	19
SEPTEMBER	20	18	18	18	19	19	20	20	19	19	18	18	18	18	18	18	16	16	14	15	17	14	14	14	16	14	13	14	16	15	--	17

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(WHERE NO CONCENTRATIONS ARE REPORTED, LOADS ARE ESTIMATED)

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	41	1	.11	470	12	15	2070	148	827
2	39	1	.11	2470	663	5960	1600	51	220
3	37	1	.10	1390	70	263	1120	40	121
4	39	1	.11	774	16	33	1300	43	189
5	39	1	.11	540	9	13	2580	158	1220
6	37	1	.10	415	4	4.5	1390	32	120
7	37	1	.10	576	16	25	1030	20	56
8	37	1	.10	648	42	73	890	23	55
9	36	1	.10	1950	240	1500	3060	412	7330
10	34	1	.09	1070	38	110	12100	1470	48000
11	928	475	2470	2680	398	4610	5420	364	5330
12	1540	350	1700	2930	290	2300	2740	147	1090
13	920	72	179	1790	75	362	2350	320	2000
14	606	21	34	1240	36	121	3320	179	1600
15	636	26	45	1280	46	159	7290	1010	19900
16	510	13	18	932	18	45	4590	255	3160
17	386	7	7.3	708	14	27	2720	137	1010
18	358	8	7.7	722	12	23	2000	88	475
19	294	8	6.4	694	12	22	1690	63	287
20	650	29	61	590	16	25	1290	52	181
21	546	15	22	627	33	81	992	40	107
22	378	8	8.2	1560	117	521	968	32	84
23	302	5	4.1	992	18	48	2090	294	1910
24	246	3	2.0	2070	173	1400	6700	1040	19900
25	209	4	2.3	2840	135	1160	4780	339	4600
26	182	4	2.0	1610	39	170	2730	155	1140
27	164	4	1.8	1060	31	89	2160	135	787
28	148	6	2.4	750	17	34	3260	284	2650
29	288	110	168	875	55	170	1900	78	400
30	1340	314	1310	1300	60	210	1260	46	156
31	714	33	64	--	--	--	939	46	117
TOTAL	11721	--	6116.23	37553	--	19573.5	88329	--	125022

14327150 SIXES RIVER AT SIXES, OREG.--Continued

DAILY SUSPENDEC SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	110D	56	166	3380	176	1820	715	16	31
2	1010	38	104	1840	63	313	694	23	43
3	876	20	47	1400	38	144	1060	95	272
4	743	19	36	1T20	116	630	890	39	94
5	632	13	22	1680	75	340	820	22	49
6	548	11	16	1210	20	65	1080	57	166
7	1160	174	804	946	25	64	1020	42	116
8	1250	85	287	5370	1750	43300	820	18	40
9	1730	160	1300	6120	673	15900	656	10	18
10	3400	357	3560	3640	539	5780	550	14	21
11	6160	796	14400	5030	632	8580	480	10	13
12	4410	448	6970	2630	346	2460	400	8	8.6
13	4580	312	4420	1620	86	376	370	12	12
14	3020	188	1530	1200	73	237	350	5	4.7
15	2140	82	474	1420	124	553	340	4	3.T
16	1580	143	610	2240	148	895	380	12	12
17	1440	81	315	1390	53	199	650	45	79
18	1300	25	88	1000	33	89	1700	536	4660
19	1090	34	100	785	26	55	1120	90	272
20	897	24	58	680	20	37	736	22	44
21	757	19	39	620	18	30	500	10	13
22	650	12	21	614	14	23	400	6	6.5
23	566	9	14	785	50	110	350	5	4.7
24	548	--	13	1050	20	57	310	3	2.5
25	566	10	15	1010	27	74	280	2	1.5
26	674	21	38	976	30	79	260	2	1.4
27	680	12	22	911	25	61	245	2	1.3
28	578	8	12	855	26	60	242	2	1.3
29	632	23	39	--	--	--	224	4	2.4
30	806	21	46	--	--	--	214	3	1.7
31	1780	81	840	--	--	--	214	2	1.2
TOTAL	47303	--	36406	52122	--	82331	18070	--	5996.5

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	195	2	1.1	256	1	.69	91	2	.49
2	400	24	26	228	2	1.2	89	1	.24
3	280	12	9.1	231	1	.62	87	1	.23
4	296	2	1.6	220	2	1.2	83	2	.45
5	806	72	157	195	1	.53	82	2	.44
6	620	14	23	180	1	.49	78	2	.42
7	460	5	6.2	166	1	.45	76	1	.21
8	384	6	6.2	156	1	.42	76	2	.41
9	344	5	4.6	153	2	.83	78	1	.21
10	292	2	1.6	143	2	.77	93	3	.75
11	259	2	1.4	131	3	1.1	87	2	.47
12	296	8	6.4	129	1	.35	83	1	.2.
13	460	23	29	122	1	.33	80	1	..
14	348	8	7.5	118	1	.32	76	2	.4.
15	300	4	3.2	111	2	.60	74	3	.60
16	259	4	2.8	109	3	.88	73	2	.39
17	288	--	4.7	103	2	.56	69	2	.37
18	410	10	11	101	3	.82	66	1	.18
19	400	8	8.6	105	2	.57	62	1	T
20	356	6	5.8	97	6	1.6	60	1	.6
21	304	6	4.9	89	3	.72	58	1	.16
22	266	--	2.9	87	4	.94	57	1	.15
23	280	6	4.5	85	2	.46	56	1	.15
24	300	8	6.5	101	4	1.1	73	1	.20
25	259	2	1.4	89	1	.24	74	1	.20
26	231	3	1.9	116	3	.94	71	1	.19
27	217	1	.59	131	2	.71	99	2	.53
28	292	10	7.9	129	2	.70	118	1	.32
29	348	10	9.4	107	3	.87	97	1	.26
30	292	2	1.6	120	2	.65	87	3	.70
31	--	--	--	99	2	.53	--	--	--
TOTAL	10242	--	358.39	4207	--	22.19	2353	--	9.90

14327150 SIXES RIVER AT SIXES, OREG.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	80	1	.22	27	8	.58	19	5	.26
2	74	2	.40	26	4	.28	19	3	.15
3	69	1	.19	26	6	.42	21	4	.23
4	66	1	.18	25	4	.27	29	18	1.4
5	63	2	.34	25	6	.40	40	4	.43
6	62	2	.33	25	4	.27	50	2	.27
7	60	1	.16	25	12	.81	46	6	.75
8	56	1	.15	25	5	.34	40	11	1.2
9	53	3	.43	24	--	.19	34	6	.55
10	50	3	.40	24	2	.13	34	15	1.4
11	48	4	.52	24	1	.06	34	8	.73
12	47	4	.51	24	1	.06	34	14	1.3
13	46	3	.37	24	1	.06	32	6	.52
14	44	5	.59	24	3	.19	33	7	.62
15	43	2	.23	24	1	.06	34	7	.64
16	41	2	.22	23	2	.12	32	2	.17
17	41	4	.44	23	2	.12	44	2	.24
18	38	6	.62	22	2	.12	87	6	1.4
19	38	4	.41	22	2	.12	148	12	4.8
20	38	4	.41	21	2	.11	141	7	2.7
21	36	3	.29	20	7	.38	80	2	.43
22	33	2	.18	21	5	.28	57	8	1.2
23	33	4	.36	20	4	.22	69	6	1.1
24	32	4	.35	20	2	.11	87	6	1.4
25	32	4	.35	21	4	.23	69	8	1.5
26	31	3	.25	20	7	.38	58	6	.94
27	30	2	.16	20	2	.11	51	6	.83
28	30	3	.24	20	2	.11	46	4	.50
29	30	2	.16	20	2	.11	41	2	.22
30	29	4	.31	20	4	.22	40	2	.22
31	27	4	.29	20	2	.11	--	--	--
TOTAL	1400	--	10.06	705	--	6.97	1549	--	28.10

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 275554
TOTAL LOAD FOR YEAR (TONS) 275880.84

14330000 ROGUE RIVER BELOW PROSPECT, OREG.

LOCATION.--Lat 42°46'50", long 122°30'55", in SE¼NW¼ sec.6, T.33 S., R.3 E., Jackson County, temperature recorder at gaging station on right bank, 500 ft downstream from Prospect No. 1 powerplant, 2.0 miles southwest of Prospect, 2.1 miles upstream from South Fork Rogue River, and at mile 169.4.

DRAINAGE AREA.--379 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 14.0°C Aug. 22-24; minimum, 1.0°C Jan. 4, 24, Feb. 3, 5.

REMARKS.--Recorder stopped Dec. 21 to Jan. 2, Apr. 1-7, May 20 to June 3, July 12 to Aug. 19, Aug. 28 to Sept. 10, Sept. 17-30; ranges in temperature, 2.0°C to 5.0°C, 3.0°C to 6.0°C, 5.0°C to 11.0°C, 8.0°C to 12.0°C, 11.0°C to 13.0°C, and 10.0°C to 12.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6	6	6	6	6	6	6	6	6	6	6	6	6	6	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	4	5	4	5	3	3	4	3	4	3	4	6	3	--
NOVEMBER																																
MAXIMUM	6	6	6	6	6	6	6	6	7	7	7	7	5	5	4	5	6	6	6	6	6	7	6	6	4	4	4	4	4	4	--	5
MINIMUM	4	4	4	4	3	4	4	6	6	6	6	5	4	4	4	4	5	6	3	5	5	6	4	4	3	3	3	3	4	3	--	4
DECEMBER																																
MAXIMUM	3	4	4	4	4	4	4	5	5	6	6	5	5	4	5	5	4	4	4	5	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	3	3	4	4	3	4	3	4	4	5	4	4	4	3	4	4	3	3	2	2	--	--	--	--	--	--	--	--	--	--	--	--
JANUARY																																
MAXIMUM	--	--	3	3	4	5	6	4	4	5	5	4	4	4	5	5	5	5	6	6	6	5	4	4	3	3	3	3	3	3	3	4
MINIMUM	--	--	3	1	4	4	4	4	4	4	4	4	2	3	4	3	4	4	4	5	5	3	2	1	3	2	2	2	2	2	2	3
FEBRUARY																																
MAXIMUM	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	3	4	4	3	3	3	3	4	4	3	4	4	4	--	--	--	3
MINIMUM	2	2	1	2	1	3	2	3	3	4	4	3	2	2	3	2	3	3	2	3	3	3	3	2	2	2	3	3	--	--	--	3
MARCH																																
MAXIMUM	4	4	3	4	4	3	4	4	4	3	4	4	4	4	4	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	5
MINIMUM	3	3	3	2	3	3	2	2	3	2	2	2	2	3	2	4	4	4	3	4	4	4	3	3	3	3	3	3	4	4	4	3
APRIL																																
MAXIMUM	--	--	--	--	--	--	--	7	7	7	8	8	7	7	7	7	7	7	7	7	7	7	7	6	7	7	7	7	6	6	--	--
MINIMUM	--	--	--	--	--	--	--	5	7	5	5	6	5	6	5	5	6	5	6	5	5	6	6	5	4	4	4	6	4	4	--	--
MAY																																
MAXIMUM	6	7	7	7	8	8	8	8	8	7	7	7	6	6	8	8	8	8	7	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	4	4	6	4	4	3	3	3	3	3	3	3	5	5	3	3	3	6	5	--	--	--	--	--	--	--	--	--	--	--	--	--
JUNE																																
MAXIMUM	--	--	--	12	12	12	12	11	10	10	11	11	12	12	12	12	12	12	12	12	12	12	11	11	10	9	9	9	11	11	--	11
MINIMUM	--	--	--	8	9	8	10	10	9	9	8	9	9	9	9	8	9	9	11	9	9	11	10	10	9	9	8	9	7	8	--	9
JULY																																
MAXIMUM	12	12	11	12	12	12	12	12	12	12	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	9	9	9	9	9	9	9	9	9	9	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AUGUST																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13	13	14	14	14	13	13	13	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11	11	11	12	12	11	10	11	--	--	--	--	--
SEPTEMBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	13	13	13	13	12	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	11	11	11	11	9	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

14334700 SOUTH FORK ROGUE RIVER SOUTH OF PROSPECT, OREG.

LOCATION.--Lat 42°42'45", long 122°30'20", in NW¼SE¼ sec.7, T.33 S., R.3 E., Jackson County, temperature recorder at gaging station on right bank, 200 ft upstream from unnamed tributary, 0.6 mile upstream from Smith Creek, 1.2 miles downstream from Beaver Dam Creek, 2.8 miles southwest of Prospect, and at mile 2.4.

DRAINAGE AREA.--246 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 15.0°C July 19-23; minimum, 2.0°C on several days during December to February.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER																																
MAXIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	9	--
MINIMUM	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8	8	--
NOVEMBER																																
MAXIMUM	8	8	8	8	8	7	7	7	7	7	7	7	6	5	4	5	6	6	6	5	5	5	5	5	4	5	5	5	5	5	--	6
MINIMUM	7	8	8	7	7	7	7	7	7	7	7	5	5	4	4	4	5	6	5	4	4	5	4	4	4	4	5	5	5	5	--	6
DECEMBER																																
MAXIMUM	5	5	5	5	5	5	5	5	5	5	5	4	4	5	5	5	4	4	4	3	3	3	3	4	4	4	4	4	4	4	4	4
MINIMUM	4	4	4	5	5	4	4	5	5	5	4	4	4	4	4	4	4	4	3	2	3	3	3	3	4	4	4	4	4	3	3	4
JANUARY																																
MAXIMUM	4	4	4	4	4	4	4	4	3	3	3	4	4	4	4	3	3	3	3	3	3	4	4	3	4	4	3	3	3	3	3	4
MINIMUM	4	4	4	4	4	4	4	3	3	3	3	3	3	4	3	3	3	2	3	3	3	4	2	2	3	3	3	3	3	3	2	3
FEBRUARY																																
MAXIMUM	3	4	4	4	3	3	3	4	4	4	4	4	4	4	5	5	5	5	6	5	4	4	4	4	4	4	4	6	--	--	--	4
MINIMUM	2	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	5	--	--	--	4
MARCH																																
MAXIMUM	6	6	5	6	6	6	6	6	5	5	5	6	5	5	6	6	6	7	7	7	7	7	7	7	7	7	7	8	8	6	7	6
MINIMUM	5	5	4	5	6	5	5	4	5	4	4	5	4	4	4	5	6	6	6	6	6	6	6	6	5	6	6	6	4	4	5	5
APRIL																																
MAXIMUM	6	6	5	6	6	6	6	6	6	6	7	6	6	6	6	7	6	6	6	7	7	6	6	4	6	6	6	6	6	5	--	6
MINIMUM	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	4	5	3	3	--	4
MAY																																
MAXIMUM	5	6	6	6	7	7	7	7	6	6	5	6	5	4	5	6	6	6	4	6	6	7	7	7	7	7	6	7	7	8	8	6
MINIMUM	4	3	4	3	4	4	4	4	4	4	4	4	4	3	3	3	3	4	3	3	4	4	4	4	4	5	5	4	6	6	5	4
JUNE																																
MAXIMUM	8	8	10	9	9	10	9	9	8	7	9	11	11	11	11	11	11	11	11	12	11	9	9	8	8	8	8	9	10	11	--	10
MINIMUM	6	6	7	7	8	7	8	8	7	7	7	8	8	8	8	8	8	8	9	9	8	9	9	8	8	7	7	7	6	8	--	8
JULY																																
MAXIMUM	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	14	15	15	15	15	15	14	14	14	14	14	14	14	14	13
MINIMUM	8	9	8	8	8	9	9	9	11	11	10	10	9	9	9	9	9	9	11	11	11	11	12	12	11	11	11	11	11	11	12	10
AUGUST																																
MAXIMUM	14	14	14	14	12	13	13	13	13	13	13	13	14	14	14	14	13	13	13	13	13	13	13	14	13	12	12	12	12	12	12	13
MINIMUM	11	12	11	12	9	10	11	11	12	12	11	11	12	13	13	12	12	12	12	12	12	12	13	13	11	11	11	11	11	11	11	11
SEPTEMBER																																
MAXIMUM	12	12	12	11	11	11	12	12	13	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	11	10	10	10	10	--	11
MINIMUM	11	11	11	10	11	10	11	12	12	11	12	12	12	10	10	11	11	11	11	11	10	10	11	11	11	10	10	10	10	10	--	11

14372300 ROGUE RIVER NEAR AGNESS, OREG.
(International Hydrological Decade River Station)

LOCATION.--Lat 42°34'50", long 124°03'30", in NE¼NW¼ sec.6, T.35 S., R.11 W., Curry County, at gaging station on left bank, 0.8 mile upstream from Shasta Costa Creek, 1.5 miles north of Agness, 2.6 miles upstream from Illinois River, and at mile 29.7.

DRAINAGE AREA.--3,939 sq mi.

PERIOD OF RECORD.--Chemical analyses: January 1966 to September 1969.
Water temperatures: October 1960 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 24.0°C Aug. 21; minimum, 4.0°C on many days during December to February.

Period of record:
Water temperatures: Maximum, 26.5°C on several days during July 1962; minimum (1960-64, 1965-69), 1.0°C Jan. 22-25, 1962.

REMARKS.--Recorder stopped Jan. 7, 8; range in temperature, 5.0°C to 7.0°C.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
OCT.												
01...	827	25	9.7	4.0	6.3	1.6	59	0	3.6	3.0	.1	.2
NOV.												
15...	4770	19	8.5	4.1	4.0	1.0	51	0	4.0	2.0	.1	.4
JAN.												
09...	10700	19	8.7	4.0	3.9	.9	49	0	3.4	2.5	.1	.6
FEB.												
14...	14600	20	9.7	4.3	3.7	7.0	54	0	3.8	3.0	.0	.7
APR.												
10...	6070	18	8.6	3.6	3.8	.7	50	0	2.8	3.0	.1	.2
MAY												
27...	6620	17	7.0	2.9	3.2	.7	41	0	1.4	2.0	.0	.3
JULY												
17...	1390	24	9.1	3.7	5.7	1.4	42	8	2.4	2.5	.0	.1
AUG.												
14...	1140	27	9.0	3.8	5.8	1.3	59	0	2.6	2.5	.0	.4

DATE	PHOS-PHATE (PO4) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	COLOR (PLAT-INUM COBALT UNITS)	TEMPER-ATURE (DEG C)	PH (UNITS)
OCT.												
01...	.13	90	.12	201	40	0	114	.4	24	0	18	7.6
NOV.												
15...	.05	66	.09	850	38	0	97	.3	18	10	8	7.5
JAN.												
09...	.26	75	.10	2170	38	0	93	.3	18	15	--	7.3
FEB.												
14...	.43	75	.10	2960	42	0	99	.2	14	20	7	7.7
APR.												
10...	.02	69	.09	1130	36	0	92	.3	18	5	--	7.6
MAY												
27...	.02	56	.08	1000	30	0	74	.3	19	5	--	7.5
JULY												
17...	.01	71	.10	266	38	0	103	.4	24	5	22	9.0
AUG.												
14...	.23	79	.11	243	38	0	105	.4	24	0	22	7.6

14372300 ROGUE RIVER NEAR AGNESS, OREG.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVER-AGE
OCTOBER																																
MAXIMUM	18	18	18	18	18	18	18	17	16	16	14	14	14	14	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	14
MINIMUM	17	18	18	18	18	18	17	16	16	14	14	14	14	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	14
NOVEMBER																																
MAXIMUM	12	12	12	10	10	10	10	10	11	11	10	9	9	9	8	7	7	8	8	9	9	9	9	8	8	8	8	7	7	7	--	9
MINIMUM	12	12	10	10	10	10	10	10	10	10	9	9	9	8	7	7	7	7	8	8	9	9	8	8	8	8	7	7	7	7	--	9
DECEMBER																																
MAXIMUM	7	7	7	7	7	7	7	7	7	8	8	8	7	7	7	7	7	7	7	6	5	4	4	5	5	5	5	5	5	5	5	6
MINIMUM	7	7	7	7	7	7	7	7	7	7	8	7	7	7	7	7	7	7	6	5	4	4	4	4	5	5	5	5	5	5	5	6
JANUARY																																
MAXIMUM	5	5	6	6	7	7	--	--	5	6	6	6	7	7	7	6	6	6	6	6	6	6	6	5	4	4	4	4	4	4	4	5
MINIMUM	4	4	5	6	6	7	--	--	5	5	6	6	6	7	6	6	6	6	6	6	6	6	5	4	4	4	4	4	4	4	4	5
FEBRUARY																																
MAXIMUM	4	4	4	4	4	4	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	--	--	6
MINIMUM	4	4	4	4	4	4	4	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	--	--	5
MARCH																																
MAXIMUM	7	7	7	7	8	8	8	8	8	7	7	7	8	8	8	8	8	8	8	8	9	9	9	9	9	10	10	10	10	10	11	8
MINIMUM	7	7	7	7	7	8	8	7	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	9	9	9	9	9	10	10	10	8
APRIL																																
MAXIMUM	11	9	9	9	9	10	9	10	10	11	11	11	11	11	11	11	11	12	12	12	12	13	12	12	11	12	13	12	12	12	--	11
MINIMUM	9	9	9	9	9	9	9	9	10	10	10	10	10	10	10	11	11	11	11	11	12	12	12	11	11	11	11	12	12	11	--	10
MAY																																
MAXIMUM	11	12	12	13	13	15	16	16	16	16	16	16	16	15	14	14	16	16	16	15	16	17	17	17	17	16	16	15	16	18	19	15
MINIMUM	11	11	12	12	12	13	14	16	16	16	16	16	15	14	13	14	14	16	15	15	15	16	17	17	16	16	14	14	14	16	17	14
JUNE																																
MAXIMUM	19	20	20	21	21	20	18	18	18	17	17	18	19	21	21	22	22	22	22	21	22	21	21	20	19	18	18	17	18	18	--	20
MINIMUM	18	18	19	19	20	18	18	18	17	17	17	17	18	19	20	21	21	21	21	21	20	21	20	19	18	18	17	17	17	17	--	19
JULY																																
MAXIMUM	19	19	20	21	21	21	21	21	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	23	23	23	23	23	23	23	22
MINIMUM	18	19	19	19	19	19	19	19	20	21	21	21	21	21	21	21	21	20	20	21	21	21	21	22	22	22	22	22	22	22	22	20
AUGUST																																
MAXIMUM	23	23	23	22	22	22	22	22	22	22	22	22	23	23	23	23	23	23	23	23	24	23	23	23	22	22	22	22	21	21	21	23
MINIMUM	22	22	22	22	21	21	21	21	21	21	21	21	22	22	22	22	22	22	22	22	22	22	22	22	21	21	21	21	20	20	20	21
SEPTEMBER																																
MAXIMUM	21	21	21	21	20	20	19	21	20	20	21	21	21	19	19	18	18	18	18	17	17	17	17	17	17	17	17	17	17	17	--	19
MINIMUM	20	20	20	19	19	19	18	19	19	19	19	19	19	19	18	18	18	18	17	17	17	17	17	16	16	17	17	16	17	16	--	18

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)
BEAR CREEK BASIN												
14248700 BEAR CREEK NEAR SVENSEN (LAT 46 06 48 LONG 123 37 55)												
MAR., 1969												
26...	16	29	4.8	2.3	5.7	1.7	31	0	4.0	5.5	.0	.2
JULY												
24...	6.1	41	6.5	2.9	7.4	1.8	32	6	4.8	2.5	.1	.0
14248810 WATERWORKS CREEK NEAR SVENSEN, SITE NO. 1 (LAT 46 06 15 LONG 123 35 55)												
MAR., 1969												
26...	2.4	24	5.3	2.6	4.7	1.4	25	0	9.6	5.0	.1	.3
JULY												
24...	.35	28	6.6	3.3	5.3	1.3	33	0	11	4.0	.1	.0
14248830 WATERWORKS CREEK NEAR SVENSEN, SITE NO. 3 (LAT 46 06 55 LONG 123 37 25)												
MAR., 1969												
26...	4.8	23	4.7	2.2	5.0	1.4	25	0	7.0	4.0	.0	.2
JULY												
24...	1.6	27	5.8	2.7	5.8	1.4	35	0	6.4	5.0	.1	.0
UMPQUA RIVER BASIN												
14308000 SOUTH UMPQUA RIVER AT TILLER (LAT 42 55 50 LONG 122 56 50)												
OCT., 1968												
24...	51	14	16	3.1	4.4	.8	52	0	12	11	.1	.2
14312260 SOUTH UMPQUA RIVER NEAR ROSEBURG (LAT 43 14 29 LONG 123 24 43)												
SEP., 1969												
24...	175	3.4	17	7.2	11	1.1	83	0	10	17	.1	.4
14317600 ROCK CREEK NEAR GLIDE (LAT 43 20 45 LONG 122 59 30)												
JAN., 1969												
16...	72	14	4.[illegible]	1.1	3.2	.4	21	0	2.0	1.5	.1	.1

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONDU-CTANCE (MICRO-MHOS)	SODIUM AD-SORP-TION RATIO	PERCENT SODIUM	COLOR (PLAT-INUM-COBALT UNITS)	TEMP-ERATURE (DEG C)	PH (UNITS)
BEAR CREEK BASIN											
14248700 BEAR CREEK NEAR SVENSEN (LAT 46 06 48 LONG 123 37 55)											
MAR., 1969											
26...	70	.10	3.02	22	0	76	.5	34	5	--	7.3
JULY											
24...	--	.13	1.56	28	0	95	.6	35	--	--	8.9
14248810 WATERWORKS CREEK NEAR SVENSEN, SITE NO. 1 (LAT 46 06 15 LONG 123 35 55)											
MAR., 1969											
26...	70	.10	.45	24	3	80	.4	28	5	--	7.3
JULY											
24...	76	.10	.07	30	3	94	.4	27	0	--	7.2
14248830 WATERWORKS CREEK NEAR SVENSEN, SITE NO. 3 (LAT 46 06 55 LONG 123 37 25)											
MAR., 1969											
26...	63	.09	.82	20	0	72	.5	33	5	--	7.3
JULY											
24...	73	.10	.32	26	0	96	.5	32	0	--	7.3
UMPQUA RIVER BASIN											
14308000 SOUTH UMPQUA RIVER AT TILLER (LAT 42 55 50 LONG 122 56 50)											
OCT., 1968											
04...	93	.13	12.8	53	10	143	.5	26	5	14	7.4
14312260 SOUTH UMPQUA RIVER NEAR ROSEBURG (LAT 43 14 29 LONG 123 24 43)											
SEP., 1969											
24...	105	.14	49.6	72	6	194	.6	25	5	20	8.1
14317600 ROCK CREEK NEAR GLIDE (LAT 43 20 45 LONG 122 59 30)											
JAN., 1969											
16...	32	.04	69.2	14	0	41	.3	25	5	--	7.1

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

ELK RIVER BASIN

14327300 ELK RIVER NEAR SIXES (LAT 42 47 45 LONG 129 29 20)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY)	DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY)
OCT 11, 1968	1445	13	680	438	804	DEC 23, 1968	0750	--	1400	187	707
OCT 11.....	1915	13	1900	644	3300	DEC 23.....	1720	--	1760	234	1110
OCT 20.....	0910	12	526	22	31	DEC 24.....	0820	--	3570	602	5800
OCT 29.....	0710	--	226	13	7.9	DEC 24.....	1330	--	3770	322	3280
NOV 2.....	0700	--	1240	146	489	DEC 28.....	0755	--	3480	562	5280
NOV 2.....	1250	--	3460	366	3420	JAN 2, 1969	1055	--	1270	44	151
NOV 7.....	0705	--	595	22	35	JAN 6.....	1445	11	750	8	16
NOV 9.....	1855	--	5050	143	1950	JAN 7.....	1350	--	1100	30	89
NOV 11.....	0810	--	1130	24	73	JAN 9.....	1720	--	1200	17	55
NOV 11.....	1605	--	2440	208	1370	JAN 10.....	1700	--	2170	206	1210
NOV 11.....	1940	--	3740	362	3660	JAN 11.....	0950	--	4420	627	7480
NOV 12.....	1640	17	2400	92	596	JAN 12.....	1855	--	3430	100	926
NOV 18.....	0710	--	930	13	33	JAN 30.....	0950	--	649	6	11
NOV 22.....	0705	--	1480	60	240	JAN 31.....	1120	--	641	19	33
NOV 24.....	0750	--	1820	50	246	FEB 8.....	1830	6	1890	152	776
NOV 24.....	0910	--	1200	22	71	FEB 9.....	0810	7	3620	268	2620
NOV 25.....	0715	--	2270	79	484	FEB 10.....	1745	9	2570	100	694
NOV 29.....	1755	--	1170	38	120	FEB 11.....	1225	8	4620	350	4370
DEC 1.....	1505	--	1450	34	133	FEB 16.....	1005	9	2190	184	1090
DEC 4.....	1435	--	1740	76	357	MAR 3.....	1205	8	970	12	31
DEC 5.....	0700	--	3610	311	3030	MAR 17.....	1645	9	990	49	131
DEC 9.....	1440	--	1880	118	599	MAR 18.....	0725	8	1470	152	603
DEC 9.....	2015	--	3230	326	2840	APR 2.....	1630	12	578	17	
DEC 10.....	0655	--	7300	894	17600	APR 5.....	1155	12	804	14	30
DEC 10.....	1355	--	7480	730	14700	APR 7.....	1645	12	521	2	2.8
DEC 14.....	0655	--	2990	276	2230	APR 13.....	1155	12	442	4	4.8
DEC 15.....	0925	--	4420	504	6010	MAY 19.....	1730	14	201	2	1.1
DEC 15.....	1400	--	5570	644	9690	JUL 9.....	1400	26	86	4	.93
DEC 22.....	1425	--	920	14	35						

SOUTHEASTERN MAINLAND STREAMS

15053800 LAKE CREEK AT AUKE BAY, ALASKA

LOCATION.--Lat 58°23'40", long 134°37'50", in NW¼NE¼ sec.23, T.40 S., R.65 E., temperature recorder at gaging station 45 ft upstream from bridge on Mendenhall Loop Road, 700 ft upstream from mouth at Auke Lake, and 0.8 mile northeast of Auke Bay.

DRAINAGE AREA.--2.50 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1968 (miscellaneous).
Water temperatures: October 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 14.5°C on several days during June; minimum, freezing point on many days during winter period.

Period of record:
Water temperatures: Maximum, 16.5°C Aug. 6-9, 1965, July 25, 1966; minimum, freezing point on many days during winter periods.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	5.5	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
2	5.5	5.0	2.5	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
3	5.5	5.0	2.5	2.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
4	5.5	5.5	2.5	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
5	5.5	5.5	2.0	1.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6	6.0	5.5	1.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
7	5.5	5.5	2.0	1.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
8	6.0	5.5	2.5	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
9	6.0	5.5	2.5	2.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
10	5.5	5.0	3.0	2.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
11	5.0	4.5	3.0	3.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
12	4.5	4.0	3.0	3.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
13	4.0	4.0	3.0	3.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
14	4.0	4.0	3.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
15	4.0	4.0	2.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
16	4.0	4.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
17	5.0	4.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
18	5.5	5.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
19	5.5	5.5	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
20	5.5	5.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
21	5.0	5.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
22	5.0	5.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
23	5.0	5.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
24	5.5	5.0	1.0	1.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
25	5.5	5.0	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
26	5.0	5.0	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
27	5.0	5.0	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
28	5.0	4.0	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
29	4.0	3.0	1.0	1.0	0.5	0.5	0.0	0.0	--	--	0.0	0.0
30	3.0	2.0	1.0	1.0	0.5	0.1	0.0	0.0	--	--	0.0	0.0
31	2.0	2.0	--	--	0.5	0.0	0.0	0.0	--	--	0.0	0.0
AVG	4.9	4.6	1.7	1.5	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	3.5	2.0	6.5	5.0	11.5	11.5	9.5	9.0	9.0	8.5
2	0.0	0.0	2.0	2.0	6.5	6.0	12.0	10.5	10.0	9.0	8.5	8.5
3	0.0	0.0	2.0	2.0	6.0	6.0	11.5	11.0	10.0	9.5	9.0	8.5
4	0.0	0.0	2.0	1.5	6.0	6.0	11.5	10.5	11.5	10.0	9.0	8.5
5	0.0	0.0	2.0	2.0	6.5	5.5	11.0	10.5	11.0	10.0	9.0	8.5
6	0.0	0.0	2.0	1.5	7.5	5.5	11.5	10.5	10.5	10.5	9.0	8.5
7	1.0	1.0	2.0	1.5	9.0	6.0	11.0	10.5	10.5	10.0	9.0	8.5
8	1.0	1.0	1.5	1.5	10.0	7.0	10.5	10.5	10.0	10.0	9.0	8.5
9	1.0	1.0	3.0	1.5	11.0	8.0	10.5	10.5	10.0	9.5	9.5	8.5
10	1.0	1.0	2.0	1.5	11.0	8.5	10.5	10.5	9.5	8.5	9.5	9.0
11	1.0	1.0	2.0	1.5	11.5	8.5	10.5	10.0	8.5	7.5	9.0	8.5
12	1.0	1.0	1.5	1.0	13.0	9.0	10.0	9.5	8.0	7.5	8.5	8.0
13	1.0	1.0	3.0	1.0	13.5	9.5	9.5	9.5	8.0	8.0	8.0	8.0
14	1.0	1.0	2.0	1.5	14.5	10.0	9.5	9.5	8.0	8.0	8.0	7.5
15	1.0	1.0	4.0	1.5	14.5	10.5	10.5	9.5	8.0	8.0	9.0	8.0
16	1.0	0.5	3.0	1.5	14.5	11.0	10.5	9.5	8.0	8.0	8.0	7.5
17	0.5	0.5	3.5	1.5	12.0	11.5	11.5	10.0	8.0	7.5	8.5	8.0
18	0.5	0.5	4.0	1.5	14.5	11.5	12.0	10.5	8.5	7.5	9.5	8.5
19	0.5	0.5	4.0	1.5	14.5	10.5	11.5	10.5	8.0	8.0	10.0	8.0
20	0.5	0.5	3.5	1.5	14.5	11.0	11.0	11.0	8.0	8.0	9.0	7.5
21	1.0	0.5	3.5	1.5	13.0	11.5	11.0	11.0	8.0	8.0	8.5	8.0
22	1.0	1.0	3.5	2.0	14.0	11.0	11.0	10.5	8.0	8.0	8.5	8.0
23	1.5	1.0	4.5	3.0	11.5	11.0	10.5	10.0	8.0	7.5	8.5	8.0
24	1.5	1.0	4.0	2.0	11.5	10.5	10.0	10.0	8.0	7.0	8.5	8.5
25	2.0	1.0	3.5	3.5	14.5	10.5	10.0	10.0	7.5	7.0	8.5	8.0
26	1.5	1.5	5.0	3.5	12.0	11.0	10.0	9.5	9.5	7.5	9.0	8.0
27	1.5	1.5	4.5	4.0	14.5	10.5	9.5	9.5	10.0	8.0	9.0	8.0
28	2.0	1.5	5.5	4.0	13.5	11.0	10.0	9.0	9.5	7.0	8.5	7.5
29	2.0	1.0	6.5	4.5	14.0	11.0	10.0	9.5	8.5	8.0	8.0	7.5
30	2.0	1.5	5.5	5.5	12.0	11.5	9.5	9.0	9.0	8.0	7.5	7.0
31	--	--	5.5	5.0	--	--	9.0	9.0	9.0	8.5	--	--
AVG	0.9	0.7	3.3	2.2	11.5	9.2	10.5	10.0	8.9	8.3	8.7	8.1

15054000 AUKE CREEK AT AUKE BAY, ALASKA

LOCATION.--Lat 58°23'05", long 134°38'00", temperature recorder at gaging station 100 ft downstream from bridge on Glacier Highway, 550 ft downstream from Auke Lake, 0.3 mile upstream from mouth at Auke Bay, and 0.5 mile east of Auke Bay.

DRAINAGE AREA.--3.96 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1968 (miscellaneous).
Water temperatures: October 1962 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.0°C June 13; minimum, freezing point on many days during winter period.

Period of record:
Water temperatures: Maximum, 22.0°C June 13, 1969; minimum, freezing point on several days during winter periods of most years.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.5	8.5	6.0	5.5	3.0	3.0	--	--	--	--	--	--
2	9.5	8.5	5.5	5.5	3.0	3.0	--	--	--	--	--	--
3	9.0	9.5	6.0	5.5	3.0	3.0	--	--	--	--	--	--
4	9.0	8.0	6.5	6.0	3.0	3.0	--	--	--	--	1.0	1.0
5	9.0	8.5	6.5	5.5	3.0	3.0	--	--	--	--	--	--
6	9.0	8.0	6.0	5.5	--	--	--	--	--	--	--	--
7	9.0	9.0	6.0	5.5	--	--	--	--	--	--	--	--
8	9.0	8.5	6.0	5.5	--	--	--	--	--	--	--	--
9	9.5	8.5	5.5	5.5	--	--	--	--	--	--	--	--
10	9.5	8.5	5.5	5.5	--	--	--	--	--	--	--	--
11	10.0	8.5	7.0	5.5	--	--	--	--	--	--	--	--
12	10.0	9.0	7.0	6.5	--	--	--	--	--	--	--	--
13	9.0	8.0	6.5	6.0	--	--	--	--	1.0	1.0	--	--
14	8.5	8.0	6.5	6.0	--	--	--	--	--	--	--	--
15	8.5	7.5	7.0	6.5	--	--	--	--	--	--	--	--
16	7.5	7.5	7.0	6.5	--	--	--	--	--	--	--	--
17	7.5	7.5	6.5	6.0	--	--	--	--	--	--	--	--
18	7.5	7.0	6.0	5.0	--	--	--	--	--	--	--	--
19	7.0	7.0	5.0	5.0	--	--	--	--	--	--	--	--
20	7.0	7.0	5.0	4.5	--	--	--	--	--	--	--	--
21	7.0	6.5	5.0	4.5	--	--	--	--	--	--	--	--
22	6.5	6.5	4.5	4.0	--	--	0.5	0.5	--	--	--	--
23	6.5	5.5	4.0	4.0	--	--	0.5	0.5	--	--	--	--
24	6.5	6.0	4.0	4.0	--	--	--	--	--	--	--	--
25	7.0	6.0	4.0	3.5	--	--	--	--	--	--	--	--
26	6.0	5.5	3.5	3.0	--	--	--	--	--	--	--	--
27	6.0	5.5	3.0	3.0	--	--	--	--	--	--	--	--
28	7.0	6.0	3.0	2.5	--	--	--	--	--	--	--	--
29	7.5	7.0	3.0	2.5	--	--	--	--	--	--	--	--
30	7.0	6.0	3.0	3.0	--	--	--	--	--	--	--	--
31	6.0	6.0	--	--	--	--	--	--	--	--	--	--
AVG	7.9	7.3	5.3	4.9	--	--	--	--	--	--	--	--

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	12.0	12.0	17.0	16.5	12.0	12.0	13.0	13.0
2	--	--	--	--	--	--	16.5	16.0	13.5	12.0	13.0	13.0
3	--	--	--	--	--	--	16.0	16.0	14.0	13.5	13.0	13.0
4	--	--	--	--	11.0	10.5	16.0	15.5	14.5	14.0	13.0	13.0
5	--	--	--	--	11.0	10.5	15.5	15.5	14.5	14.5	13.0	13.0
6	--	--	--	--	13.0	10.5	15.5	15.0	14.5	13.5	13.0	13.0
7	2.0	2.0	--	--	14.5	12.5	15.0	15.0	13.5	13.0	13.0	13.0
8	--	--	--	--	14.5	14.0	15.0	14.5	13.0	13.0	13.0	13.0
9	--	--	--	--	16.0	14.5	14.5	14.0	13.0	13.0	13.0	13.0
10	--	--	--	--	17.0	16.0	14.0	13.5	13.0	12.5	13.0	12.5
11	--	--	--	--	18.5	17.0	13.5	13.0	12.5	12.0	12.5	12.5
12	--	--	--	--	20.0	18.5	13.0	12.0	12.0	12.0	12.5	12.5
13	--	--	6.0	6.0	22.0	20.0	12.0	11.5	12.5	11.5	12.5	12.5
14	--	--	--	--	21.5	20.5	11.5	11.5	11.5	11.5	12.5	12.5
15	--	--	--	--	21.5	20.5	12.0	11.5	11.5	11.5	12.5	12.5
16	--	--	9.0	9.0	21.0	20.0	12.0	12.0	11.5	11.5	12.5	12.5
17	--	--	--	--	20.5	20.0	12.0	12.0	11.5	11.5	12.5	12.5
18	--	--	--	--	20.0	19.0	13.0	12.0	11.5	11.5	12.5	12.0
19	--	--	--	--	19.0	18.5	14.0	13.0	11.5	11.5	12.0	12.0
20	--	--	--	--	19.0	18.0	14.0	14.0	11.5	11.5	--	--
21	--	--	--	--	19.0	18.0	14.0	14.0	11.5	11.5	--	--
22	--	--	--	--	18.0	17.5	14.0	13.5	11.5	11.5	--	--
23	--	--	--	--	17.5	17.0	13.5	13.5	11.5	11.5	--	--
24	--	--	--	--	17.0	16.5	13.5	13.0	13.0	11.5	10.0	10.0
25	--	--	--	--	19.0	17.0	13.5	13.0	13.0	13.0	10.0	10.0
26	--	--	--	--	19.0	18.0	13.0	12.5	13.0	12.5	10.0	10.0
27	--	--	--	--	19.0	17.0	12.5	12.5	13.0	13.0	10.0	10.0
28	--	--	13.0	12.0	19.0	17.5	13.0	12.5	13.0	13.0	10.0	10.0
29	--	--	13.0	12.5	18.0	17.5	13.0	12.5	13.0	13.0	10.5	10.5
30	--	--	12.5	12.5	17.5	17.0	13.0	12.0	13.0	13.0	10.5	10.5
31	--	--	12.5	12.0	--	--	12.0	12.0	13.0	13.0	--	--
AVG	--	--	--	--	17.6	16.6	13.7	13.3	12.6	12.3	12.0	12.0

15078000 GRACE CREEK NEAR KETCHIKAN, ALASKA

LOCATION.--Lat 55°39'28", long 130°58'14", temperature recorder at gaging station on Revillagigedo Island, in Tongass National Forest, 0.75 mile upstream from mouth at East Behm Canal, 1.8 miles downstream from Grace Lake, and 32 miles northeast of Ketchikan.

DRAINAGE AREA.--30.2 sq mi.

PERIOD OF RECORD.--Water temperatures: April 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 17.5°C June 29; minimum, freezing point on many days during January and February.

Period of record:
Water temperatures: Maximum, 19.0°C on several days in July and August 1968; minimum (1966-69), freezing point on many days during January and February in 1969.

REMARKS.--Water temperatures affected by submergence by high tides.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	8.5	5.0	5.0	3.5	3.5	0.5	0.5	0.0	0.0	0.5	0.5
2	8.5	8.0	5.0	5.0	3.5	3.0	0.5	0.5	0.0	0.0	1.0	0.5
3	8.0	8.0	5.0	5.0	3.5	3.0	0.5	0.5	0.0	0.0	1.0	1.0
4	8.0	8.0	5.0	5.0	3.0	3.0	0.5	0.5	0.5	0.0	1.0	1.0
5	8.0	7.5	5.0	5.0	3.0	3.0	--	--	0.5	0.5	1.5	1.0
6	7.5	7.5	5.0	5.0	3.0	2.0	--	--	0.5	0.5	1.5	1.5
7	7.5	7.5	5.0	5.0	2.5	2.0	--	--	0.5	0.5	2.0	1.5
8	7.5	7.5	5.0	5.0	2.5	2.0	--	--	1.0	0.5	1.5	1.5
9	7.5	7.5	5.0	5.0	2.5	2.5	--	--	1.0	1.0	1.5	1.5
10	7.5	7.5	5.0	4.5	2.5	2.5	--	--	1.0	1.0	2.0	1.5
11	7.5	7.0	4.5	4.5	2.5	2.5	--	--	1.0	1.0	1.5	1.5
12	7.0	7.0	4.5	4.5	2.5	2.0	--	--	1.0	1.0	2.0	1.5
13	7.0	6.5	4.5	4.5	2.5	2.0	--	--	1.0	1.0	2.0	1.5
14	6.5	6.5	4.5	4.5	2.5	2.5	--	--	1.0	1.0	2.0	1.5
15	6.5	6.5	4.5	4.5	2.5	2.5	0.0	0.0	1.0	0.5	1.5	1.5
16	6.5	6.0	4.5	4.5	2.5	2.0	0.0	0.0	1.0	1.0	1.5	1.5
17	6.0	6.0	4.5	4.5	2.0	2.0	0.0	0.0	1.0	1.0	1.5	1.5
18	6.0	6.0	4.5	3.0	2.0	2.0	0.0	0.0	1.0	1.0	1.5	1.0
19	6.0	6.0	3.5	3.0	2.0	1.5	0.0	0.0	1.0	1.0	1.0	1.0
20	6.0	6.0	3.5	3.5	1.5	1.0	0.0	0.0	1.0	1.0	1.5	1.0
21	6.0	6.0	3.5	3.5	1.5	1.0	0.0	0.0	1.0	1.0	1.5	1.0
22	6.0	6.0	3.5	3.5	1.5	1.0	0.0	0.0	1.0	1.0	1.5	1.0
23	6.0	6.0	3.5	3.5	1.5	1.0	0.0	0.0	1.0	0.5	1.5	1.5
24	6.0	6.0	3.5	3.5	1.5	1.0	0.0	0.0	0.5	0.5	1.5	1.5
25	6.0	6.0	3.5	3.5	1.0	1.0	0.0	0.0	0.5	0.5	1.5	1.5
26	6.0	6.0	3.5	3.5	1.0	0.5	0.0	0.0	0.5	0.5	1.5	1.5
27	6.0	4.5	3.5	3.5	0.5	0.5	0.0	0.0	0.5	0.5	1.5	1.5
28	5.0	4.5	3.5	3.5	0.5	0.5	0.0	0.0	0.5	0.5	1.5	1.5
29	5.0	5.0	3.5	3.5	0.5	0.5	0.0	0.0	--	--	1.5	1.5
30	5.0	5.0	3.5	3.5	0.5	0.5	0.0	0.0	--	--	1.5	1.0
31	5.0	5.0	--	--	0.5	0.5	0.0	0.0	--	--	1.0	1.0
AVG	6.6	6.4	4.2	4.1	2.0	1.7	--	--	0.7	0.6	1.4	1.2

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	1.5	1.0	2.5	2.5	7.0	6.5	17.0	16.5	14.0	13.5	11.5	11.0
2	1.5	1.5	2.5	2.5	7.0	6.5	17.0	15.0	14.5	14.0	11.5	11.5
3	1.5	1.5	2.5	2.5	7.0	6.0	16.0	15.0	14.5	13.5	12.0	11.5
4	2.0	1.5	2.5	2.5	7.5	6.5	16.0	15.5	15.5	14.5	12.0	12.0
5	2.0	2.0	2.5	2.5	8.0	7.0	16.5	15.5	16.5	14.5	12.0	12.0
6	2.0	2.0	2.5	2.5	9.5	7.0	16.5	16.0	14.5	13.5	12.0	10.5
7	2.0	2.0	2.5	2.5	--	--	16.0	15.5	14.5	13.0	11.5	11.0
8	2.0	2.0	3.0	2.5	--	--	15.5	14.5	14.0	13.5	11.5	11.5
9	2.0	2.0	3.0	3.0	--	--	14.5	12.5	13.5	13.0	11.5	11.5
10	2.0	2.0	3.0	3.0	--	--	13.5	11.0	13.0	12.5	11.5	11.5
11	2.0	2.0	3.0	3.0	--	--	12.5	12.0	12.5	11.5	11.5	11.0
12	2.0	2.0	3.0	3.0	--	--	12.5	12.0	12.0	12.0	11.5	11.0
13	2.0	2.0	3.0	3.0	--	--	12.5	12.5	12.0	11.5	11.5	11.0
14	2.0	2.0	3.5	3.0	--	--	12.5	12.5	12.0	12.0	11.5	11.0
15	2.0	2.0	4.0	3.5	--	--	12.5	12.5	12.0	11.5	11.5	11.5
16	2.0	2.0	4.5	4.0	--	--	13.5	12.5	11.5	11.5	11.5	11.5
17	2.0	2.0	4.5	4.5	--	--	15.5	13.5	11.5	10.5	11.5	11.5
18	2.0	2.0	5.0	4.5	--	--	17.0	13.5	10.5	10.5	11.5	11.5
19	2.0	2.0	5.0	5.0	--	--	17.0	15.0	11.0	10.5	12.0	11.5
20	2.5	2.0	5.0	5.0	--	--	15.5	14.5	11.0	10.5	12.0	11.5
21	2.5	2.5	5.0	5.0	--	--	14.5	13.5	11.0	10.5	12.0	11.5
22	2.5	2.5	5.0	5.0	16.0	15.5	13.5	13.0	11.5	11.0	11.5	11.5
23	2.5	2.5	5.5	5.0	16.0	15.5	13.0	12.5	11.5	11.0	11.5	11.5
24	2.5	2.5	5.5	5.5	16.0	15.0	13.5	12.5	11.0	11.0	11.5	11.0
25	2.5	2.5	6.0	5.5	16.0	16.0	13.5	12.5	11.5	11.0	11.0	11.0
26	2.5	2.5	6.0	6.0	16.0	16.0	13.0	12.5	11.5	11.5	11.0	11.0
27	2.5	2.5	6.5	6.0	16.5	15.5	13.5	13.0	11.5	10.5	11.0	11.0
28	2.5	2.5	6.5	6.0	17.0	16.0	15.0	13.5	11.5	10.5	11.0	11.0
29	2.5	2.5	6.5	6.0	17.5	15.5	14.5	13.0	11.5	11.0	11.0	10.5
30	2.5	2.5	7.0	6.0	16.5	15.5	14.0	13.0	11.5	11.0	10.5	10.5
31	--	--	7.5	7.0	--	--	14.0	13.5	11.0	11.0	--	--
AVG	2.1	2.0	4.3	4.1	--	--	14.5	13.5	12.4	11.8	11.5	11.2

15081500 STANEY CREEK NEAR CRAIG, ALASKA

LOCATION.--Lat 55°48'57", long 133°07'58", temperature recorder at gaging station on Prince of Wales Island, in Tongass National Forest, 1.3 miles upstream from mouth at Tuxekan Passage and 23 miles north of Craig.

DRAINAGE AREA.--51.6 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1966 to September 1967, October 1968 to September 1969 (miscellaneous).
Water temperatures: April 1966 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 22.5°C June 18; minimum, freezing point on many days during winter period.

Period of record:
Water temperatures: Maximum, 22.5°C June 18, 1969; minimum, freezing point on many days during winter periods.

REMARKS.--Chemical analyses for this station in "Analyses of Samples Collected at Miscellaneous Sites in Alaska."
Water temperatures affected by submergence by high tides.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	6.0	5.0	4.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0
2	6.0	6.0	5.0	5.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	6.5	6.0	5.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	6.5	6.5	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	6.5	6.5	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	6.5	6.5	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	6.5	5.5	5.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	6.5	6.0	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	6.5	5.5	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	5.5	4.0	5.5	5.0	0.0	0.0	--	--	0.0	0.0	0.0	0.0
11	--	--	5.0	4.0	0.0	0.0	--	--	0.0	0.0	0.0	0.0
12	--	--	4.0	3.0	0.0	0.0	--	--	0.0	0.0	0.0	0.0
13	--	--	3.0	2.0	0.0	0.0	--	--	0.0	0.0	0.0	0.0
14	--	--	2.0	0.5	0.0	0.0	--	--	0.0	0.0	0.0	0.0
15	--	--	0.5	0.5	0.0	0.0	--	--	0.0	0.0	0.0	0.0
16	--	--	0.5	0.5	0.0	0.0	--	--	0.0	0.0	0.0	0.0
17	--	--	0.5	0.5	0.0	0.0	--	--	0.0	0.0	0.0	0.0
18	--	--	1.0	0.5	0.0	0.0	--	--	0.0	0.0	0.0	0.0
19	--	--	2.0	1.5	1.5	0.0	--	--	0.0	0.0	0.0	0.0
20	5.0	5.0	2.0	2.0	2.0	0.0	--	--	0.0	0.0	0.0	0.0
21	5.0	5.0	2.0	2.0	2.0	0.0	--	--	0.0	0.0	0.0	0.0
22	5.5	5.0	2.5	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	5.5	5.5	2.5	2.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	5.5	5.5	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	5.5	5.5	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	5.5	5.0	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	5.5	5.0	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	5.5	5.5	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	5.5	4.5	3.0	1.5	0.0	0.0	0.0	0.0	--	--	0.0	0.0
30	4.5	3.5	1.5	1.5	0.0	0.0	0.0	0.0	--	--	0.0	0.0
31	4.5	3.5	--	--	0.0	0.0	0.0	0.0	--	--	0.0	0.0
AVG	--	--	3.1	2.7	0.3	0.0	--	--	0.0	0.0	0.0	0.0

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	7.0	5.5	10.0	9.5	16.5	13.5	12.5	11.5	10.5	10.5
2	0.0	0.0	7.0	6.0	9.5	9.5	16.5	15.0	14.5	11.5	11.5	10.5
3	0.0	0.0	7.0	5.5	9.5	9.0	17.5	13.5	14.5	12.5	11.5	10.0
4	0.0	0.0	6.0	5.0	9.5	9.0	17.5	15.0	17.5	13.0	11.5	10.0
5	0.0	0.0	6.0	5.0	12.0	9.5	16.5	13.5	17.0	13.0	11.0	9.5
6	0.0	0.0	6.0	4.5	15.0	9.5	16.5	15.0	16.0	14.0	10.5	10.5
7	0.0	0.0	6.0	5.5	17.0	12.0	15.5	14.5	14.0	13.0	10.5	9.5
8	0.0	0.0	9.0	5.5	18.0	13.0	15.0	14.5	13.0	11.5	9.5	9.5
9	0.5	0.0	8.0	6.0	19.0	13.5	15.0	12.0	11.5	11.0	10.0	9.5
10	0.5	0.5	8.0	6.5	19.5	13.5	12.0	11.5	11.0	10.5	10.5	10.0
11	0.5	0.5	7.0	6.0	20.0	14.5	11.5	11.0	10.5	10.0	10.5	10.0
12	0.5	0.5	7.0	6.0	20.5	14.5	11.0	10.5	10.5	10.5	10.5	9.5
13	2.0	0.5	9.0	5.5	22.0	16.0	11.0	10.5	10.5	10.5	10.0	9.0
14	3.0	2.0	9.5	6.5	21.0	16.5	11.0	10.5	10.5	9.5	10.0	9.5
15	3.0	2.5	10.5	6.5	22.0	16.0	11.5	10.5	10.5	9.5	10.0	9.0
16	3.0	2.5	11.0	7.0	21.5	16.5	12.0	11.5	10.0	9.0	9.5	9.5
17	3.5	2.5	11.0	7.5	21.5	17.0	14.0	10.5	9.0	9.0	10.5	9.5
18	3.5	3.0	11.0	7.5	22.5	17.0	16.0	11.5	9.0	9.0	11.5	10.0
19	4.0	2.5	11.0	8.0	21.5	16.5	15.5	13.5	9.0	9.0	11.5	10.0
20	4.0	3.0	11.0	9.5	20.0	15.5	14.0	13.0	10.0	9.0	11.0	10.0
21	3.5	3.0	12.5	9.5	19.0	16.0	14.0	12.5	10.0	9.5	10.5	10.5
22	4.0	3.0	12.0	10.0	17.0	15.5	13.5	12.0	10.5	9.5	10.5	10.5
23	4.5	3.0	13.5	10.0	16.0	15.0	13.5	12.0	11.0	8.5	10.5	10.5
24	5.0	4.0	13.0	10.5	15.5	14.5	13.0	10.5	11.0	9.0	10.5	9.5
25	5.0	4.0	11.0	10.0	15.5	14.0	13.0	11.5	11.0	10.5	10.0	9.5
26	4.5	4.0	10.5	9.0	18.0	14.0	11.5	10.5	11.5	10.5	10.0	9.5
27	4.0	3.0	11.5	9.0	18.0	15.0	13.5	10.0	12.5	11.0	10.5	9.5
28	5.5	3.5	12.0	9.5	20.0	15.5	14.5	10.0	12.5	10.5	10.0	9.0
29	6.0	4.0	12.0	10.5	19.5	16.0	14.5	12.0	12.0	11.5	10.0	9.5
30	6.0	4.5	11.0	9.5	16.0	15.0	12.5	12.0	11.5	11.5	9.5	9.5
31	--	--	10.5	10.0	--	--	12.5	11.5	11.5	10.5	--	--
AVG	2.5	1.8	9.5	7.5	17.5	13.9	13.9	12.1	11.8	10.6	10.4	9.7

15085100 OLD TOM CREEK NEAR KASAAN, ALASKA

LOCATION.--Lat 55°23'44", long 132°24'25", in SW¼NW¼ sec.6, T.75 S., R.86 E., temperature recorder at gaging station on Prince of Wales Island, in Tongass National Forest, 1,000 ft upstream from mouth at Skowl Arm of Kasaan Bay, 0.4 mile downstream from unnamed tributary, and 10 miles south of Kasaan.

DRAINAGE AREA.--5.90 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1966 to September 1967 (miscellaneous).
Water temperatures: October 1964 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 14.5°C June 28, July 18; minimum, freezing point on many days during December to February.

Period of record:
Water temperatures: Maximum, 16.0°C on several days during July and August 1966; minimum, freezing point on several days during winter periods.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	5.0	4.5	3.0	2.5	0.0	0.0	0.0	0.0	0.5	0.5
2	--	--	5.0	5.0	2.5	1.5	0.0	0.0	0.0	0.0	0.5	0.5
3	--	--	5.0	5.0	1.5	0.5	0.0	0.0	0.0	0.0	0.5	0.5
4	--	--	5.0	5.0	1.0	0.5	0.0	0.0	0.0	0.0	0.5	0.5
5	--	--	5.0	5.0	1.0	1.0	0.0	0.0	.0	0.0	0.5	0.5
6	--	--	5.0	5.0	1.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
7	--	--	5.0	5.0	0.5	0.5	0.0	0.0	0.0	0.0	1.0	0.5
8	--	--	5.0	5.0	0.5	0.5	0.0	0.0	0.0	0.0	1.0	1.0
9	--	--	5.0	5.0	0.5	0.5	0.0	0.0	0.0	0.0	1.0	1.0
10	--	--	5.0	4.5	1.0	0.5	0.0	0.0	0.0	0.0	1.0	1.0
11	--	--	4.5	4.0	1.0	0.5	0.0	0.0	0.0	0.0	1.0	1.0
12	--	--	4.0	4.0	0.5	0.5	0.0	0.0	0.0	0.0	1.0	1.0
13	--	--	4.0	3.5	1.0	0.5	0.0	0.0	0.0	0.0	1.0	1.0
14	--	--	3.5	3.0	1.0	0.5	0.0	0.0	0.0	0.0	1.0	0.5
15	5.0	5.0	3.0	2.0	1.0	1.0	0.0	0.0	0.5	0.0	1.0	0.5
16	5.5	5.0	2.0	2.0	1.0	1.0	0.0	0.0	0.5	0.5	1.0	1.0
17	5.5	5.5	2.0	2.0	1.0	1.0	0.0	0.0	0.5	0.5	1.0	1.0
18	5.5	5.5	3.0	2.0	1.0	1.0	0.0	0.0	0.5	0.5	1.5	1.0
19	6.0	5.5	3.5	3.0	1.0	0.5	0.0	0.0	0.5	0.5	1.5	1.0
20	6.0	5.5	3.5	3.5	0.5	0.5	0.0	0.0	0.5	0.5	1.0	1.0
21	5.5	5.5	3.5	3.5	0.5	0.0	0.0	0.0	0.5	0.5	1.5	1.0
22	5.5	5.5	3.5	3.5	0.0	0.0	0.0	0.0	0.5	0.5	1.5	1.5
23	5.5	5.5	3.5	3.5	0.0	0.0	0.0	0.0	0.5	0.5	1.5	1.5
24	5.5	5.5	3.5	3.5	0.0	0.0	0.0	0.0	0.5	0.5	1.5	1.5
25	5.5	5.5	3.5	3.5	0.0	0.0	0.0	0.0	0.5	0.5	1.5	1.5
26	5.5	5.0	3.5	3.5	0.0	0.0	0.0	0.0	0.5	0.5	1.5	1.5
27	5.5	4.5	3.5	3.5	0.0	0.0	0.0	0.0	0.5	0.5	1.5	1.5
28	5.5	5.5	3.5	3.5	0.0	0.0	0.0	0.0	0.5	0.5	1.5	1.5
29	5.5	5.5	3.5	3.0	0.0	0.0	0.0	0.0	--	--	1.5	1.5
30	5.5	4.5	3.0	3.0	0.0	0.0	0.0	0.0	--	--	1.5	1.0
31	4.5	4.5	--	--	0.0	0.0	0.0	0.0	--	--	1.5	1.0
AVG	--	--	3.9	3.7	0.7	0.4	0.0	0.0	0.2	0.2	1.1	0.9

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	1.5	1.0	4.5	3.5	6.0	6.0	14.0	12.5	12.0	11.5	11.0	11.0
2	1.0	1.0	4.0	3.5	6.0	6.0	14.0	12.5	12.0	11.5	11.0	10.5
3	1.5	1.5	3.5	3.5	6.0	6.0	13.0	12.5	12.0	11.5	10.5	10.5
4	1.5	1.5	4.0	3.5	6.0	6.0	13.0	12.5	13.5	12.0	10.5	10.0
5	2.0	1.5	4.0	3.5	6.5	6.0	13.5	12.0	14.0	12.0	10.5	10.0
6	2.0	1.5	4.0	3.5	8.0	6.0	13.5	13.0	13.5	13.0	10.5	10.5
7	2.0	2.0	5.0	4.0	8.5	7.0	13.0	13.0	13.0	12.5	10.5	10.0
8	2.0	2.0	5.0	4.0	8.5	7.5	13.0	13.0	12.5	12.5	10.0	10.0
9	2.0	2.0	4.5	4.0	9.0	7.5	13.0	12.5	12.5	12.0	10.5	10.0
10	2.0	1.5	4.0	4.0	9.0	7.5	12.5	11.5	12.0	11.5	10.5	10.5
11	2.0	1.5	4.0	4.0	9.0	8.0	11.5	11.5	12.0	11.0	11.0	10.5
12	2.0	2.0	4.5	4.0	9.5	8.0	11.5	11.5	11.5	11.0	11.0	10.5
13	2.0	2.0	4.5	3.5	10.0	8.5	11.5	11.5	11.0	11.0	10.5	10.0
14	2.0	2.0	5.0	4.0	10.5	9.0	11.5	11.5	11.0	11.0	10.0	10.0
15	2.0	2.0	5.5	4.0	11.0	9.0	11.5	11.0	11.0	10.5	10.0	10.0
16	2.0	1.5	5.5	4.0	11.5	9.5	12.0	11.5	10.5	10.0	10.0	10.0
17	3.0	1.5	5.5	4.0	12.5	10.0	12.0	11.0	10.0	10.0	10.0	10.0
18	3.0	2.5	5.5	4.5	13.5	11.0	14.5	11.5	10.0	10.0	10.0	10.0
19	3.0	2.5	5.5	4.5	14.0	12.0	14.0	13.0	10.0	10.0	10.5	10.0
20	3.0	3.0	5.5	5.0	14.0	12.0	13.0	12.5	10.0	10.0	10.5	10.5
21	3.0	2.0	6.0	5.0	13.5	13.0	13.0	12.5	10.0	10.0	10.5	10.5
22	3.5	2.5	6.0	5.5	13.0	12.5	13.0	12.5	10.5	10.0	10.5	10.5
23	3.5	3.0	6.5	5.5	12.5	12.5	13.0	12.5	10.5	9.5	10.5	10.5
24	3.5	3.5	6.0	6.0	12.5	12.0	13.0	12.0	10.5	9.5	10.5	10.5
25	3.5	3.0	6.0	5.5	12.0	11.5	--	--	10.5	10.0	10.5	10.0
26	3.0	2.5	6.0	5.5	12.5	11.5	--	--	10.5	10.5	10.0	10.0
27	3.0	2.5	6.5	5.5	13.0	11.5	--	--	11.0	10.5	10.0	10.0
28	3.5	3.0	6.5	5.5	14.5	12.0	--	--	11.0	10.5	10.0	10.0
29	4.5	3.0	6.5	6.0	13.5	13.0	12.0	11.5	11.0	11.0	10.0	10.0
30	4.0	3.5	6.0	6.0	13.5	13.0	12.0	11.5	11.0	11.0	10.0	9.5
31	--	--	6.0	6.0	--	--	--	--	11.0	11.0	--	--
AVG	2.5	2.1	5.2	4.5	10.6	9.5	12.7	12.0	11.3	10.9	10.3	10.2

15086600 BIG CREEK NEAR POINT BAKER, ALASKA

LOCATION.--Lat 56°07'54", long 133°08'36", temperature recorder at gaging station on Prince of Wales Island, in Tongass National Forest, 1 mile upstream from mouth at Whale Passage, 2.5 miles downstream from small unnamed lake, and 24 miles southeast of Point Baker.

DRAINAGE AREA.--11.2 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1968 to September 1969.
Water temperatures: August 1963 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 23.5°C June 13; minimum, freezing point on many days during January to March.

Period of record:
Water temperatures: Maximum, 23.5°C June 13, 1969; minimum, freezing point on many days during winter periods.

REMARKS.--Chemical analyses for this station in "Analyses of Samples Collected at Miscellaneous Sites in Alaska."

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	7.5	5.5	5.5	--	--	--	--	0.0	0.0	0.5	0.0
2	7.5	7.0	5.5	5.5	--	--	--	--	0.0	0.0	0.5	0.5
3	7.0	7.0	5.5	5.5	--	--	--	--	0.5	0.0	0.5	0.5
4	7.0	7.0	5.5	5.5	--	--	--	--	0.5	0.5	0.5	0.5
5	7.0	7.0	5.5	5.5	--	--	--	--	0.5	0.5	0.5	0.5
6	7.0	7.0	5.5	5.5	--	--	--	--	0.5	0.5	0.5	0.5
7	7.0	6.5	5.5	5.5	--	--	--	--	0.5	0.5	0.5	0.5
8	6.5	6.5	5.5	5.5	--	--	--	--	0.5	0.5	0.5	0.5
9	6.5	6.5	5.5	5.5	--	--	--	--	0.5	0.5	0.5	0.5
10	6.5	6.0	5.5	5.5	--	--	--	--	0.5	0.5	0.5	0.5
11	6.0	5.5	5.5	5.5	--	--	0.0	0.0	0.5	0.5	0.5	0.5
12	5.5	5.5	5.5	5.0	--	--	0.0	0.0	0.5	0.5	0.5	0.5
13	5.5	5.5	5.0	4.5	--	--	0.0	0.0	0.5	0.5	0.5	0.5
14	5.5	5.5	4.5	3.5	--	--	0.5	0.0	0.5	0.0	0.5	0.5
15	5.5	5.5	4.0	3.5	--	--	0.5	0.5	0.0	0.0	0.5	0.5
16	5.5	5.5	3.5	3.5	--	--	0.5	0.5	0.0	0.0	0.5	0.5
17	5.5	5.5	3.5	3.5	--	--	0.5	0.5	0.0	0.0	0.5	0.5
18	5.5	5.5	4.0	3.5	--	--	0.5	0.5	0.0	0.0	1.0	0.5
19	6.0	5.5	4.0	4.0	--	--	0.5	0.5	0.5	0.0	1.5	0.5
20	5.0	6.0	4.5	4.0	--	--	0.5	0.5	0.5	0.5	1.0	0.5
21	6.0	6.0	4.5	4.5	--	--	0.5	0.0	0.5	0.5	1.5	0.5
22	6.0	6.0	4.5	4.5	--	--	0.5	0.0	0.5	0.5	2.5	1.0
23	6.0	6.0	4.5	4.5	--	--	0.0	0.0	0.5	0.0	2.5	1.5
24	6.0	6.0	4.5	4.5	--	--	0.0	0.0	0.5	0.0	1.5	1.0
25	6.0	6.0	4.5	4.5	--	--	0.0	0.0	0.5	0.0	1.5	1.0
26	6.0	6.0	4.5	4.5	--	--	0.0	0.0	0.5	0.0	2.5	1.5
27	6.0	6.0	4.5	4.5	--	--	0.0	0.0	0.5	0.0	3.5	2.5
28	6.0	6.0	4.5	4.5	--	--	0.0	0.0	0.5	0.0	4.0	2.5
29	5.5	5.5	--	--	--	--	0.0	0.0	--	--	4.0	2.5
30	5.5	5.5	--	--	--	--	0.0	0.0	--	--	2.5	2.5
31	5.5	5.5	--	--	--	--	0.0	0.0	--	--	3.5	2.5
AVG	6.1	6.0	4.8	4.6	--	--	--	--	0.3	0.2	1.3	0.9

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.5	2.5	6.0	5.0	11.5	11.0	18.0	13.5	14.5	12.5	11.5	11.0
2	3.5	2.5	6.0	5.0	11.0	9.5	17.0	15.0	15.0	12.5	12.0	11.0
3	3.5	2.5	6.0	5.0	10.5	10.0	16.0	13.5	15.5	13.5	12.0	11.0
4	4.0	2.5	5.5	5.0	11.0	10.0	15.5	13.0	17.0	13.5	12.0	11.0
5	4.5	2.5	5.5	5.0	12.5	10.0	17.5	13.5	18.0	13.5	12.0	11.5
6	4.5	2.5	6.0	4.5	15.5	10.5	15.5	15.0	16.5	14.5	11.5	11.0
7	4.0	3.5	5.5	5.0	17.5	12.0	15.5	14.5	14.5	11.5	11.0	10.5
8	4.0	3.5	7.0	5.0	19.0	13.0	15.0	11.5	13.5	12.5	11.0	10.5
9	4.0	3.5	8.0	6.5	21.0	14.5	13.0	12.0	13.0	12.0	11.0	10.5
10	3.5	3.5	7.5	6.5	21.0	15.0	12.5	12.0	12.5	11.0	11.5	10.5
11	4.0	3.5	7.0	6.0	21.5	15.0	12.5	12.0	13.0	11.0	11.5	11.0
12	3.5	2.5	7.0	6.0	22.0	15.5	13.0	12.5	12.0	11.5	11.5	11.0
13	5.0	2.5	9.0	5.5	23.5	16.5	13.0	12.5	12.0	11.0	11.5	10.5
14	4.0	3.5	9.0	6.5	22.0	16.5	12.5	12.5	12.0	11.5	12.0	11.0
15	4.0	3.5	11.5	7.0	22.5	16.5	13.5	12.5	12.0	11.5	12.0	11.0
16	3.5	3.5	12.5	7.5	22.0	16.5	13.5	12.5	11.5	10.0	10.5	10.0
17	4.0	3.5	13.5	9.0	22.0	16.5	17.5	12.5	10.5	10.5	10.5	10.0
18	4.0	3.5	14.5	9.5	22.0	16.0	19.0	13.5	10.5	10.5	11.5	10.0
19	4.0	3.5	14.5	9.5	21.0	15.5	15.5	15.5	11.0	10.5	11.5	9.5
20	4.0	3.5	13.5	11.0	19.0	15.5	16.5	15.0	11.0	10.5	11.0	9.5
21	4.5	4.0	16.0	11.5	17.0	15.0	16.0	15.0	11.5	10.5	10.5	10.0
22	5.0	3.5	15.0	12.5	16.5	15.5	15.0	13.5	12.5	11.0	10.5	10.0
23	5.0	3.5	17.0	12.5	17.0	15.0	14.0	13.0	13.0	10.5	11.0	10.0
24	5.0	4.0	15.0	12.5	17.0	15.0	15.0	12.5	13.5	10.5	10.5	9.5
25	5.0	4.0	14.5	12.0	16.5	15.0	14.5	12.5	12.5	11.5	10.5	9.0
26	4.5	4.0	15.0	12.5	18.0	15.0	14.5	12.5	14.0	12.0	11.0	10.0
27	4.5	4.0	15.5	12.5	19.0	15.5	15.0	12.0	15.0	12.0	11.0	9.5
28	6.0	4.0	14.5	13.0	20.5	16.0	16.0	12.5	15.0	12.0	10.5	9.5
29	6.0	4.0	13.0	11.5	19.5	16.0	14.5	13.0	13.0	12.0	10.5	9.5
30	6.0	4.5	13.5	12.0	16.5	15.5	14.5	13.0	12.5	11.0	9.5	9.0
31	--	--	13.0	10.5	--	--	13.5	13.0	11.5	10.5	--	--
AVG	4.3	3.3	10.8	8.4	18.1	14.3	14.9	13.1	13.2	11.5	11.1	10.2

15093400 SASHIN CREEK NEAR BIG PORT WALTER, ALASKA

LOCATION.--Lat 56°22'32", long 134°39'40", in NW¼SW¼ sec.28, T.63 S., R.69 E., temperature recorder at gaging station on Baranof Island, in Tongass National Forest, 0.7 mile upstream from mouth at Little Port Walter, 1 mile downstream from Sashin Lake, and 2.6 miles east of Big Port Walter.

DRAINAGE AREA.--2.68 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1966 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 16.0°C June 17.

Period of record:
Water temperatures: Maximum (1968-69), 16.0°C June 17, 1969; minimum (1966-68), freezing point on many days during March and April 1967.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	--	--	--	--	--	--	1.0	1.0
2	--	--	--	--	--	--	--	--	--	--	1.0	1.0
3	--	--	--	--	--	--	--	--	--	--	1.0	1.0
4	--	--	--	--	--	--	--	--	--	--	1.0	1.0
5	--	--	--	--	--	--	--	--	--	--	1.0	1.0
6	--	--	--	--	--	--	--	--	--	--	1.0	1.0
7	--	--	--	--	--	--	--	--	--	--	1.0	1.0
8	--	--	--	--	--	--	--	--	--	--	1.0	1.0
9	--	--	--	--	--	--	--	--	0.5	0.5	1.0	1.0
10	--	--	--	--	--	--	--	--	0.5	0.5	1.0	1.0
11	--	--	--	--	--	--	--	--	0.5	0.5	1.0	1.0
12	--	--	--	--	--	--	--	--	0.5	0.5	1.0	1.0
13	--	--	--	--	--	--	--	--	0.5	0.5	1.0	1.0
14	--	--	--	--	--	--	--	--	0.5	0.5	1.0	1.0
15	--	--	--	--	--	--	--	--	0.5	0.5	1.0	1.0
16	--	--	--	--	--	--	--	--	0.5	0.5	1.0	1.0
17	--	--	--	--	--	--	--	--	1.0	0.5	1.0	1.0
18	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
19	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
20	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
21	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
22	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
23	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
24	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
25	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
26	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
27	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
28	--	--	--	--	--	--	--	--	1.0	1.0	1.0	1.0
29	--	--	--	--	--	--	--	--	--	--	1.0	1.0
30	--	--	--	--	--	--	--	--	--	--	1.0	1.0
31	--	--	--	--	--	--	--	--	--	--	1.0	1.0
AVG	--	--	--	--	--	--	--	--	--	--	1.0	1.0

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	1.0	1.0	3.0	2.5	4.5	4.0	15.5	13.0	12.0	11.5	10.5	10.0
2	1.0	1.0	2.5	2.0	5.0	4.0	14.0	12.5	12.0	10.0	11.0	10.0
3	1.0	1.0	2.5	1.5	4.0	4.0	15.0	13.0	12.0	11.0	11.0	10.5
4	1.0	1.0	2.5	1.5	4.5	4.0	14.0	13.5	13.0	11.0	11.0	10.0
5	1.5	1.0	2.5	2.0	6.0	4.5	14.5	12.5	13.0	11.0	10.5	10.0
6	1.5	1.5	3.0	2.5	6.5	5.0	14.5	13.5	13.0	12.5	10.5	10.5
7	1.5	1.0	3.0	2.5	8.5	5.5	14.0	13.5	13.0	12.5	10.5	10.0
8	1.5	1.0	3.0	2.5	8.5	7.0	13.5	11.5	12.5	12.0	10.5	10.0
9	1.5	1.0	3.0	2.5	9.0	7.0	11.5	10.5	12.0	11.0	10.0	10.0
10	1.5	1.5	3.0	2.5	10.5	7.0	11.0	10.0	12.0	10.0	10.0	9.5
11	1.5	1.5	3.0	2.5	10.5	8.5	10.0	10.0	12.0	10.0	10.0	9.5
12	2.0	1.5	3.5	3.0	10.0	8.5	10.5	10.5	11.5	10.0	9.5	9.0
13	2.0	2.0	3.5	2.5	11.0	9.0	10.5	10.5	10.5	10.0	9.5	9.0
14	2.0	2.0	3.0	2.5	10.5	9.5	11.5	10.5	10.5	10.0	9.5	9.0
15	2.0	1.5	3.5	2.5	12.0	9.5	12.0	11.0	10.5	10.0	9.5	9.0
16	1.5	1.5	4.0	2.5	12.5	11.0	11.5	11.5	10.0	8.5	9.5	9.0
17	1.5	1.5	4.5	3.0	16.0	12.0	12.0	11.5	8.5	8.5	9.0	9.0
18	1.5	1.5	4.5	3.0	14.5	10.5	13.0	11.0	8.5	8.5	9.5	9.0
19	1.5	1.5	4.0	3.5	13.5	10.5	12.5	11.5	8.5	8.0	9.5	9.0
20	1.5	1.5	4.0	3.5	13.5	11.0	13.5	11.5	8.0	8.0	9.5	9.0
21	1.5	1.0	4.5	3.5	13.0	12.5	12.5	11.5	9.0	8.0	10.0	9.5
22	1.5	1.0	4.0	3.5	12.0	11.5	12.0	11.0	9.0	8.5	9.5	9.5
23	2.0	1.5	4.5	3.5	12.0	10.5	11.5	10.5	9.0	8.0	9.5	9.5
24	2.0	2.0	3.5	3.5	12.0	11.0	12.0	10.0	9.5	8.0	9.5	9.5
25	2.0	2.0	4.0	3.5	12.5	11.0	12.0	11.5	9.5	9.0	9.5	9.0
26	2.0	1.5	4.5	3.5	13.0	11.5	11.0	10.5	10.5	9.5	9.5	9.5
27	2.0	1.5	5.0	4.0	14.5	11.0	11.5	10.5	11.0	10.0	9.5	9.5
28	3.0	2.5	4.0	4.0	15.0	12.5	13.0	10.5	11.0	9.5	9.5	9.5
29	3.0	2.5	4.0	4.0	14.0	12.0	11.5	11.5	10.5	10.0	9.5	9.0
30	3.0	2.5	4.0	4.0	13.5	12.0	12.0	11.0	10.5	10.0	9.0	9.0
31	--	--	4.0	4.0	--	--	12.0	11.5	10.5	10.0	--	--
AVG	1.7	1.5	3.5	2.9	10.7	8.9	12.4	11.3	10.7	9.8	9.8	9.4

15093600 EAST BRANCH LOVERS COVE CREEK NEAR BIG PORT WALTER, ALASKA

LOCATION.--Lat 36°23'33", long 134°42'47", in NE¼SE¼ sec.24, T.63 S., R.68 E., temperature recorder at gaging station on Baranof Island, in Tongass National Forest, 300 ft upstream from mouth at Lovers Cove and 1.2 miles northeast of Big Port Walter.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--Water temperatures: October 1965 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 10.5°C June 27-30; minimum, freezing point on several days during winter period.

Period of record:
Water temperatures: Maximum, 22.0°C Aug. 10, 13, 1969; minimum (1967-69), freezing point on several days during winter periods.

REMARKS.--Water temperatures affected by submergence by high tides.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.5	6.5	5.0	5.0	5.0	4.0	2.0	0.0	--	--	--	--
2	6.5	6.5	5.5	5.0	4.5	3.5	5.0	0.5	--	--	--	--
3	6.5	6.5	6.0	5.0	4.5	3.5	3.5	1.0	--	--	--	--
4	6.5	6.5	5.5	5.0	5.0	3.5	5.0	1.0	--	--	--	--
5	6.5	6.5	5.0	5.0	5.5	3.5	5.0	1.0	--	--	--	--
6	7.5	6.5	5.0	5.0	3.5	2.5	3.5	0.5	--	--	3.0	2.0
7	8.0	6.5	5.0	5.0	4.5	3.0	1.0	0.0	--	--	3.0	2.0
8	7.0	6.5	5.0	5.0	4.5	3.0	1.5	0.5	--	--	4.5	1.5
9	7.5	6.5	5.5	5.0	4.0	2.5	1.0	0.5	--	--	3.0	1.5
10	7.5	6.5	5.0	5.0	3.0	3.0	--	--	--	--	7.0	1.0
11	7.0	6.0	5.0	5.0	3.0	3.0	--	--	--	--	3.0	1.0
12	6.5	6.0	5.0	5.0	3.0	3.0	--	--	--	--	4.0	0.0
13	6.0	6.0	5.0	4.5	3.0	3.0	--	--	--	--	0.5	0.0
14	6.0	6.0	4.5	4.5	3.0	3.0	--	--	--	--	1.0	0.0
15	6.0	6.0	4.5	4.5	3.0	3.0	--	--	--	--	2.5	0.5
16	6.0	6.0	4.5	4.5	3.5	3.0	--	--	--	--	4.0	0.0
17	6.0	6.0	4.5	4.0	4.0	3.5	--	--	--	--	3.5	0.0
18	6.0	6.0	4.0	4.0	4.0	3.5	--	--	--	--	3.0	0.0
19	6.0	6.0	5.0	4.0	4.5	3.5	--	--	--	--	3.5	0.0
20	6.5	6.0	5.5	5.0	4.5	3.5	--	--	--	--	3.0	0.5
21	6.0	6.0	5.0	4.5	4.0	3.0	--	--	--	--	3.0	1.5
22	6.5	5.5	5.0	4.5	4.0	2.5	--	--	--	--	4.0	1.5
23	6.5	5.5	5.0	4.5	3.0	2.5	--	--	--	--	3.5	0.5
24	6.5	5.5	5.0	4.5	3.0	2.0	--	--	--	--	3.0	0.5
25	7.0	5.5	4.5	4.0	2.0	2.0	--	--	--	--	3.0	1.5
26	6.0	5.5	4.0	4.0	2.0	1.5	--	--	--	--	2.5	2.5
27	5.5	5.5	4.0	4.0	1.5	0.0	--	--	--	--	2.5	2.5
28	5.5	5.5	4.0	4.0	1.5	0.0	--	--	--	--	2.5	2.5
29	5.5	5.5	4.0	4.0	1.5	0.0	--	--	--	--	2.5	2.5
30	5.5	5.0	4.0	4.0	1.5	0.0	--	--	--	--	2.5	2.5
31	5.5	5.0	--	--	1.5	0.0	--	--	--	--	2.5	2.0
AVG	6.3	5.9	4.8	4.5	3.3	2.5	--	--	--	--	3.0	1.1

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	2.5	2.5	5.5	3.0	6.0	3.0	9.5	4.5	9.0	5.0	5.5	5.5
2	3.0	2.5	5.0	2.5	6.0	3.0	9.5	4.5	5.5	5.0	5.5	5.5
3	3.0	2.5	5.0	2.5	5.0	3.0	9.0	4.5	8.0	5.0	5.5	5.5
4	3.5	2.5	4.5	2.5	5.0	3.0	8.5	4.5	5.5	5.0	6.0	5.5
5	3.5	2.5	3.5	2.0	4.0	3.0	5.0	4.5	5.5	5.0	5.0	6.0
6	4.0	2.5	4.0	2.5	3.5	3.0	5.0	5.0	5.0	5.0	6.0	6.0
7	4.0	2.0	2.5	2.5	3.0	3.0	5.0	4.5	5.0	5.0	6.0	6.0
8	2.5	2.0	2.5	2.0	3.5	3.0	4.5	4.5	5.0	5.0	6.0	6.0
9	2.0	2.0	2.5	2.5	3.5	3.0	5.5	4.5	5.0	5.0	6.5	6.0
10	2.0	2.0	2.5	2.5	3.5	3.5	5.0	5.0	5.0	5.0	6.5	6.0
11	2.5	2.0	2.5	2.5	3.5	3.5	5.0	5.0	7.0	5.0	6.0	6.0
12	2.5	2.5	4.5	2.5	3.5	3.5	5.0	4.5	9.0	5.5	6.0	5.5
13	3.5	1.5	4.5	2.5	3.5	3.5	4.5	4.5	9.0	5.5	5.5	5.5
14	3.5	3.0	5.0	2.5	3.5	3.5	6.5	4.5	7.5	5.5	6.0	5.5
15	3.0	2.0	5.0	2.5	4.0	3.5	7.0	5.0	7.5	5.5	6.0	6.0
16	2.5	2.0	6.0	2.5	4.0	3.5	7.0	5.5	5.5	5.5	6.0	6.0
17	2.5	2.0	6.0	2.5	4.0	3.5	5.5	5.0	5.5	5.5	6.0	6.0
18	3.5	2.5	5.5	2.5	4.0	3.5	5.0	5.0	5.5	5.5	6.0	6.0
19	3.0	3.0	5.5	2.5	4.0	4.0	5.0	5.0	5.5	5.5	6.0	6.0
20	3.5	3.0	2.5	2.5	4.0	4.0	5.0	5.0	5.5	5.5	6.0	6.0
21	3.5	3.0	3.0	2.5	4.0	4.0	5.0	5.0	5.5	5.5	6.0	6.0
22	3.0	3.0	2.5	2.5	4.0	4.0	5.0	5.0	5.5	5.5	7.0	6.0
23	3.0	3.0	2.5	2.5	4.0	4.0	5.0	5.0	8.0	5.5	7.0	6.5
24	3.0	3.0	2.5	2.5	4.0	4.0	5.0	5.0	7.5	6.0	7.0	6.5
25	3.0	3.0	2.5	2.5	7.0	4.0	8.0	5.0	7.5	6.0	7.0	6.0
26	3.0	2.0	2.5	2.5	10.0	4.5	9.0	5.0	7.0	5.5	7.5	6.0
27	2.5	2.0	2.5	2.5	10.5	4.5	9.0	5.0	7.5	5.5	7.5	6.0
28	3.0	2.5	5.5	2.5	10.5	4.5	9.5	5.0	7.5	6.0	7.5	6.0
29	3.0	2.5	5.5	2.5	10.5	4.5	9.5	5.5	7.0	6.0	6.5	6.5
30	5.0	3.0	6.5	2.5	10.5	4.5	9.5	5.5	6.5	5.5	6.5	6.0
31	--	--	6.5	2.5	--	--	9.0	5.5	6.0	5.5	--	--
AVG	3.0	2.4	4.0	2.4	5.2	3.6	6.6	4.8	6.5	5.3	6.2	5.9

15106920 KADASHAN RIVER ABOVE HOOK CREEK, NEAR TENAKEE, ALASKA

LOCATION.--Lat 57°39'59", long 135°11'26", in SE¼NW¼ sec.34, T.48 S., R.63 E., on Chichagof Island in Tongass National Forest, temperature recorder at gaging station on left bank, 0.6 mile upstream from Hook Creek, 3.5 miles upstream from mouth at Kadashan Bay, and 9 miles south of Tenakee.

DRAINAGE AREA.--10.4 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).
Water temperatures: October 1967 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 10.6°C on several days during June to August; minimum, 0.6°C on many days during February and March.

Period of record:
Water temperatures: Maximum, 12.0°C Aug. 22, 1968; minimum, 0.6°C on many days during February and March 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
30...	35	5.3	130	8.7	.7	1.9	.4	29	3.3
APR.									
22...	132	4.3	130	5.6	.5	2.6	.1	14	3.0
JUNE									
18...	41	3.8	80	7.8	.9	1.9	.3	25	3.4
AUG.									
14...	72	4.2	130	6.6	.4	1.9	.3	20	3.4

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)
OCT.								
30...	2.8	.0	38	25	1	67	7.0	5
APR.								
22...	4.2	.1	27	16	3	45	7.1	55
JUNE								
18...	2.5	.1	34	23	4	52	7.5	10
AUG.								
14...	2.1	.1	31	18	2	42	7.0	30

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.0	4.4	3.3	3.3	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6
2	5.6	3.3	3.3	3.3	2.2	1.7	1.1	1.1	1.1	1.1	0.6	0.6
3	6.1	5.0	3.3	3.3	1.7	1.7	1.1	1.1	1.1	1.1	0.6	0.6
4	6.7	5.6	3.3	3.3	1.7	1.7	1.1	1.1	1.1	1.1	0.6	0.6
5	7.2	6.1	3.3	3.3	1.7	1.7	1.1	1.1	1.1	1.1	0.6	0.6
6	7.8	3.3	3.3	3.3	1.7	1.7	1.1	1.1	1.1	0.6	0.6	0.6
7	6.1	3.3	3.3	3.3	1.7	1.7	1.1	1.1	0.6	0.6	0.6	0.6
8	7.8	6.1	3.3	3.3	1.7	1.7	1.1	1.1	0.6	0.6	0.6	0.6
9	6.1	5.0	3.3	3.3	1.7	1.7	1.1	1.1	0.6	0.6	0.6	0.6
10	5.0	3.9	3.3	3.3	1.7	1.7	1.1	1.1	0.6	0.6	0.6	0.6
11	3.9	3.9	3.3	3.3	1.7	1.7	1.1	1.1	0.6	0.6	0.6	0.6
12	3.9	3.9	3.3	3.3	1.7	1.7	1.1	1.1	0.6	0.6	0.6	0.6
13	5.0	3.9	3.3	2.8	1.7	1.7	1.1	1.1	0.6	0.6	0.6	0.6
14	5.6	4.4	2.8	2.8	1.7	1.1	1.1	1.1	0.6	0.6	0.6	0.6
15	5.6	5.6	2.8	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
16	6.1	5.6	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
17	6.1	5.6	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
18	5.6	4.4	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
19	4.4	4.4	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
20	4.4	4.4	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
21	4.4	4.4	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
22	4.4	4.4	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
23	4.4	4.4	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
24	4.4	4.4	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
25	4.4	2.8	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
26	2.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
27	2.2	1.1	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
28	3.9	1.1	2.2	2.2	1.1	1.1	1.1	1.1	0.6	0.6	0.6	0.6
29	--	--	2.2	2.2	1.1	1.1	1.1	1.1	--	--	1.1	0.6
30	3.3	3.3	2.2	2.2	1.1	1.1	1.1	1.1	--	--	1.1	1.1
31	3.3	3.3	--	--	1.1	1.1	1.1	1.1	--	--	1.1	1.1
AVG	5.0	4.1	2.7	2.6	1.4	1.3	1.1	1.1	0.7	0.6	0.6	0.6

15106920 KADASHAN RIVER ABOVE HOOK CREEK, NEAR TENAKEE, ALASKA--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	1.1	1.1	1.1	2.8	5.0	4.4	10.0	10.0	9.4	9.4	8.9	8.9
2	1.1	1.1	1.1	2.2	5.0	5.0	10.0	10.0	10.0	8.9	8.9	8.9
3	1.7	1.1	1.1	2.2	5.0	5.0	10.0	10.0	10.0	10.0	8.9	8.9
4	1.7	1.7	1.7	2.2	5.0	5.0	10.0	10.0	10.6	10.0	8.9	8.9
5	1.7	1.7	1.7	1.1	5.0	5.0	10.0	10.0	10.6	10.6	8.9	8.9
6	1.7	1.7	1.7	1.7	5.6	4.4	10.0	10.0	10.6	10.0	8.9	8.9
7	1.7	1.1	1.1	2.2	6.1	5.0	10.0	10.0	10.0	10.0	8.9	8.9
8	1.1	1.1	1.1	2.2	6.7	5.6	10.0	10.0	10.0	10.0	8.9	8.9
9	1.6	1.1	1.1	2.8	7.2	6.1	10.0	10.0	10.0	10.0	9.4	8.9
10	1.6	1.1	1.1	2.8	7.2	6.7	10.6	10.0	10.0	10.0	9.4	9.4
11	1.6	1.1	1.1	2.2	7.2	6.7	10.6	10.0	10.0	10.0	8.9	8.9
12	2.2	1.7	1.7	2.8	7.8	6.7	10.0	10.0	10.0	9.4	8.9	8.9
13	2.2	1.7	1.7	2.8	8.3	7.2	10.0	9.4	9.4	9.4	8.9	8.3
14	2.2	2.2	2.2	3.3	8.3	7.8	9.4	9.4	9.4	8.9	8.3	8.3
15	2.2	1.1	1.1	2.8	8.9	7.8	9.4	9.4	8.9	8.3	8.3	7.8
16	1.1	1.1	1.1	2.8	8.9	8.3	9.4	9.4	8.3	8.3	7.8	7.2
17	1.7	1.1	3.3	2.8	8.9	8.9	9.4	9.4	8.3	8.3	7.2	7.2
18	1.7	1.7	3.9	2.8	8.9	8.3	10.0	8.9	8.3	8.3	7.2	7.2
19	1.7	1.7	3.9	3.3	8.8	8.3	10.0	10.0	8.3	8.3	7.2	7.2
20	2.2	1.7	3.9	3.3	8.8	8.3	10.0	10.0	8.3	8.3	7.2	7.2
21	2.2	1.1	3.9	3.9	8.8	8.3	10.0	10.0	8.3	8.3	7.2	7.2
22	2.2	1.1	3.9	3.9	8.3	8.3	10.0	10.0	8.3	8.3	7.8	7.2
23	2.8	2.2	4.4	3.9	8.3	8.3	10.0	10.0	8.9	8.3	7.8	7.8
24	2.2	2.2	3.9	3.9	8.3	8.3	10.0	9.4	8.3	8.3	8.3	7.8
25	2.2	1.7	3.9	3.9	8.9	8.3	10.0	9.4	8.3	8.3	8.3	7.8
26	1.7	1.7	4.4	3.9	10.0	8.9	9.4	9.4	8.9	8.3	7.8	7.2
27	2.2	1.7	4.4	3.9	10.6	9.4	10.0	9.4	8.9	8.3	7.2	7.2
28	2.8	2.2	5.0	4.4	10.6	10.0	10.0	9.4	8.9	8.3	7.8	7.2
29	2.8	2.2	5.0	4.4	10.6	10.0	9.4	9.4	8.3	8.3	7.8	7.8
30	2.8	2.2	5.0	4.4	10.6	10.0	9.4	9.4	8.3	8.3	7.8	7.8
31	--	--	5.0	4.4	--	--	9.4	9.4	8.9	8.3	--	--
AVG	1.9	1.5	2.7	3.0	7.9	7.3	9.8	9.7	9.1	8.9	8.2	8.0

STREAMS ON CHICHAGOF ISLAND

15106940 HOOK CREEK ABOVE TRIBUTARY, NEAR TENAKEE, ALASKA

LOCATION.--Lat 57°40'49", long 135°07'58", in SW¼NE¼ sec.25, T.48 S., R.63 E., on Chichagof Island in Tongass National Forest, temperature recorder at gaging station on right bank, 0.5 mile upstream from unnamed tributary, 2.5 miles upstream from confluence with Kadashan River, and 9 miles south of Tenakee.

DRAINAGE AREA (revised).--4.48 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1968 (miscellaneous), October 1968 to September 1969 (monthly).

Water temperatures: August 1967 to September 1969.

Sediment records: October 1967 to September 1968 (partial records).

EXTREMES.--1968-69:

Water temperatures: Maximum, 11.0°C June 27; minimum, freezing point on many days during winter period.

Period of record:

Water temperatures: Maximum, 12.0°C on many days during July and August in 1968; minimum, freezing point on many days during winter periods.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
30...	17	3.6	--	12	.7	1.8	.8	24	2.5
FEB.									
06...	2.6	5.0	--	16	.9	2.3	.3	54	1.0
APR.									
22...	46	3.0	90	5.0	.4	1.6	.1	14	1.0
JUNE									
18...	22	3.6	--	11	.7	1.6	.2	37	2.0
AUG.									
14...	23	3.6	--	9.4	1.1	1.6	.3	32	1.9

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONDU-CTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)
OCT.								
30...	2.0	.0	35	34	14	71	7.7	10
FEB.								
06...	2.8	.1	55	44	0	104	7.7	--
APR.								
22...	4.2	.1	23	14	2	40	7.2	40
JUNE								
18...	2.1	.1	40	30	0	65	7.7	15
AUG.								
14...	2.1	.1	38	28	2	56	7.4	30

15106940 HOOK CREEK ABOVE TRIBUTARY, NEAR TENAKEE, ALASKA--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.2	7.1	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	--	--
2	7.1	6.6	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	--	--
3	6.6	6.6	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	--	--
4	6.6	6.6	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	--	--
5	6.6	6.0	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	--	--
6	6.0	6.0	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	--	--
7	6.0	5.5	1.6	1.6	0.0	0.0	0.0	0.0	--	--	--	--
8	5.5	5.5	1.6	1.6	0.0	0.0	0.0	0.0	--	--	--	--
9	5.5	5.5	1.6	1.6	0.0	0.0	0.0	0.0	--	--	--	--
10	5.5	4.9	1.6	1.6	0.0	0.0	0.0	0.0	--	--	--	--
11	4.9	4.9	1.6	1.6	0.0	0.0	0.0	0.0	--	--	--	--
12	4.9	4.9	1.1	1.1	0.0	0.0	0.0	0.0	--	--	--	--
13	4.9	4.9	1.1	0.5	0.0	0.0	0.0	0.0	--	--	--	--
14	4.9	4.9	0.5	0.5	0.0	0.0	0.0	0.0	--	--	--	--
15	4.9	4.9	0.5	0.0	0.0	0.0	0.0	0.0	--	--	--	--
16	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
17	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
18	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
19	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
20	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
21	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
22	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
23	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
24	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
25	4.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
26	4.9	4.4	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
27	4.4	3.8	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
28	--	--	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
29	--	--	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
30	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
31	1.6	1.6	--	--	0.0	0.0	0.0	0.0	--	--	--	--
AVG	5.1	5.0	0.6	0.6	0.0	0.0	0.0	0.0	--	--	--	--

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	--	--	4.5	3.0	9.5	9.0	9.0	9.0	8.5	8.0
2	--	--	--	--	4.0	4.0	9.5	9.0	10.0	8.5	8.5	8.5
3	--	--	--	--	4.0	4.0	9.5	9.5	9.5	9.0	8.5	8.0
4	--	--	--	--	4.0	4.0	9.5	9.0	10.5	9.5	8.5	8.5
5	--	--	--	--	4.0	4.0	9.5	9.0	9.5	9.5	8.5	8.0
6	--	--	--	--	6.0	4.0	9.5	9.5	9.5	9.5	8.5	8.0
7	--	--	--	--	6.0	4.5	9.5	9.5	9.5	9.5	8.5	8.5
8	--	--	--	--	6.0	4.5	9.5	9.5	9.5	9.0	8.5	8.5
9	--	--	--	--	6.5	4.5	9.5	9.5	9.5	9.0	9.0	8.5
10	--	--	--	--	6.5	4.5	9.5	9.5	9.0	9.0	9.0	8.5
11	--	--	--	--	6.5	4.5	9.5	9.0	9.0	8.5	8.5	8.0
12	--	--	--	--	7.0	5.0	9.0	9.0	8.5	8.0	8.0	8.0
13	--	--	--	--	7.0	5.5	9.0	8.5	8.5	8.5	8.0	7.5
14	--	--	--	--	8.0	6.0	9.0	8.5	8.5	8.0	7.5	7.5
15	--	--	3.5	2.0	8.5	6.5	9.0	9.0	8.0	8.0	7.5	7.0
16	--	--	3.5	3.0	8.0	7.0	9.0	9.0	8.0	8.0	7.0	6.5
17	--	--	3.5	3.0	8.0	7.5	9.5	9.0	8.0	8.0	7.0	6.5
18	--	--	3.5	3.0	7.5	6.5	10.5	8.5	8.0	8.0	7.0	7.0
19	--	--	3.5	2.5	8.0	7.0	10.0	9.5	8.0	8.0	7.0	6.5
20	--	--	3.0	2.5	8.0	7.0	9.5	9.5	8.0	8.0	6.5	6.0
21	--	--	3.0	2.5	8.0	7.5	9.5	9.5	8.0	8.0	6.5	6.0
22	--	--	2.5	2.5	8.0	7.5	9.5	9.5	8.0	8.0	7.0	6.5
23	--	--	3.0	2.0	8.0	8.0	9.5	9.0	8.5	8.0	7.0	7.0
24	--	--	2.0	2.0	8.5	8.0	9.0	8.5	8.5	7.5	8.0	7.0
25	--	--	2.0	2.0	9.0	8.0	9.0	9.0	8.0	7.5	7.5	6.5
26	--	--	3.0	2.0	9.5	8.5	9.0	9.0	8.5	7.0	6.5	6.0
27	--	--	3.5	3.0	11.0	8.5	9.0	8.5	8.5	7.0	6.5	6.0
28	--	--	3.5	3.0	10.5	9.0	8.5	8.0	8.0	6.5	6.5	6.5
29	--	--	4.0	3.0	10.5	9.0	8.5	8.5	7.0	7.0	6.5	6.5
30	--	--	4.0	3.0	10.0	9.5	9.0	8.5	7.0	7.0	6.5	6.5
31	--	--	4.0	3.5	--	--	9.0	9.0	8.5	7.0	--	--
AVG	--	--	--	--	7.3	6.2	9.3	9.0	8.5	8.1	7.6	7.2

15106960 HOOK CREEK ABOVE KADASHAN RIVER, NEAR TENAKEE, ALASKA

LOCATION.--Lat 57°40'32", long 135°10'05", in SW¼ sec.26, T.48 S., R.63 E., on Chichagof Island in Tongass National Forest, temperature recorder at gaging station on right bank, 1 mile upstream from confluence with Kadashan River and 9 miles south of Tenakee.

DRAINAGE AREA (revised).--8.00 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).
Water temperatures: August 1966 to September 1969.
Sediment records: October 1967 to September 1968 (partial records).

EXTREMES.--1968-69:
Water temperatures: Maximum, 11.5°C July 5, Aug. 4.

Period of record:
Water temperatures: Maximum (1966-69), 12.0°C on several days during July and August 1967; minimum (1966-68), freezing point on many days during winter periods.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
30...	31	4.1	70	9.3	.7	2.0	.6	33	.6
APR.									
22...	86	3.0	50	4.8	.5	2.0	.1	16	1.0
JUNE									
18...	33	4.5	--	10	.6	2.1	.3	34	2.0
AUG.									
14...	38	3.5	--	9.2	.9	2.2	.3	33	1.9

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)
OCT.								
30...	2.8	.1	37	26	0	70	6.9	5
APR.								
22...	3.9	.2	24	14	1	45	7.3	30
JUNE								
18...	2.1	.1	39	28	0	67	7.7	10
AUG.								
14...	2.1	.1	39	28	1	59	7.4	30

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	--	--	2.0	2.0	3.0	2.5	9.5	9.0	9.5	8.5	8.0	8.0
2	--	--	2.0	2.0	2.5	2.5	10.5	9.0	9.5	8.0	8.0	8.0
3	--	--	2.0	2.0	2.5	2.5	10.0	9.5	9.5	9.0	8.0	8.0
4	--	--	2.0	2.0	3.0	2.5	10.0	9.5	11.5	9.5	8.5	8.0
5	--	--	2.0	1.5	3.0	3.0	11.5	9.5	11.0	10.0	8.5	8.0
6	--	--	2.5	1.5	3.5	2.5	11.0	10.5	10.5	9.5	8.0	8.0
7	--	--	2.0	2.0	4.5	3.0	10.5	10.0	9.5	9.0	8.0	8.0
8	--	--	2.5	2.0	5.0	3.5	10.0	9.0	9.5	9.0	8.0	8.0
9	--	--	--	--	5.0	3.5	9.0	9.0	9.5	9.0	8.0	8.0
10	--	--	--	--	5.5	3.5	9.0	9.0	9.5	8.5	8.0	8.0
11	--	--	--	--	5.5	4.0	9.0	9.0	8.5	8.0	8.0	7.5
12	--	--	--	--	6.0	4.5	9.0	8.5	8.5	8.0	7.5	7.5
13	--	--	--	--	6.5	5.0	8.5	8.0	8.0	8.0	7.5	7.5
14	--	--	--	--	7.5	5.5	8.5	8.0	8.5	7.5	7.5	7.0
15	--	--	3.0	2.5	8.0	6.0	8.5	8.0	8.5	8.0	7.0	7.0
16	--	--	2.5	2.5	7.5	6.5	9.0	8.0	8.0	8.0	7.0	6.5
17	--	--	2.5	2.5	7.5	7.0	9.0	8.0	8.0	8.0	7.0	6.5
18	--	--	2.5	1.5	7.5	6.5	9.5	9.0	8.0	7.5	6.5	6.5
19	--	--	2.5	2.0	7.5	6.5	9.5	9.0	7.5	7.5	6.5	6.5
20	--	--	2.0	2.0	7.5	6.5	9.0	8.5	7.5	7.5	6.5	6.0
21	--	--	2.5	2.0	7.5	7.0	8.5	8.5	7.5	7.5	6.5	6.0
22	--	--	2.0	2.0	7.5	7.0	8.5	8.5	7.5	7.5	7.0	6.5
23	2.0	1.5	2.5	2.0	7.5	7.0	8.5	8.5	7.5	7.5	7.0	6.5
24	2.0	2.0	2.5	2.0	7.5	7.0	8.5	7.5	7.5	7.0	7.0	7.0
25	2.0	2.0	2.0	2.0	8.0	7.0	8.0	8.0	7.5	7.5	7.0	6.5
26	2.0	1.5	2.5	2.0	9.5	7.5	8.0	8.0	8.5	7.5	6.5	6.0
27	1.5	1.5	2.5	2.5	10.5	8.5	8.5	8.0	8.5	8.0	6.5	6.0
28	2.0	1.5	3.0	2.5	10.5	9.0	8.5	7.5	8.5	7.0	7.0	6.5
29	2.5	1.5	3.5	2.5	10.5	9.0	8.0	8.0	8.0	7.5	--	--
30	2.0	1.5	3.0	2.5	10.0	9.5	8.0	8.0	8.0	8.0	--	--
31	--	--	3.0	2.5	--	--	8.5	8.0	8.0	8.0	--	--
AVG	--	--	2.4	2.1	6.5	5.5	9.0	8.5	8.5	8.0	7.3	7.1

15106960 TONALITE CREEK NEAR TENAKEE, ALASKA

LOCATION.--Lat 57°40'25", long 135°13'58", on Chichagof Island in Tongass National Forest, temperature recorder at gaging station on right bank, 2 miles upstream from confluence with Kadashan River and 9 miles south of Tenakee.

DRAINAGE AREA (revised).--14.5 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).
Water temperatures: June 1968 to September 1969.
Sediment records: October 1967 to September 1968 (partial records).

EXTREMES.--1968-69:
Water temperatures: Maximum, 13.3°C June 27; minimum, freezing point on many days during winter period.

Period of record:
Water temperatures: Maximum, 14.0°C Aug. 12, 1968; minimum, freezing point on many days during winter periods.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
29...	67	5.9	200	5.1	.7	2.0	.4	17	3.5
APR.									
22...	151	4.0	130	3.4	.5	2.3	.1	9	3.0
JUNE									
18...	55	6.0	80	6.2	.7	1.6	.3	18	2.9
AUG.									
14...	125	5.0	80	5.4	.9	1.6	.3	17	2.7

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONDU-CTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)
OCT.								
29...	2.8	.0	29	16	2	46	6.7	5
APR.								
22...	3.5	.1	22	10	2	39	7.0	30
JUNE								
18...	3.2	.1	31	18	3	47	7.2	15
AUG.								
14...	2.1	.1	28	17	3	38	6.9	30

15106980 TONALITE CREEK NEAR TENAKEE, ALASKA--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.1	5.6	2.7	2.2	1.1	0.5	--	--	--	--	0.5	0.5
2	5.6	5.6	2.7	2.7	0.5	0.0	--	--	--	--	0.5	0.5
3	5.6	5.6	2.7	2.7	0.0	0.0	--	--	--	--	0.5	0.5
4	5.6	5.6	2.7	2.7	0.0	0.0	--	--	--	--	0.5	0.5
5	5.6	5.6	2.7	2.7	0.0	0.0	--	--	--	--	0.5	0.5
6	5.6	5.6	2.7	2.7	0.0	0.0	--	--	0.0	0.0	0.5	0.5
7	5.6	5.6	2.7	2.7	0.0	0.0	--	--	0.0	0.0	0.5	0.5
8	5.6	5.6	3.3	2.7	0.0	0.0	--	--	0.0	0.0	0.5	0.5
9	5.6	5.6	3.3	3.3	0.0	0.0	--	--	0.0	0.0	0.5	0.5
10	5.6	4.5	3.3	3.3	0.0	0.0	--	--	0.0	0.0	0.5	0.5
11	4.5	3.9	3.3	2.7	0.0	0.0	--	--	0.0	0.0	0.5	0.5
12	3.9	2.9	2.7	2.2	0.0	0.0	--	--	0.0	0.0	0.5	0.5
13	3.3	3.3	2.2	1.6	0.0	0.0	--	--	0.0	0.0	0.5	0.5
14	3.9	3.3	1.6	1.6	0.0	0.0	--	--	0.0	0.0	0.5	0.5
15	5.0	5.0	1.6	0.5	0.0	0.0	--	--	0.0	0.0	0.5	0.5
16	3.9	3.9	0.5	0.0	0.0	0.0	--	--	0.0	0.0	0.5	0.5
17	3.9	3.9	1.1	0.5	0.0	0.0	--	--	0.0	0.0	0.5	0.5
18	3.9	3.9	1.1	0.5	0.0	0.0	--	--	0.0	0.0	0.5	0.5
19	4.5	3.9	1.1	0.5	0.0	0.0	--	--	0.0	0.0	0.5	0.5
20	3.9	3.9	1.1	1.1	0.0	0.0	--	--	0.0	0.0	0.5	0.5
21	3.9	3.9	1.1	1.1	0.0	0.0	--	--	0.0	0.0	0.5	0.5
22	3.9	3.9	1.6	1.1	0.0	0.0	--	--	0.0	0.0	0.5	0.5
23	3.9	3.9	1.6	1.1	0.0	0.0	--	--	0.0	0.0	0.5	0.5
24	3.9	3.9	1.6	1.1	0.0	0.0	--	--	0.0	0.0	0.5	0.5
25	3.9	3.9	1.6	0.5	0.0	0.0	--	--	0.0	0.0	0.5	0.5
26	3.9	3.9	1.1	1.1	0.0	0.0	--	--	0.5	0.5	0.5	0.5
27	3.9	3.9	1.6	1.1	0.0	0.0	--	--	0.5	0.5	0.5	0.5
28	3.9	3.3	1.6	1.1	0.0	0.0	--	--	0.5	0.5	0.5	0.5
29	3.3	2.2	1.1	1.1	0.0	0.0	--	--	--	--	0.5	0.5
30	2.2	1.6	1.1	1.1	0.0	0.0	--	--	--	--	0.5	0.5
31	2.2	2.2	--	--	--	--	--	--	--	--	0.5	0.5
AVG	4.3	4.1	1.9	1.6	0.0	0.0	--	--	0.0	0.0	0.5	0.5

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	1.6	0.5	4.4	2.8	6.7	5.0	10.6	10.0	9.5	8.9	8.9	8.3
2	1.1	1.1	4.4	2.8	5.6	5.0	10.6	10.0	10.6	8.3	9.5	8.3
3	2.2	1.7	3.3	2.8	5.0	5.0	10.0	9.4	10.0	8.9	8.9	8.3
4	2.8	2.2	3.3	2.8	5.6	5.0	10.0	9.4	11.1	8.9	8.9	8.3
5	2.8	1.7	2.8	1.7	5.6	5.0	11.1	9.4	10.6	8.9	8.9	8.3
6	3.3	1.7	4.4	2.2	8.3	5.0	11.1	10.0	10.0	8.9	8.3	8.3
7	2.8	1.7	3.3	2.8	8.3	5.6	10.0	10.0	9.5	8.9	8.3	8.3
8	2.8	1.7	5.0	2.8	8.9	5.6	10.0	9.4	9.5	8.9	8.3	7.8
9	2.2	2.2	4.4	2.8	8.8	6.1	10.0	10.0	9.5	8.9	8.9	8.3
10	2.2	1.7	3.3	3.3	8.9	6.1	10.5	9.4	9.5	8.9	8.9	8.3
11	2.8	1.7	4.4	2.8	9.4	6.1	10.0	9.4	8.9	8.9	8.3	8.3
12	3.3	2.2	5.0	2.8	10.0	6.7	9.4	9.4	8.9	8.3	7.8	7.8
13	2.8	2.2	5.6	2.8	10.6	7.2	9.4	8.8	8.9	8.3	8.9	8.3
14	2.8	2.2	3.9	3.3	11.1	7.8	9.4	8.8	8.9	7.8	7.8	7.2
15	2.8	1.7	5.6	2.8	11.1	8.3	9.4	8.8	7.7	7.7	7.2	7.2
16	1.7	1.7	5.0	2.8	10.6	8.9	9.4	9.4	7.7	7.2	7.2	6.7
17	2.8	1.7	5.5	2.8	10.6	9.4	10.0	9.4	7.2	7.2	7.2	6.7
18	2.2	2.2	6.1	2.8	10.0	9.9	11.1	8.8	7.7	7.2	7.8	7.2
19	2.8	2.2	5.6	2.7	11.1	9.4	10.5	9.4	7.7	7.2	7.8	6.7
20	3.3	2.2	5.0	3.3	11.1	9.9	10.0	9.4	7.7	7.2	7.7	6.6
21	2.8	1.7	5.0	3.9	10.0	9.4	10.0	9.4	7.7	7.2	7.2	7.2
22	3.3	1.7	4.4	3.9	10.0	8.9	9.4	9.4	7.7	7.7	8.3	7.2
23	4.4	2.2	5.6	3.9	10.0	9.4	10.5	9.4	8.9	7.2	8.3	7.7
24	3.3	2.8	4.4	3.9	10.0	8.9	10.0	8.8	8.9	7.2	8.7	8.2
25	3.3	2.8	4.4	3.9	10.6	8.8	9.4	9.4	8.3	7.2	8.7	7.7
26	2.8	2.2	5.6	3.9	12.2	10.0	9.4	9.4	9.4	7.2	7.7	7.2
27	3.3	2.2	5.0	4.4	13.3	10.0	10.0	8.8	8.9	7.2	7.7	7.7
28	4.4	2.8	5.6	4.4	12.8	10.0	9.4	8.3	8.9	7.2	7.7	7.7
29	4.4	2.2	7.2	4.4	12.2	10.0	9.4	8.3	8.3	7.8	7.7	7.7
30	4.4	2.8	6.1	4.4	11.7	10.6	9.4	8.8	7.8	7.8	7.7	7.7
31	--	--	5.6	5.0	--	--	9.4	9.4	8.9	7.8	--	--
AVG	2.9	1.9	4.3	3.2	9.6	7.7	9.9	9.2	8.8	7.9	8.1	7.7

15107000 KADASHAN RIVER NEAR TENAKEE, ALASKA

LOCATION.--Lat 57°41'43", long 135°12'59", in SE¼NW¼ sec.21, T.48 S., R.63 E., temperature recorder at gaging station on Chichagof Island, in Tongass National Forest, 700 ft downstream from mouth of Tonalite Creek, 0.5 mile upstream from mouth, and 7 miles south of Tenakee.

DRAINAGE AREA.--37.7 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1968 (miscellaneous), October 1968 to September 1969 (quarterly).
Water temperatures: June 1966 to September 1969.
Sediment records: October 1969 to September 1968 (partial records).

EXTREMES.--1968-69:
Water temperatures: Maximum, 15.0°C June 29; minimum, freezing point on several days during December to February.

Period of record:
Water temperatures: Maximum, 17.0°C Aug. 7, 1968; minimum (1966-67, 1968-69), freezing point on several days during December 1968 to February 1969.

REMARKS.--Water temperatures affected by submergence by high tides.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)
OCT.									
29...	169	5.3	180	0	6.4	.7	2.0	.5	22
FEB.									
06...	27	6.4	--	--	11	1.2	2.9	.3	36
APR.									
21...	1050	2.0	1600	--	4.0	.5	3.1	.1	10
AUG.									
15...	196	4.8	100	--	7.0	.9	2.1	.3	22

DATE	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)
OCT.									
29...	2.5	2.8	.0	32	19	1	54	6.7	5
FEB.									
06...	5.1	4.6	.2	51	33	3	83	7.7	5
APR.									
21...	1.6	3.2	.1	22	12	4	35	6.8	60
AUG.									
15...	2.7	2.1	.1	33	21	3	48	7.0	30

15107000 KADASHAN RIVER NEAR TENAKEE, ALASKA--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.5	5.5	3.5	3.0	2.0	2.0	0.5	0.5	0.5	0.5	0.5	0.5
2	6.0	5.5	3.5	3.5	2.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5
3	6.0	5.5	3.5	3.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5
4	6.0	6.0	3.5	3.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
5	6.0	6.0	3.5	3.5	1.0	0.5	0.5	0.5	--	--	0.5	0.5
6	6.0	5.5	3.5	3.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
7	6.0	5.5	5.0	3.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
8	6.5	6.0	4.5	4.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
9	6.0	5.5	4.5	4.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
10	5.5	4.5	4.5	4.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
11	4.5	3.5	4.5	4.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
12	3.5	2.5	4.0	3.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
13	3.5	3.0	3.5	2.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
14	4.0	3.5	2.5	2.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
15	4.0	4.0	2.5	1.5	0.5	0.5	0.5	0.5	0.5	0.0	0.5	0.5
16	4.5	4.0	1.5	1.0	0.5	0.5	0.5	0.0	0.5	0.0	0.5	0.5
17	4.5	4.5	2.0	1.5	0.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5
18	4.5	4.5	4.5	2.0	1.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5
19	5.0	4.5	4.0	1.5	1.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5
20	5.0	5.0	3.5	2.0	1.5	1.0	0.5	0.0	0.5	0.5	0.5	0.5
21	5.0	5.0	3.5	2.5	1.0	0.0	0.5	0.0	0.5	0.5	0.5	0.5
22	5.0	5.0	4.0	2.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5
23	5.5	4.5	3.0	2.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
24	5.0	5.0	3.0	3.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
25	5.0	4.5	3.0	2.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
26	4.5	4.5	2.5	2.5	0.5	0.5	1.0	0.5	0.5	0.5	0.5	0.5
27	4.5	4.0	2.5	2.5	0.5	0.5	1.0	1.0	0.5	0.5	0.5	0.5
28	4.0	4.0	3.0	2.5	0.5	0.5	1.0	1.0	0.5	0.5	0.5	0.5
29	4.0	3.0	2.5	2.0	0.5	0.5	1.0	0.5	--	--	0.5	0.5
30	3.0	2.5	2.0	2.0	0.5	0.5	0.5	0.5	--	--	0.5	0.5
31	3.0	3.0	--	--	0.5	0.5	0.5	0.5	--	--	0.5	0.5
AVG	4.9	4.5	3.3	2.8	0.7	0.5	0.5	0.4	0.5	0.4	0.5	0.5

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.5	0.5	4.0	3.0	6.0	4.0	13.5	10.0	10.5	9.5	10.0	9.5
2	0.5	0.5	4.0	3.0	5.0	4.5	13.0	9.5	11.0	9.0	10.0	9.5
3	1.0	0.5	3.5	3.0	5.0	4.5	11.5	10.0	10.5	10.0	10.0	9.5
4	1.5	1.0	3.0	2.5	5.0	4.5	10.5	10.0	11.5	10.0	10.5	9.5
5	2.0	1.0	3.0	1.5	5.5	4.5	11.5	10.0	11.0	10.0	10.0	9.5
6	2.0	1.0	4.0	2.0	6.5	4.5	11.0	10.5	11.0	10.0	9.5	9.5
7	1.5	1.0	3.5	3.0	7.5	5.0	11.0	10.5	10.5	10.0	9.5	9.5
8	1.5	1.0	4.5	2.0	8.0	5.5	10.5	10.0	10.5	10.0	9.5	9.5
9	1.5	1.0	4.5	2.5	8.0	5.5	10.5	10.0	10.5	10.0	10.0	9.5
10	1.5	1.0	4.0	3.0	8.5	5.5	11.0	10.0	10.0	9.5	10.0	9.5
11	2.0	1.0	4.0	2.5	8.5	6.0	10.5	10.0	9.5	9.0	9.5	9.0
12	2.5	1.5	4.5	3.0	9.0	6.5	10.0	9.5	9.5	9.0	9.0	9.0
13	2.0	1.5	5.0	2.5	9.5	6.5	9.5	9.0	9.5	9.0	9.0	8.5
14	2.0	1.5	4.5	3.5	10.0	7.5	9.5	9.0	9.0	8.5	9.0	8.5
15	2.0	1.0	5.0	2.5	10.5	8.0	9.5	9.5	9.0	8.0	9.0	8.5
16	1.5	1.0	5.0	2.5	10.0	8.5	9.5	9.5	9.0	8.5	8.5	7.5
17	2.0	1.0	5.0	2.5	10.0	9.0	10.5	9.5	8.5	8.5	8.5	8.0
18	2.0	1.5	5.0	2.5	9.5	8.5	11.0	9.0	9.0	8.5	8.5	8.0
19	2.0	1.5	5.0	2.5	10.0	8.5	11.0	10.0	9.0	8.5	8.5	7.5
20	2.5	1.5	4.5	3.0	10.0	8.5	10.5	9.5	9.0	8.5	8.5	7.5
21	1.5	0.5	4.5	3.5	9.5	9.0	10.5	9.5	9.0	8.5	8.5	8.0
22	2.0	0.5	4.0	3.0	9.0	8.5	10.0	9.5	9.0	8.5	9.0	8.5
23	3.0	1.5	5.0	3.5	9.0	9.0	10.5	9.5	9.5	8.5	9.0	8.5
24	2.5	2.0	4.0	3.5	9.5	8.5	10.0	9.0	9.5	8.0	9.0	8.5
25	2.5	2.0	4.0	3.5	10.0	8.5	10.0	9.5	9.5	8.5	10.5	8.0
26	2.0	1.5	5.0	3.5	11.0	9.5	9.5	9.5	10.0	9.0	11.0	8.0
27	2.5	1.5	4.5	3.5	12.0	10.0	10.0	9.0	12.5	9.0	10.5	8.0
28	4.0	2.0	5.0	3.5	12.0	10.0	9.5	8.5	11.5	8.5	11.0	8.0
29	4.0	2.0	6.0	4.0	15.0	10.0	9.5	9.0	12.0	9.0	10.0	8.5
30	4.0	2.5	5.5	4.0	14.0	10.0	9.5	9.0	11.0	9.5	8.5	8.5
31	--	--	5.0	4.5	--	--	9.5	9.0	10.0	9.5	--	--
AVG	2.0	1.2	4.4	2.9	9.1	7.2	10.4	9.5	10.0	9.0	9.4	8.6

15219000 WEST FORK OLSEN BAY CREEK NEAR CORDOVA, ALASKA

LOCATION.--Lat 60°45'41", long 146°10'20", temperature recorder at gaging station 600 ft upstream from confluence with East Fork and 21 miles northwest of Cordova.

DRAINAGE AREA.--4.78 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1964 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 9.5°C Aug. 2; minimum, freezing point on many days during winter period.

Period of record:
Water temperatures: Maximum, 9.5°C Aug. 2, 1969; minimum, freezing point on many days during winter periods.

REMARKS.--No record available Jan. 9 to Mar. 12.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT		NOV		DEC		JAN		FEB		MAR	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.0	5.0	3.0	2.0	0.5	0.5	0.5	0.5	--	--	--	--
2	5.0	5.0	3.5	3.0	0.5	0.5	0.5	0.5	--	--	--	--
3	5.0	5.0	3.5	3.0	0.5	0.5	0.5	0.5	--	--	--	--
4	5.0	4.5	3.5	3.0	0.5	0.5	0.5	0.5	--	--	--	--
5	5.0	4.5	3.0	3.0	0.5	0.5	0.5	0.5	--	--	--	--
6	4.5	4.0	3.5	3.5	0.5	0.5	0.5	0.5	--	--	--	--
7	5.0	4.5	3.5	3.5	0.5	0.5	0.5	0.5	--	--	--	--
8	5.5	5.0	3.5	3.5	0.5	0.5	0.5	0.5	--	--	--	--
9	5.5	5.0	3.5	3.5	0.5	0.5	0.5	0.5	--	--	--	--
10	5.0	4.0	3.5	3.5	0.5	0.5	--	--	--	--	--	--
11	4.0	4.0	3.5	3.5	0.5	0.5	--	--	--	--	--	--
12	4.0	4.0	3.5	3.0	0.5	0.5	--	--	--	--	0.0	0.0
13	4.5	4.0	3.0	2.0	0.5	0.5	--	--	--	--	0.0	0.0
14	4.0	4.0	2.0	1.0	0.5	0.5	--	--	--	--	0.0	0.0
15	3.5	3.5	1.5	1.0	0.5	0.5	--	--	--	--	0.0	0.0
16	3.5	3.5	2.0	1.5	0.5	0.5	--	--	--	--	0.0	0.0
17	3.5	3.5	2.0	1.5	0.5	0.5	--	--	--	--	0.0	0.0
18	3.5	3.5	2.0	1.5	0.5	0.5	--	--	--	--	0.0	0.0
19	3.5	3.5	2.0	2.0	0.5	0.5	--	--	--	--	0.0	0.0
20	3.5	3.5	2.0	2.0	0.5	0.5	--	--	--	--	0.0	0.0
21	4.0	3.5	2.0	1.5	0.5	0.5	--	--	--	--	0.0	0.0
22	3.5	3.5	1.5	1.0	0.5	0.5	--	--	--	--	0.0	0.0
23	3.5	3.5	1.5	1.0	0.5	0.5	--	--	--	--	0.0	0.0
24	3.5	3.5	1.5	1.5	0.5	0.5	--	--	--	--	0.0	0.0
25	3.5	3.5	1.5	1.5	0.5	0.5	--	--	--	--	0.0	0.0
26	3.5	3.5	1.5	1.5	0.5	0.5	--	--	--	--	0.0	0.0
27	3.5	3.5	1.5	1.5	0.5	0.5	--	--	--	--	0.0	0.0
28	3.5	3.5	1.5	1.0	0.5	0.5	--	--	--	--	0.0	0.0
29	3.5	3.5	1.0	1.0	0.5	0.5	--	--	--	--	0.0	0.0
30	3.5	3.5	0.5	0.5	0.5	0.5	--	--	--	--	0.0	0.0
31	3.5	3.0	--	--	0.5	0.5	--	--	--	--	0.0	0.0
AVG	4.0	3.9	2.3	2.0	0.5	0.5	--	--	--	--	--	--

DAY	APR		MAY		JUN		JUL		AUG		SEP	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	3.5	3.0	5.0	4.0	8.5	7.0	9.0	8.0	8.0	7.0
2	0.0	0.0	3.5	3.0	5.5	4.0	9.0	7.0	9.5	8.5	8.0	6.5
3	0.5	0.0	3.0	3.0	5.0	4.5	8.0	7.0	9.0	8.5	7.0	7.0
4	1.0	0.5	3.0	3.0	5.0	4.5	8.0	7.0	9.0	8.5	8.0	7.0
5	1.0	1.0	3.0	3.0	4.5	4.5	8.0	7.0	8.5	8.5	7.0	5.5
6	1.0	1.0	3.5	3.0	5.5	4.0	8.5	7.0	8.5	8.0	6.0	5.5
7	1.0	1.0	3.0	3.0	6.0	5.0	8.0	8.0	8.5	7.0	6.0	5.5
8	1.5	1.0	3.5	3.0	5.5	4.5	8.0	8.0	8.0	6.5	6.0	5.5
9	1.5	1.0	4.0	3.0	5.5	5.0	9.0	8.0	7.0	6.5	6.0	6.0
10	1.5	1.0	3.5	3.0	5.5	5.0	8.0	8.0	8.0	7.0	6.0	6.0
11	1.5	1.5	4.0	3.0	6.5	5.0	8.0	8.0	8.0	6.5	6.5	6.0
12	1.5	1.0	4.0	3.0	7.0	5.5	8.0	8.0	7.0	6.5	6.5	6.0
13	1.5	1.0	4.0	3.0	7.0	5.0	8.0	8.0	7.0	6.0	6.5	6.0
14	1.5	1.0	4.5	3.5	7.0	5.5	8.0	8.0	8.0	6.5	6.5	6.5
15	1.5	1.5	4.0	3.5	8.0	5.5	8.5	8.0	7.0	6.0	6.5	6.0
16	2.0	1.5	3.5	3.5	6.5	5.5	8.0	8.0	8.0	6.5	6.0	5.5
17	2.0	1.5	4.5	3.5	6.0	5.5	8.0	8.0	8.0	6.5	6.0	5.5
18	2.0	1.5	5.0	3.5	6.5	6.0	8.5	8.0	8.0	6.5	5.5	5.0
19	2.0	1.5	5.0	3.5	6.0	6.0	8.0	8.0	8.0	6.5	6.0	5.5
20	3.0	2.0	4.0	3.5	7.0	6.0	9.0	8.0	8.5	7.0	6.0	5.5
21	3.0	2.0	4.0	3.5	6.5	6.5	9.0	8.0	8.5	7.0	6.0	6.0
22	2.0	2.0	3.5	3.5	7.0	6.5	8.5	8.5	8.0	8.0	6.5	6.0
23	3.0	2.0	5.0	3.5	7.0	6.5	9.5	8.5	8.0	8.0	6.0	6.0
24	3.0	2.0	5.0	3.5	7.0	6.5	8.5	8.5	8.0	6.5	6.0	5.5
25	2.0	2.0	5.0	4.0	8.0	6.0	9.0	8.5	8.0	6.5	6.0	5.5
26	2.0	2.0	4.5	4.0	8.0	6.5	9.0	8.0	8.0	6.5	5.5	5.0
27	2.0	2.0	4.0	4.0	8.0	7.0	9.0	7.0	8.0	6.5	5.5	5.5
28	3.5	2.0	4.5	4.0	7.0	7.0	8.5	8.0	7.0	7.0	5.5	5.5
29	3.0	2.0	5.5	4.0	7.0	7.0	8.5	8.5	7.0	7.0	5.5	5.5
30	3.0	2.0	4.5	4.5	7.0	7.0	8.5	8.5	7.0	7.0	6.0	5.5
31	--	--	4.0	4.0	--	--	8.5	8.0	8.0	7.0	--	--
AVG	1.8	1.3	4.0	3.4	6.4	5.5	8.4	7.8	8.0	7.0	6.2	5.8

15277100 EAGLE RIVER AT EAGLE RIVER, ALASKA

LOCATION.--Lat 61°18'30", long 149°33'32", in NW¼ sec.13, T.14 N., R.2 W., at gaging station near center of cable (station 50), 0.2 mile upstream from Eagle River Campground, 0.6 mile upstream from Glenn Highway crossing, and 1.0 mile south of Eagle River.
DRAINAGE AREA.--192 sq mi, approximately.
PERIOD OF RECORD.--Chemical analyses: March 1967 to September 1968 (partial records).
Water temperatures: November 1967 to September 1969.
Sediment records: November 1966 to September 1967 (partial records), October 1967 to September 1969 (daily).
EXTREMES.--1968-69:
Water temperatures: Maximum, 14.0°C June 14; minimum, freezing point on many days during winter period.
Sediment concentrations: Maximum daily, 668 mg/l June 16; minimum daily, 3 mg/l (estimated) Jan. 6 to Mar. 20.
Sediment loads: Maximum daily, 4,190 tons June 17; minimum daily, 0.24 ton (estimated) Jan. 29 to Feb. 10.
Period of record:
Water temperatures (1968-69): Maximum, 14.0°C July 22, 1968, June 14, 1969; minimum, freezing point during winter periods.
Sediment concentrations (1967-69): Maximum observed, 1,200 mg/l July 20, 1967; minimum daily, 3 mg/l (estimated) Jan. 6 to Mar. 20, 1969.
Sediment loads (1967-69): Maximum observed, 12,000 tons Sept. 19, 1967; minimum daily, 0.24 ton (estimated) Jan. 29 to Feb. 10, 1969.
REMARKS.--Flow affected by ice during winter period. Sediment concentrations estimated during period Oct. 18 to Apr. 26.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	--	--	--	--	--	--	175	229	172	101	--	114
2	--	--	--	--	--	--	--	229	168	--	--	114
3	--	--	--	--	--	--	175	--	164	--	88	--
4	--	--	--	--	--	--	175	--	164	--	88	--
5	--	--	--	--	--	--	175	--	158	92	--	--
6	--	--	--	--	--	--	175	--	185	--	--	--
7	--	--	--	--	--	--	--	--	--	93	103	--
8	--	--	--	--	--	--	165	--	156	--	--	--
9	--	--	--	--	--	--	165	--	146	91	--	--
10	--	--	--	--	--	--	165	--	135	89	--	--
11	--	--	--	--	--	--	165	--	135	87	102	--
12	--	--	--	--	--	--	--	219	131	--	108	120
13	--	--	--	--	--	--	165	219	136	85	116	135
14	--	--	--	--	--	--	--	219	130	83	--	135
15	--	--	--	--	--	--	165	219	--	82	--	135
16	--	--	--	--	--	--	175	219	104	--	116	--
17	--	--	--	--	--	--	175	219	105	--	116	--
18	--	--	--	--	--	--	--	217	105	87	--	143
19	--	--	--	--	--	--	--	215	109	--	--	143
20	--	--	--	--	--	--	--	193	113	87	116	--
21	--	--	--	--	--	--	--	197	--	87	--	--
22	--	--	--	--	--	--	--	184	128	87	--	137
23	--	--	--	--	--	--	--	170	128	--	119	137
24	--	--	--	--	--	--	--	--	--	87	119	--
25	--	--	--	--	--	--	--	--	--	89	121	--
26	--	--	--	--	--	--	--	150	103	89	121	--
27	--	--	--	--	--	--	218	--	--	89	114	--
28	--	--	--	--	--	--	218	150	--	--	--	--
29	--	--	--	--	--	--	218	--	--	101	--	154
30	--	--	--	--	--	--	229	--	92	101	--	154
31	--	--	--	--	--	--	--	172	--	101	108	--
AVG	--	--	--	--	--	--	--	--	--	--	--	--

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	4	--	4	4	4	3	--	4	4	4	4	--	4	--	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
NOVEMBER.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	0
DECEMBER.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JANUARY..	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FEBRUARY.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	0
MARCH....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APRIL....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	--	--	--	--	--	--	2	2	2	2	--	0
MAY.....	4	5	--	--	--	--	--	--	--	--	--	8	9	11	10	10	11	11	12	10	9	9	11	--	--	13	--	9	--	--	9	--
JUNE.....	10	11	10	9	8	10	--	8	10	9	11	12	13	14	--	10	10	11	11	11	--	9	10	--	--	13	--	--	--	12	--	--
JULY.....	12	--	--	--	10	--	9	--	10	11	9	--	9	9	9	--	--	10	--	10	9	11	--	10	8	10	7	--	9	10	11	--
AUGUST...	--	--	11	12	--	--	10	--	--	--	8	8	7	--	--	9	9	--	--	9	--	--	8	9	8	9	9	--	--	--	8	--
SEPTEMBER	7	7	--	--	--	--	--	--	--	--	--	8	8	8	8	--	--	8	8	--	--	7	6	--	--	--	--	--	6	6	--	--

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
MAY 27, 1969	1245	7	992	272	729	16	25	35	46	59	73	84	96	100	--	--	VC8W
JUL 15.....	1130	6	1680	150	680	39	50	--	66	--	82	86	94	100	--	--	VCPW
AUG 20.....	1530	7	664	56	100	--	--	--	--	--	--	--	--	--	--	--	

15277100 EAGLE RIVER AT EAGLE RIVER, ALASKA--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	201	10	5.4	120	15	4.9	95	9	2.3
2	192	11	5.7	120	15	4.9	90	9	2.2
3	194	14	7.3	120	15	4.9	90	9	2.2
4	189	10	5.1	120	15	4.9	85	9	2.1
5	183	10	4.9	120	15	4.9	85	9	2.1
6	173	19	8.9	110	15	4.5	80	9	1.9
7	173	30	14	110	15	4.5	75	9	1.8
8	170	52	24	110	15	4.5	70	9	1.7
9	170	52	24	110	15	4.5	65	9	1.6
10	173	37	17	110	15	4.5	60	9	1.5
11	168	65	29	110	15	4.5	60	7	1.1
12	164	58	26	110	15	4.5	65	7	1.2
13	161	32	14	110	15	4.5	70	7	1.3
14	164	20	8.9	110	15	4.5	75	7	1.4
15	162	19	8.3	110	15	4.5	75	7	1.4
16	158	27	12	100	12	3.2	70	7	1.3
17	152	30	12	100	12	3.2	70	7	1.3
18	149	20	8.0	100	12	3.2	70	7	1.3
19	119	20	6.4	100	12	3.2	70	7	1.3
20	115	20	6.2	100	12	3.2	70	7	1.3
21	130	20	7.0	100	12	3.2	65	5	.88
22	125	20	6.8	100	12	3.2	65	5	.88
23	140	20	7.6	100	12	3.2	65	5	.88
24	150	20	8.1	100	12	3.2	65	5	.88
25	150	20	8.1	100	12	3.2	65	5	.88
26	140	15	5.7	100	12	3.2	60	5	.81
27	135	15	5.5	100	12	3.2	60	5	.81
28	130	15	5.3	100	12	3.2	60	5	.81
29	130	15	5.3	100	12	3.2	60	5	.81
30	125	15	5.1	95	12	3.1	60	5	.81
31	125	15	5.1	--	--	--	55	5	.74
TOTAL	4810	--	316.7	3195	--	117.4	2170	--	41.49

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	55	4	.59	30	3	.24	36	3	.29
2	50	4	.54	30	3	.24	36	3	.29
3	46	4	.50	30	3	.24	36	3	.29
4	46	4	.50	30	3	.24	36	3	.29
5	44	4	.48	30	3	.24	36	3	.29
6	44	3	.36	30	3	.24	36	3	.29
7	44	3	.36	30	3	.24	36	3	.29
8	42	3	.34	30	3	.24	38	3	.31
9	42	3	.34	30	3	.24	38	3	.31
10	42	3	.34	30	3	.24	38	3	.31
11	40	3	.32	32	3	.26	38	3	.31
12	40	3	.32	32	3	.26	38	3	.31
13	40	3	.32	32	3	.26	38	3	.31
14	40	3	.32	32	3	.26	38	3	.31
15	38	3	.31	32	3	.26	38	3	.31
16	38	3	.31	32	3	.26	38	3	.31
17	38	3	.31	32	3	.26	38	3	.31
18	38	3	.31	32	3	.26	38	3	.31
19	36	3	.29	32	3	.26	40	3	.32
20	36	3	.29	32	3	.26	40	3	.32
21	36	3	.29	34	3	.28	42	4	.45
22	36	3	.29	34	3	.28	44	4	.48
23	34	3	.28	34	3	.28	44	4	.48
24	34	3	.28	34	3	.28	46	4	.50
25	34	3	.28	34	3	.28	48	4	.52
26	32	3	.26	34	3	.28	50	4	.54
27	32	3	.26	34	3	.28	50	4	.54
28	32	3	.26	34	3	.28	50	4	.54
29	30	3	.24	--	--	--	55	4	.59
30	30	3	.24	--	--	--	55	4	.59
31	30	3	.24	--	--	--	55	4	.59
TOTAL	1199	--	10.37	892	--	7.24	1289	--	11.90

15277100 EAGLE RIVER AT EAGLE RIVER, ALASKA--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	55	5	.74	110	20	5.9	495	62	83
2	60	5	.81	110	20	5.9	465	35	44
3	60	5	.81	120	20	6.5	495	35	47
4	60	5	.81	120	20	6.5	560	38	57
5	60	5	.81	130	20	7.0	565	36	55
6	65	6	1.1	130	20	7.0	520	24	34
7	65	6	1.1	140	20	7.6	535	32	46
8	65	6	1.1	140	20	7.6	632	42	72
9	65	6	1.1	150	20	8.1	773	85	177
10	70	6	1.1	150	20	8.1	882	68	162
11	70	8	1.5	160	20	8.6	898	46	112
12	70	8	1.5	160	20	8.6	1050	72	204
13	75	8	1.6	170	15	6.9	1200	103	334
14	75	8	1.6	170	20	9.2	1310	138	488
15	75	8	1.6	170	20	9.2	1630	165	726
16	80	10	2.2	172	33	15	2210	668	4070
17	80	10	2.2	175	32	15	2350	660	4190
18	80	10	2.2	186	63	32	1890	387	1970
19	85	10	2.3	212	106	61	1620	298	1300
20	85	10	2.3	261	72	51	1470	233	925
21	85	15	3.4	276	52	39	1410	200	761
22	90	15	3.6	416	249	334	1400	185	699
23	90	15	3.6	515	280	389	1430	149	575
24	90	15	3.6	510	150	207	1340	110	398
25	95	15	3.8	644	170	296	1490	136	547
26	95	20	5.1	922	190	473	1590	217	932
27	100	30	8.1	1060	232	664	1760	242	1150
28	100	35	9.5	808	115	251	1890	252	1290
29	105	24	6.8	614	75	124	1830	247	1220
30	105	20	5.7	575	80	124	1860	226	1130
31	--	--	--	520	100	140	--	--	--
TOTAL	2355	--	81.68	9996	--	3327.7	37550	--	23798

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	1790	191	923	1310	84	297	626	39	66
2	1690	168	767	1370	79	292	668	40	72
3	1690	178	812	1520	128	525	644	37	64
4	1890	200	1020	1560	154	649	602	37	60
5	1790	200	967	2000	173	934	495	32	43
6	1730	194	906	1730	168	785	432	26	30
7	1760	184	874	1390	158	593	404	26	28
8	1630	161	709	1190	136	437	404	26	28
9	1580	145	619	1010	110	300	388	26	27
10	1530	129	533	954	100	258	500	42	57
11	1520	116	476	978	87	230	808	95	207
12	1670	110	496	850	67	154	780	76	160
13	1670	123	555	698	61	115	585	42	66
14	1750	147	695	550	53	79	510	40	55
15	1670	147	663	545	48	71	475	37	47
16	1580	121	516	545	46	68	450	32	39
17	1430	116	448	575	42	65	408	26	29
18	1470	112	445	656	48	85	384	26	27
19	1410	105	400	638	48	83	372	25	25
20	1330	102	366	638	56	96	356	21	20
21	1360	94	345	632	32	55	372	26	26
22	1310	92	325	608	37	61	412	28	31
23	1410	94	358	575	34	53	408	28	31
24	1510	147	599	480	28	36	364	26	26
25	1860	220	1100	465	46	58	324	21	18
26	1470	187	742	515	55	76	296	20	16
27	1310	150	531	570	42	65	273	10	7.4
28	1390	147	552	614	42	70	267	10	7.2
29	1570	131	555	620	37	62	356	14	13
30	1410	84	320	674	42	76	348	12	11
31	1300	89	312	632	45	77	--	--	--
TOTAL	48480	--	18929	27092	--	6805	13711	--	1336.6

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 152739
TOTAL LOAD FOR YEAR (TONS) 54780.42

15514000 CHENA RIVER AT FAIRBANKS, ALASKA

LOCATION.--Lat 64°50'50", long 147°42'20", in NW¼ sec.11, T.1 S., R.1 W., 0.15 mile downstream from gaging station near center of bridge on Steese Highway (U.S. Highway 97) in Fairbanks, 0.15 mile upstream from Noyes Slough, 11 miles upstream from mouth, and 11 miles downstream from Chena Slough.

DRAINAGE AREA.--1,980 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: May 1953 to September 1955, October 1957 to May 1958, June to September 1964, September 1967 to September 1969 (partial records).
Water temperatures: May to September 1953, May 1962 to September 1963, October 1964 to November 1965, July to September 1969.
Sediment records: January 1954 to September 1955, May 1962 to September 1969.

EXTREMES.--1968-69:
Sediment concentrations: Maximum daily, 376 mg/l Aug. 5; minimum daily, 1 mg/l Sept. 14.
Sediment loads: Maximum daily, 8,970 tons Aug. 5; minimum daily, 3.4 tons Apr. 15.

Period of record:
Water temperatures (1962-63): Maximum, 19.0°C June 17, 1962; minimum, freezing point on many days during winter periods.
Sediment concentrations (1962-69): Maximum daily, 549 mg/l May 24, 1967; minimum (1967-69), 1 mg/l Sept. 14, 1969.
Sediment loads: Maximum daily, 160,000 tons (estimated), Aug. 15, 1967; minimum daily (1967-69), 3.4 tons Apr. 15, 1969.

REMARKS.--Flow affected by ice during winter months. Sediment concentrations estimated for period Oct. 1 to Apr. 9.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)
OCT.									
31...	483	13	1530	--	32	6.2	3.5	1.9	110
NOV.									
22...	350	15	1300	--	30	6.6	3.4	1.9	116
JAN.									
23...	219	18	2650	--	32	7.7	4.2	2.1	134
FEB.									
13...	217	20	2100	2100	34	8.0	4.2	2.7	143
APR.									
01...	180	20	3000	--	37	7.9	4.3	2.4	146
18...	357	17	3000	--	30	7.4	4.0	3.0	117
21...	761	9.0	3500	--	25	5.5	3.6	1.7	84
MAY									
16...	2930	7.3	520	0	16	3.5	1.3	1.3	48
JUNE									
02...	1140	9.4	2000	--	22	6.0	3.4	1.6	88
27...	556	7.7	690	0	28	6.8	3.0	3.6	108
AUG.									
06...	10200	6.4	--	--	12	2.3	1.1	2.1	30
14...	6560	7.1	0	--	16	3.6	1.5	1.0	52

DATE	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)
OCT.									
31...	18	1.4	.2	133	106	16	210	7.0	5
NOV.									
22...	17	.6	.2	140	102	7	211	7.2	10
JAN.									
23...	12	1.2	.3	149	112	2	247	7.2	10
FEB.									
13...	13	.0	.2	157	118	1	248	7.1	5
APR.									
01...	10	.4	.1	160	125	5	238	7.2	10
18...	14	2.1	.3	147	106	10	230	6.9	20
21...	22	.4	.4	113	84	15	181	7.5	20
MAY									
16...	14	.7	.4	70	54	15	110	7.4	100
JUNE									
02...	22	.2	.1	110	86	14	183	7.5	20
27...	17	.4	.5	121	98	9	203	7.8	10
AUG.									
06...	10	.7	.1	54	40	15	83	7.0	25
14...	14	.7	.2	72	56	35	117	7.4	20

15514000 CHENA RIVER AT FAIRBANKS, ALASKA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	--	--	--	--	--	--	--	137	192	218	158	160
2	--	--	--	--	--	--	--	137	192	216	158	160
3	--	--	--	--	--	--	--	137	198	216	167	170
4	--	--	--	--	--	--	--	137	198	216	197	168
5	--	--	--	--	--	--	--	138	198	206	88	168
6	--	--	--	--	--	--	--	146	201	210	88	168
7	--	--	--	--	--	--	--	159	200	212	88	168
8	--	--	--	--	--	--	--	156	200	212	102	168
9	--	--	--	--	--	--	--	152	202	212	107	175
10	--	--	--	--	--	--	248	141	202	212	110	175
11	--	--	--	--	--	--	265	135	202	215	87	175
12	--	--	--	--	--	--	259	129	202	212	93	175
13	--	--	--	--	--	--	243	135	200	196	108	175
14	--	--	--	--	--	--	243	139	200	196	117	175
15	--	--	--	--	--	--	254	127	200	204	127	175
16	--	--	--	--	--	--	249	121	200	205	127	173
17	--	--	--	--	--	--	238	127	200	205	136	178
18	--	--	--	--	--	--	227	127	203	205	138	178
19	--	--	--	--	--	--	221	133	205	205	140	178
20	--	--	--	--	--	--	184	137	208	205	144	180
21	--	--	--	--	--	--	184	144	208	207	146	--
22	--	--	--	--	--	--	184	156	205	207	152	185
23	--	--	--	--	--	--	190	156	207	194	153	185
24	--	--	--	--	--	--	190	--	212	194	153	185
25	--	--	--	--	--	--	190	121	214	194	153	185
26	--	--	--	--	--	--	179	133	215	184	158	185
27	--	--	--	--	--	--	174	146	217	158	158	185
28	--	--	--	--	--	--	164	163	219	158	160	188
29	--	--	--	--	--	--	137	177	216	158	160	188
30	--	--	--	--	--	--	137	182	218	158	160	188
31	--	--	--	--	--	--	--	187	--	158	160	--
AVG	--	--	--	--	--	--	--	143	204	198	135	176

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	APR		MAY		JUN		JUL		AUG		SEP	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1							--	--	10.0	9.0	8.0	8.0
2							--	--	10.0	9.0	8.0	8.0
3							--	--	10.0	10.0	8.0	8.0
4							--	--	11.0	8.0	8.0	8.0
5							--	--	9.0	8.0	8.0	8.0
6							--	--	8.0	8.0	8.0	8.0
7							--	--	8.0	6.0	8.0	7.0
8							--	--	6.0	6.0	7.0	7.0
9							--	--	6.0	5.0	8.0	7.0
10							--	--	5.0	4.0	8.0	7.0
11							--	--	4.0	4.0	8.0	7.0
12							--	--	5.0	4.0	7.0	7.0
13							--	--	5.0	4.0	7.0	7.0
14							--	--	6.0	4.0	7.0	6.0
15							--	--	6.0	5.0	7.0	6.0
16							17.0	16.0	7.0	6.0	6.0	5.0
17							17.0	16.0	7.0	6.0	6.0	5.0
18							17.0	16.0	7.0	6.0	6.0	5.0
19							17.0	16.0	7.0	7.0	6.0	5.0
20							16.0	15.0	7.0	7.0	5.0	5.0
21							16.0	15.0	7.0	7.0	5.0	4.0
22							15.0	14.0	7.0	6.0	5.0	4.0
23							14.0	12.0	7.0	7.0	4.0	4.0
24							12.0	12.0	8.0	7.0	4.0	3.0
25							12.0	11.0	8.0	8.0	3.0	3.0
26							11.0	9.0	8.0	7.0	3.0	2.0
27							9.0	9.0	8.0	7.0	2.0	2.0
28							9.0	8.0	7.0	7.0	3.0	2.0
29							10.0	9.0	8.0	7.0	3.0	3.0
30							10.0	9.0	8.0	8.0	3.0	3.0
31							10.0	9.0	8.0	8.0	--	--
AVG							--	--	7.0	7.0	6.0	5.0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
AUG 6, 1969	1630		10800	284	8280	10	16	--	36	--	80	96	100	--	--	--	VPWC

15514000 CHENA RIVER AT FAIRBANKS, ALASKA--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	933	5	13	480	6	7.8	320	7	6.0
2	914	5	12	470	6	7.6	320	7	6.0
3	912	5	12	460	6	7.5	310	7	5.9
4	907	5	12	450	6	7.3	310	7	5.9
5	905	5	12	440	6	7.1	310	7	5.9
6	878	5	12	430	6	7.0	310	8	6.7
7	838	5	11	420	6	6.8	300	8	6.5
8	849	5	11	410	6	6.6	300	8	6.5
9	821	5	11	400	6	6.5	300	8	6.5
10	826	5	11	390	6	6.3	300	8	6.5
11	826	5	11	390	7	7.4	290	8	6.3
12	804	5	11	380	7	7.2	290	8	6.3
13	810	5	11	380	7	7.2	280	8	6.0
14	737	5	9.9	370	7	7.0	280	8	6.0
15	668	5	9.0	370	7	7.0	280	8	6.0
16	683	6	11	370	7	7.0	280	8	6.0
17	677	6	11	360	7	6.8	270	8	5.8
18	607	6	9.8	360	7	6.8	270	8	5.8
19	572	6	9.3	360	7	6.8	270	8	5.8
20	551	6	8.9	360	7	6.8	264	8	5.7
21	537	6	8.7	350	7	6.6	260	8	5.6
22	530	6	8.6	350	7	6.6	260	8	5.6
23	512	6	8.3	350	7	6.6	260	8	5.6
24	508	6	8.2	340	7	6.4	260	8	5.6
25	504	6	8.2	340	7	6.4	250	8	5.4
26	500	6	8.1	330	7	6.2	250	8	5.4
27	497	6	8.1	330	7	6.2	250	8	5.4
28	494	6	8.0	330	7	6.2	250	8	5.4
29	490	6	7.9	320	7	6.0	240	8	5.2
30	487	6	7.9	320	7	6.0	240	8	5.2
31	483	6	7.8	--	--	--	240	8	5.2
TOTAL	21260	--	308.7	11410	--	203.7	8614	--	181.7

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	240	9	5.8	220	9	5.3	200	10	5.4
2	230	9	5.6	220	9	5.3	200	10	5.4
3	230	9	5.6	220	9	5.3	200	10	5.4
4	230	9	5.6	220	9	5.3	200	10	5.4
5	230	9	5.6	220	9	5.3	200	10	5.4
6	230	9	5.6	220	9	5.3	200	10	5.4
7	220	9	5.3	220	9	5.3	200	10	5.4
8	220	9	5.3	220	9	5.3	200	10	5.4
9	220	9	5.3	220	9	5.3	200	10	5.4
10	220	9	5.3	220	9	5.3	200	10	5.4
11	220	9	5.3	220	9	5.3	190	10	5.1
12	220	9	5.3	220	9	5.3	190	10	5.1
13	220	9	5.3	217	10	5.9	190	10	5.1
14	220	9	5.3	210	10	5.7	190	10	5.1
15	220	9	5.3	210	10	5.7	190	10	5.1
16	220	9	5.3	210	10	5.7	190	10	5.1
17	220	9	5.3	210	10	5.7	190	10	5.1
18	220	9	5.3	210	10	5.7	190	10	5.1
19	220	9	5.3	210	10	5.7	190	10	5.1
20	220	9	5.3	210	10	5.7	190	10	5.1
21	220	9	5.3	210	10	5.7	190	10	5.1
22	220	9	5.3	210	10	5.7	190	10	5.1
23	219	9	5.3	210	10	5.7	180	10	4.9
24	220	9	5.3	200	10	5.4	180	10	4.9
25	220	9	5.3	200	10	5.4	180	10	4.9
26	220	9	5.3	200	10	5.4	180	10	4.9
27	220	9	5.3	200	10	5.4	180	10	4.9
28	220	9	5.3	200	10	5.4	180	10	4.9
29	220	9	5.3	--	--	--	180	10	4.9
30	220	9	5.3	--	--	--	180	10	4.9
31	220	9	5.3	--	--	--	180	10	4.9
TOTAL	6889	--	166.3	5957	--	153.5	5900	--	159.3

15514000 CHENA RIVER AT FAIRBANKS, ALASKA--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	180	10	4.9	1790	19	92	1180	11	35
2	180	10	4.9	1920	18	93	1140	10	31
3	180	10	4.9	1940	30	157	1100	8	24
4	180	10	4.9	2000	25	135	1060	7	20
5	180	10	4.9	2020	16	87	1020	12	33
6	180	10	4.9	1980	14	75	984	13	35
7	180	10	4.9	2000	14	76	976	12	32
8	180	10	4.9	2000	12	65	968	9	24
9	180	10	4.9	2020	11	60	944	14	36
10	180	10	4.9	2350	29	184	920	14	35
11	180	8	3.9	2450	39	258	936	10	25
12	185	7	3.5	2440	30	198	908	8	20
13	190	8	4.1	2270	20	123	882	9	21
14	200	7	3.8	2360	18	115	855	6	14
15	210	6	3.4	2910	51	401	829	9	20
16	220	6	3.6	2930	48	380	805	8	17
17	270	6	4.4	2750	37	275	781	8	17
18	357	4	3.9	2840	35	268	759	9	18
19	607	5	8.2	2680	28	203	738	14	28
20	635	6	10	2490	21	141	717	12	23
21	761	7	14	2180	13	77	694	9	17
22	824	6	13	1920	14	73	669	8	14
23	845	6	14	2000	16	86	648	6	10
24	789	6	13	2400	24	156	628	8	14
25	810	7	15	2730	39	287	608	9	15
26	852	5	12	2630	27	192	584	7	11
27	1020	10	28	2190	22	130	556	7	11
28	1350	17	62	1780	18	87	538	5	7.3
29	1620	19	83	1510	13	53	529	9	13
30	1720	20	93	1340	12	43	516	7	9.8
31	--	--	--	1240	11	37	--	--	--
TOTAL	15445	--	444.8	68060	--	4607	24472	--	630.1

15514000 CHENA RIVER AT FAIRBANKS, ALASKA--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	506	6	8.2	2450	30	198	1970	5	27
2	506	6	8.2	2170	13	76	1900	5	26
3	523	7	9.9	2010	20	109	1850	3	15
4	522	6	8.5	4800	144	2010	1810	3	15
5	527	6	8.5	8840	376	8970	1790	3	14
6	541	7	10	10200	312	8590	1790	2	9.7
7	592	6	9.6	10500	228	6460	1820	4	20
8	600	7	11	10100	162	4420	1790	4	19
9	584	6	9.5	8560	122	2820	1770	5	24
10	570	6	9.2	8780	151	3580	1810	3	15
11	582	4	6.3	10700	230	6640	1790	3	14
12	723	6	12	10700	138	3990	1790	2	9.7
13	913	6	15	8440	88	2010	1760	2	9.5
14	965	6	16	6560	68	1200	1720	1	4.6
15	895	6	14	5510	51	759	1680	3	14
16	837	3	6.8	4850	42	550	1640	4	18
17	805	3	6.5	4370	41	484	1600	4	17
18	936	3	7.6	3970	40	429	1560	2	8.4
19	989	2	5.3	3650	39	384	1520	3	12
20	943	4	10	3380	24	219	1480	3	12
21	893	4	9.6	3140	22	187	1440	3	12
22	913	5	12	2960	18	144	1410	3	11
23	1030	6	17	2810	17	129	1370	3	11
24	1090	5	15	2670	13	94	1340	4	14
25	1230	10	33	2560	12	83	1320	4	14
26	2000	28	151	2470	10	67	1280	2	6.9
27	2410	26	169	2380	8	51	1250	4	14
28	2390	24	155	2290	8	49	1220	4	13
29	2380	17	109	2220	6	36	1210	7	23
30	2290	19	117	2140	6	35	1200	5	16
31	2570	35	243	2050	6	33	--	--	--
TOTAL	33255	--	1222.7	158230	--	54806	47880	--	438.8

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 407372
TOTAL LOAD FOR YEAR (TONS) 63322.6

15564800 YUKON RIVER AT RUBY, ALASKA
(International Hydrological Decade River Station)

LOCATION.--Lat 64°44'28", long 155°29'22", at gaging station on left bank at Ruby 300 ft downstream from Ruby Creek, 1.5 miles downstream from Melozitna River, and 2.2 miles upstream from Ruby Slough.

DRAINAGE AREA.--259,000 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: June 1966 to September 1969.
Water temperatures: June 1966 to September 1967, August to September 1969.
Sediment records: October 1967 to September 1969 (partial records).

REMARKS.--Stream frozen over during period October to May.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT.									
01-13	166,000	9.3	--	33	7.7	3.6	1.2	125	24
14-18	144,000	9.0	--	36	8.6	3.2	1.4	138	26
JUN.									
08-19	254,000	7.4	.38	27	6.0	2.5	1.4	94	18
20-30	327,000	7.8	3.9	32	7.2	2.7	1.9	116	20
JUL.									
01-16	224,000	8.6	1.9	36	6.6	3.2	2.0	126	22
17-31	272,000	8.1	9.1	35	6.5	3.0	2.0	120	22
AUG.									
01-04	272,000	8.1	9.1	35	6.5	3.0	2.0	120	22
08-17	331,000	6.1	--	35	5.8	2.9	2.3	124	15
18-27	247,000	7.2	--	32	5.8	2.8	1.2	101	23
28-31	206,000	6.5	.08	33	5.4	3.0	1.2	107	26
SEP.									
01-06	206,000	6.5	.08	33	5.4	3.0	1.2	107	26
07-30	188,000	7.0	--	30	7.8	3.1	1.0	110	22
ANALYSES OF ADDITIONAL SAMPLES									
MAR.									
08...	22,500	10	.07	44	9.6	3.7	2.8	164	26
MAY									
30...	312,000	5.1	.19	26	5.4	1.8	1.6	88	17
JUL.									
04...	239,000	5.7	.03	29	7.8	2.4	2.5	113	20
AUG.									
12...	365,000	5.5	.03	32	6.8	2.3	2.2	111	24
SEP.									
28...	183,000	6.9	.07	29	8.0	2.8	1.0	1040	14

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM COBALT UNITS)
OCT.								
01-13	.9	.2	143	114	11	239	7.4	15
14-18	.9	.1	153	126	13	261	7.2	15
JUN.								
08-19	.7	.2	109	92	16	188	7.9	25
20-30	.0	.2	131	110	15	223	8.0	30
JUL.								
01-16	.0	.2	147	118	15	237	8.1	10
17-31	2.5	.2	139	115	17	232	8.1	10
AUG.								
01-04	2.5	.2	139	115	17	232	8.1	10
08-17	.7	.2	130	112	10	228	7.8	30
18-27	.7	.1	129	104	21	214	8.1	30
28-31	.7	.1	130	105	17	217	7.9	30
SEP.								
01-06	.7	.1	130	105	17	217	7.9	30
07-30	.0	.2	126	108	18	215	8.0	20
ANALYSES OF ADDITIONAL SAMPLES								
MAR.								
08...	.4	.4	178	149	15	294	7.5	5
MAY								
30...	1.1	.2	102	88	16	175	7.9	5
JUL.								
04...	.0	.2	126	105	12	215	8.0	--
AUG.								
12...	1.1	.1	129	109	18	223	8.0	30
SEP.								
28...	.4	.1	124	105	19	215	8.0	30

15564800 YUKON RIVER AT RUBY, ALASKA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	230	--	--	--	--	--	--	--	--	230	226	216
2	227	--	--	--	--	--	--	--	--	247	221	219
3	233	--	--	--	--	--	--	--	--	230	229	210
4	244	--	--	--	--	--	--	--	--	240	217	211
5	230	--	--	--	--	--	--	--	--	255	--	210
6	237	--	--	--	--	--	--	--	186	248	--	213
7	254	--	--	--	--	--	--	--	185	256	--	211
8	249	--	--	--	--	249	--	--	186	248	292	213
9	240	--	--	--	--	--	--	--	189	240	279	213
10	241	--	--	--	--	--	--	--	192	238	228	217
11	240	--	--	--	--	--	--	--	190	240	217	219
12	240	--	--	--	--	--	--	--	186	238	217	217
13	241	--	--	--	--	--	--	--	188	249	230	216
14	252	--	--	--	--	--	--	--	190	237	233	216
15	258	--	--	--	--	--	--	--	194	241	210	216
16	262	--	--	--	--	--	--	--	194	251	200	219
17	267	--	--	--	--	--	--	--	198	239	203	217
18	265	--	--	--	--	--	--	--	188	239	220	215
19	--	--	--	--	--	--	--	--	193	232	221	218
20	--	--	--	--	--	--	--	--	204	234	217	220
21	--	--	--	--	--	--	--	--	222	229	215	219
22	--	--	--	--	--	--	--	--	216	225	215	217
23	--	--	--	--	--	--	--	--	218	226	218	216
24	--	--	--	--	--	--	--	--	225	226	216	216
25	--	--	--	--	--	--	--	--	229	260	218	217
26	--	--	--	--	--	--	--	--	234	223	214	218
27	--	--	--	--	--	--	--	--	234	222	215	220
28	--	--	--	--	--	--	--	--	231	216	218	217
29	--	--	--	--	--	--	--	--	231	223	216	217
30	--	--	--	--	--	--	--	--	238	219	223	222
31	--	--	--	--	--	--	--	--	--	232	217	--
AVG	--	--	--	--	--	--	--	--	206	237	223	216

TEMPERATURE (°C) OF WATER, AUGUST TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
AUGUST...	--	--	--	--	--	--	--	12	12	11	11	11	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	--
SEPTEMBER	10	12	10	10	10	10	10	10	10	10	11	10	10	10	11	11	11	9	9	9	7	7	7	6	7	5	5	5	6	5	--	9

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
MAR 8, 1969	1007	0.0	22100	2	119	--	--	--	--	--	--	--	--	--	--	--	
MAY 30.....	1130	12.0	313000	545	461000	5	9	16	28	42	58	81	99	100	--	--	VCBW
JUL 4.....	2300	16.0	239000	772	498000	37	50	54	65	70	76	85	95	100	--	--	VCPW
AUG 13.....	1100	9.0	366000	867	857000	17	24	35	51	67	77	88	100	--	--	--	VCPW
SEP 28.....	1130		184000	132	65600	--	--	--	--	--	38	66	100	--	--	--	VW

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES IN ALASKA

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
SOUTHEASTERN MAINLAND STREAMS										
15008000 SALMON RIVER NEAR HYDER (LAT 56 01 34 LONG 130 03 55)										
JAN., 1969										
13...	34	2.3	30	26	1.4	1.1	.9	60	24	.0
MAR.										
15...	23	3.0	0	31	1.5	1.1	.7	64	31	.4
15015600 KLAHINI RIVER NEAR BELL ISLAND (LAT 56 03 15 LONG 131 02 55)										
MAR., 1969										
18...	34	5.6	100	5.6	.5	1.3	5.0	14	8.4	.4
MAY										
25...	1080	1.7	--	3.4	.0	.5	.4	6	.0	.4
15019000 BLACK BEAR COVE NEAR MEYERS CHUCK (LAT 55 43 30 LONG 132 09 48)										
MAY , 1969										
26...	--	1.8	--	3.8	.1	1.3	.3	10	.0	1.8
15022000 HARDING RIVER NEAR WRANGELL (LAT 56 12 50 LONG 131 38 15)										
JAN., 1969										
20...	40	5.2	270	4.5	.6	1.9	.8	16	3.2	1.7
MAR.										
13...	37	6.0	730	4.8	.5	1.1	.5	16	4.0	.4
15052000 LEMON CREEK NEAR JUNEAU (LAT 58 23 30 LONG 134 25 15)										
MAY , 1969										
22...	176	1.4	1500	5.6	.5	.5	1.2	15	6.2	.7
15052580 MENDENHALL RIVER AT LOOP ROAD BRIDGE, NEAR AUKE BAY (LAT 58 24 19 LONG 134 34 58)										
NOV., 1968										
20...	111	2.8	25300	6.8	1.2	4.1	2.0	24	.0	7.8
15052600 MENDENHALL RIVER AT LENGTHY ACRES, NEAR AUKE BAY (LAT 58 23 13 LONG 134 35 35)										
NOV., 1968										
20...	111	2.8	--	6.8	1.2	4.1	2.0	24	--	7.8
15052820 MENDENHALL RIVER AT MONTANA CREEK, NEAR AUKE BAY 1 (LAT 58 22 55 LONG 134 35 45)										
NOV., 1968										
20...	111	4.6	1220	6.0	1.7	10	2.2	25	7.4	11
15052900 MENDENHALL RIVER AT BROTHERHOOD BRIDGE, AT AUKE BAY (LAT 58 22 15 LONG 134 36 00)										
NOV., 1968										
20...	150	3.8	1030	71	220	1820	81	91	466	3300
15053000 MENDENHALL RIVER AT RUNWAY, NEAR AUKE BAY (LAT 58 21 37 LONG 134 35 52)										
NOV., 1968										
20...	150	5.1	1200	28	73	610	19	107	161	1110
15054100 PETERSON CREEK NEAR AUKE BAY (LAT 58 29 41 LONG 134 64 60)										
NOV., 1968										
16...	5.6	1.5	0	2.4	.5	5.3	--	10	2.5	6.0
15054500 BESSIE CREEK NEAR AUKE BAY (LAT 58 35 26 LONG 134 53 59)										
JUNE, 1969										
26...	1.5	3.5	50	13	1.7	.9	.8	39	8.6	1.1
15056100 SKAGWAY RIVER AT SKAGWAY (LAT 59 27 27 LONG 135 19 23)										
JUNE, 1969										
25...	1280	1.7	30	4.6	.7	.5	.8	16	1.4	.7
SEP.										
04...	504	1.9	--	6.2	1.2	.5	.8	22	1.0	1.1
15056200 WEST CREEK NEAR SKAGWAY (LAT 59 31 35 LONG 135 21 10)										
JUNE, 1969										
25...	764	1.5	40	2.6	.6	.9	.4	11	1.0	.7
SEP.										
04...	388	1.6	30	3.2	.9	.9	.4	15	1.0	.7
15056210 TAIYA RIVER NEAR SKAGWAY (LAT 59 30 43 LONG 135 20 58)										
JUNE, 1969										
25...	3060	1.4	20	3.2	.9	.5	.8	13	1.9	.4
SEP.										
04...	1230	1.7	20	4.4	1.0	.9	.8	18	2.4	.4

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
SOUTHEASTERN MAINLAND STREAMS									
15008000 SALMON RIVER NEAR HYDER (LAT 56 01 34 LONG 130 03 55)									
JAN., 1969									
13...	.1	.1	86	71	22	145	7.6	5	.0
MAR.									
15...	.2	.0	101	84	31	174	7.8	0	.0
15015600 KLAHINI RIVER NEAR BELL ISLAND (LAT 56 03 15 LONG 131 02 55)									
MAR., 1969									
18...	.0	.1	30	16	2	48	7.0	5	1.0
MAY									
25...	.0	.6	10	8	3	18	6.9	10	7.0
15019000 BLACK BEAR COVE NEAR MEYERS CHUCK (LAT 55 43 30 LONG 132 09 48)									
MAY , 1969									
26...	.0	.3	14	10	2	28	7.0	20	2.0
15022000 HARDING RIVER NEAR WRANGELL (LAT 56 12 50 LONG 131 38 15)									
JAN., 1969									
20...	.1	.4	27	14	1	45	7.0	5	.0
MAR.									
13...	.1	.2	26	14	1	38	7.0	0	.0
15052000 LEMON CREEK NEAR JUNEAU (LAT 58 23 30 LONG 134 25 15)									
MAY , 1969									
22...	.0	.7	25	16	4	42	7.5	0	--
15052580 MENDENHALL RIVER AT LOOP ROAD BRIDGE, NEAR AUKE BAY (LAT 58 24 19 LONG 134 34 58)									
NOV., 1968									
20...	.0	.5	40	22	2	69	6.8	5	1.0
1502600 MENDENHALL RIVER AT LENGTHY ACRES, NEAR AUKE BAY (LAT 58 23 13 LONG 134 35 35)									
NOV., 1968									
20...	.0	.5	46	22	2	69	6.8	--	1.0
15052820 MENDENHALL RIVER AT MONTANA CREEK, NEAR AUKE BAY 1 (LAT 58 22 55 LONG 134 35 45)									
NOV., 1968									
20...	.0	.9	57	22	1	88	6.8	5	1.5
15052900 MENDENHALL RIVER AT BROTHERHOOD BRIDGE, AT AUKE BAY (LAT 58 22 15 LONG 134 36 00)									
NOV., 1968									
20...	.0	.8	6039	1080	1005	11000	6.9	5	3.0
15053000 MENDENHALL RIVER AT RUNWAY, NEAR AUKE BAY (LAT 58 21 37 LONG 134 35 52)									
NOV., 1968									
20...	.3	.7	--	370	282	3700	6.7	--	--
15054100 PETERSON CREEK NEAR AUKE BAY (LAT 58 29 41 LONG 134 64 60)									
NOV., 1968									
16...	--	.1	--	8	0	38	7.8	--	--
15054500 BESSIE CREEK NEAR AUKE BAY (LAT 58 35 26 LONG 134 53 59)									
JUNE, 1969									
26...	.4	1.7	51	40	8	88	7.8	10	10
15056100 SKAGWAY RIVER AT SKAGWAY (LAT 59 27 27 LONG 135 19 23)									
JUNE, 1969									
25...	.1	1.3	20	14	2	32	7.3	10	8.3
SEP.									
04...	.1	--	25	20	2	45	7.4	5	7.0
15056200 WEST CREEK NEAR SKAGWAY (LAT 59 31 35 LONG 135 21 10)									
JUNE, 1969									
25...	.0	.4	13	9	0	22	7.6	5	5.0
SEP.									
04...	.0	.3	17	12	0	26	7.4	5	4.0
15056210 TAIYA RIVER NEAR SKAGWAY (LAT 59 31 35 LONG 135 21 10)									
JUNE, 1969									
25...	.0	.4	16	12	0	26	7.2	10	4.0
SEP.									
04...	.0	.2	21	15	0	33	7.1	5	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES IN ALASKA

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
SOUTHEASTERN MAINLAND STREAMS--CONTINUED										
15057500 WILLIAM HENRY CREEK NEAR AUKE BAY (LAT 58 44 46 LONG 135 14 25)										
JUNE, 1969										
24...	9.7	2.2	30	8.4	.9	1.2	.8	22	8.2	1.1
STREAMS ON REVILLAGIGEDO ISLAND										
15059500 WHIPPLE CREEK NEAR WARD COVE (LAT 55 26 38 LONG 131 47 21)										
MAY , 1969										
21...	12	3.T	--	3.4	.4	2.1	1.1	8	5.3	2.5
15063700 CARLANA LAKE AT KETCHIKAN (PUBLIC SUPPLY) (LAT 55 21 48 LONG 131 41 24)										
DEC., 1968										
17...	--	4.2	180	1.0	.4	2.1	.0	3	.0	3.5
15063800 KETCHIKAN LAKE AT KETCHIKAN (LAT 55 20 42 LONG 131 32 54)										
DEC., 1968										
17...	--	2.6	70	1.2	.3	1.3	5.0	4	.0	1.8
15065500 WHITMAN LAKE NEAR KETCHIKAN (LAT 55 19 39 LONG 131 31 18)										
DEC., 1968										
17...	--	2.7	50	2.2	.5	2.1	.0	4	.2	4.2
STREAMS ON PRINCE OF WALES ISLAND										
15081500 STANEY CREEK NEAR CRAIG (LAT 55 48 57 LONG 133 07 58)										
MAY , 1969										
16...	205	2.2	--	6.2	.5	2.2	.3	17	4.8	3.2
15081800 NORTH BRANCH TROCADERO CREEK NEAR HYDABURG (LAT 55 21 41 LONG 132 52 02)										
MAR., 1969										
22...	5T	2.5	120	4.6	.5	2.3	.1	11	5.4	5.7
MAY										
17...	109	1.2	--	3.4	.2	2.8	.2	10	2.5	3.2
15086600 BIG CREEK NEAR POINT BAKER (LAT 56 07 54 LONG 133 08 36)										
MAY , 1969										
18...	47	1.1	--	24	.4	1.7	.3	72	1.5	3.5
JULY										
28...	49	1.5	50	26	.9	.7	.4	73	1.9	3.5
15087100 WRANGELL CITY RESERVOIR (LAT 56 27 32 LONG 132 21 43)										
DEC., 1968										
17...	--	4.3	740	3.0	.5	1.2	1.0	9	1.0	.7
STREAMS ON MITKOF ISLAND										
15087550 PETERSBURG CITY RESERVOIR AT PETERSBURG (LAT 56 47 21 LONG 132 54 39)										
DEC., 1968										
12...	--	2.4	400	1.0	.4	1.1	.1	4	.0	.7
STREAMS ON BARANOF ISLAND										
15087650 CASCADE CREEK AT SITKA (LAT 57 04 27 LONG 135 21 48)										
DEC., 1968										
12...	--	5.2	40	6.0	.8	3.2	.0	18	3.0	3.9
15087700 INDIAN RIVER AT SITKA (CITY SOURCE) (LAT 57 03 13 LONG 135 13 57)										
DEC., 1968										
12...	--	4.3	0	6.0	.7	2.8	.4	18	3.4	3.9
STREAMS ON DOUGLAS ISLAND										
15108600 HILDA CREEK NEAR DOUGLAS (LAT 58 13 38 LONG 134 29 50)										
APR., 1969										
23...	10	3.0	300	2.2	.6	1.4	.0	9	2.0	2.5
SEP.,										
27...	3.2	3.3	10	5.0	1.1	1.2	.4	17	1.4	2.1
15108790 BEAR CREEK AT DOUGLAS (LAT 58 16 45 LONG 134 23 37)										
DEC., 1968										
09...	--	6.5	90	4.6	.6	2.3	.2	14	2.6	1.8
15108800 LAWSON CREEK AT DOUGLAS (LAT 58 17 07 LONG 134 24 32)										
JULY, 1969										
09...	84	2.8	0	2.0	.9	.8	.1	7	2.0	1.1

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)
SOUTHEASTERN MAINLAND STREAMS--CONTINUED									
15057500 WILLIAM HENRY CREEK NEAR AUKE BAY (LAT 58 44 46 LONG 135 14 25)									
JUNE, 1969									
24...	.0	.3	34	24	6	56	7.6	0	5.5
STREAMS ON REVILLAGIGEDO ISLAND									
15059500 WHIPPLE CREEK NEAR WARD COVE (LAT 55 26 38 LONG 131 47 21)									
MAY , 1969									
21...	.0	.4	23	10	4	36	7.0	20	--
15063700 CARLANA LAKE AT KETCHIKAN (PUBLIC SUPPLY) (LAT 55 21 48 LONG 131 41 24)									
DEC., 1968									
17...	.1	.0	12	4	2	20	5.8	5	5.0
15063800 KETCHIKAN LAKE AT KETCHIKAN (LAT 55 20 42 LONG 131 32 54)									
DEC., 1968									
17...	.2	.0	10	4	1	1	--	5	5.0
15065500 WHITMAN LAKE NEAR KETCHIKAN (LAT 55 19 39 LONG 131 31 18)									
DEC., 1968									
17...	.2	.0	14	8	5	24	--	5	5.0
STREAMS ON PRINCE OF WALES ISLAND									
15081500 STANEY CREEK NEAR CRAIG (LAT 55 48 57 LONG 133 07 58)									
MAY , 1969									
16...	.0	.3	28	18	4	47	7.2	30	--
15081800 NORTH BRANCH TROCADERO CREEK NEAR HYDABURG (LAT 55 21 41 LONG 132 52 02)									
MAR., 1969									
22...	.0	.4	27	13	4	42	7.0	5	.0
MAY									
17...	.0	.2	19	10	2	26	6.9	20	--
15086600 BIG CREEK NEAR POINT BAKER (LAT 56 07 54 LONG 133 08 36)									
MAY , 1969									
18...	.0	.7	68	62	3	127	7.9	30	13
JULY									
28...	.0	3.0	74	70	10	141	8.0	25	15
15087100 WRANGELL CITY RESERVOIR (LAT 56 27 32 LONG 132 21 43)									
DEC., 1968									
17...	.2	.0	17	10	2	25	6.2	5	--
STREAM ON MITKOF ISLAND									
15087550 PETERSBURG CITY RESERVOIR AT PETERSBURG (LAT 56 47 21 LONG 132 54 39)									
DEC., 1968									
12...	.1	.0	7	4	1	16	6.1	5	--
STREAMS ON BARANOF ISLAND									
15087650 CASCADE CREEK AT SITKA (LAT 57 04 27 LONG 135 21 48)									
DEC., 1968									
12...	.2	.0	31	18	3	52	6.5	5	--
15087700 INDIAN RIVER AT SITKA (CITY SOURCE) (LAT 57 03 13 LONG 135 13 57)									
DEC., 1968									
12...	.2	.0	30	18	3	51	7.0	5	--
STREAMS ON DOUGLAS ISLAND									
15108600 HILDA CREEK NEAR DOUGLAS (LAT 58 13 38 LONG 134 29 50)									
APR., 1969									
23...	.1	.0	16	8	0	32	7.2	30	2.0
SEP.									
27...	.0	.6	29	17	3	40	7.9	0	5.5
15108790 BEAR CREEK AT DOUGLAS (LAT 58 16 45 LONG 134 23 37)									
DEC., 1968									
09...	.2	.0	26	14	2	41	6.5	5	.5
15108800 LAWSON CREEK AT DOUGLAS (LAT 58 17 07 LONG 134 24 32)									
JULY, 1969									
09...	.1	1.0	14	8	3	18	7.2	15	10

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES IN ALASKA

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
MAINLAND STREAMS WEST OF LONGITUDE 141°										
15200000 GAKONA RIVER AT GAKONA (LAT 62 18 05 LONG 145 18 20)										
OCT., 1968										
03...	362	9.5	20	38	8.1	8.5	.6	138	22	6.6
15208100 SQUIRREL CREEK AT TONSINA (LAT 61 40 05 LONG 145 10 30)										
MAY , 1969										
21...	87	9.2	--	13	2.7	2.3	1.0	48	1.0	.4
15202000 COPPER RIVER NEAR CHITINA (LAT 61 28 00 LONG 144 27 20)										
OCT., 1968										
04...	21600	7.8	1070	26	5.2	6.4	.9	82	21	6.6
15216000 POWER CREEK NEAR CORDOVA (LAT 60 35 15 LONG 145 37 05)										
JULY, 1969										
22...	293	2.6	170	5.8	.4	1.0	.0	14	1.0	.4
15238600 SPRUCE CREEK NEAR SEWARD (LAT 60 04 10 LONG 149 27 10)										
OCT., 1968										
24...	19	3.0	--	12	.4	1.6	.1	27	8.5	.2
JAN., 1969										
17...	1.0	2.6	30	13	.5	1.5	.0	30	12	.7
MAY										
06...	15	1.3	180	13	.5	1.9	.2	30	9.1	2.5
JUNE										
25...	358	1.9	0	6.0	.2	.8	.2	16	4.6	.4
JULY										
29...	104	2.0	10	8.0	.1	.8	1.1	18	6.8	.7
15239900 ANCHOR RIVER NEAR ANCHOR POINT (LAT 59 44 50 LONG 151 45 10)										
OCT., 1968										
22...	58	11	1140	9.4	5.4	5.8	1.9	59	4.5	3.4
15242000 KASILOF RIVER NEAR KASILOF (LAT 60 19 05 LONG 151 15 35)										
OCT., 1968										
21...	2210	5.0	1240	1.6	1.4	1.7	1.7	10	5.4	.4
15248000 TRAIL RIVER NEAR LAWING (LAT 60 26 00 LONG 149 22 20)										
JAN., 1969										
16...	63	4.0	830	15	1.1	1.5	.2	41	10	.7
15258000 KENAI RIVER AT COOPER LANDING (LAT 60 29 35 LONG 149 48 25)										
OCT., 1968										
23...	1120	3.2	370	12	1.0	1.1	.8	28	8.3	.5
15266300 KENAI RIVER AT SOLDOTNA (LAT 60 28 50 LONG 151 05 15)										
OCT., 1968										
23...	2090	4.0	530	10	1.2	1.8	1.1	32	5.4	.8
JAN., 1969										
15...	1190	6.1	820	11	1.4	2.3	1.0	36	8.7	1.4
24...	4340	3.3	40	9.7	.9	1.3	1.0	29	6.0	.6
FEB.										
27...	--	--	120	--	--	--	--	--	--	--
MAR.										
19...	1530	6.2	40	13	1.4	2.5	2.2	41	7.0	1.4
MAY										
05...	1480	6.8	420	9.3	1.4	2.4	1.0	34	4.6	.0
JUNE										
25...	14200	3.5	40	9.0	.9	1.2	1.3	26	5.7	.0
JULY										
31...	11000	3.4	340	9.6	.7	1.3	1.9	28	6.6	.0
SEP.										
09...	5450	3.4	330	10	1.0	1.7	1.1	30	5.9	.0
15266500 BEAVER CREEK NEAR KENAI (LAT 60 33 50 LONG 151 07 05,										
JAN., 1969										
15...	13	28	2220	18	4.5	6.2	2.3	95	.0	1.9
FEB.										
26...	17	29	81	18	4.5	6.2	3.4	99	.0	2.5
APR.										
09...	32	20	830	12	3.1	4.2	2.5	65	.0	2.1
MAY										
05...	27	22	2740	17	3.6	4.8	2.3	80	7.1	.4
AUG.										
20...	15	30	1	20	4.3	5.9	2.2	77	.4	1.8
21...	--	39	320	6.2	6.0	27	5.7	128	.0	2.8
SEP.										
09...	19	26	1380	17	4.3	6.0	.3	86	2.3	3.2
30...	--	41	800	8.6	15	57	9.5	164	.8	60

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
MAINLAND STREAMS WEST OF LONGITUDE 141°									
15200000 GAKONA RIVER AT GAKONA (LAT 62 18 05 LONG 145 18 20)									
OCT., 1968									
03...	.1	.0	162	128	5	280	8.2	5	3.0
15208100 SQUIRREL CREEK AT TONSINA (LAT 61 40 05 LONG 145 10 30)									
MAY , 1969									
21...	.1	.5	55	43	3	92	7.8	50	4.0
15202000 COPPER RIVER NEAR CHITINA (LAT 61 28 00 LONG 144 27 20)									
OCT., 1968									
04...	.1	.0	116	86	19	199	8.0	5	2.0
15216000 POWER CREEK NEAR CORDOVA (LAT 60 35 15 LONG 145 37 05)									
JULY, 1969									
22...	.2	.1	19	16	5	37	7.3	10	8.0
15238600 SPRUCE CREEK NEAR SEWARD (LAT 60 04 10 LONG 149 27 10)									
OCT., 1968									
24...	.4	.5	40	31	9	73	7.9	5	3.5
JAN., 1969									
17...	.0	1.0	46	34	10	86	7.5	5	.0
MAY									
06...	.3	1.7	46	34	9	83	7.7	0	3.0
JUNE									
25...	.3	.2	22	16	3	41	7.4	10	3.0
JULY									
29...	.2	.1	29	21	6	48	7.4	10	6.0
15239900 ANCHOR RIVER NEAR ANCHOR POINT (LAT 59 44 50 LONG 151 45 10)									
OCT., 1968									
22...	.4	1.1	73	46	0	110	8.1	30	.0
15242000 KASILOF RIVER NEAR KASILOF (LAT 60 19 05 LONG 151 15 35)									
OCT., 1968									
21...	.3	.3	24	10	2	41	7.1	10	4.0
15248000 TRAIL RIVER NEAR LAWING (LAT 60 26 00 LONG 149 22 20)									
JAN., 1969									
16...	.0	.9	54	42	8	105	7.9	5	1.0
15258000 KENAI RIVER AT COOPER LANDING (LAT 60 29 35 LONG 149 48 35)									
OCT., 1968									
23...	.4	.9	43	35	12	72	8.0	5	4.0
15266300 KENAI RIVER AT SOLDOTNA (LAT 60 28 50 LONG 151 05 15)									
OCT., 1968									
23...	.4	.5	42	30	4	70	7.7	10	--
JAN., 1969									
15...	.1	.7	52	34	4	85	7.5	5	.0
24...	.2	.9	38	28	4	69	7.5	0	.0
FEB.									
27...	--	--	--	--	--	--	--	--	--
MAR.									
19...	.3	.2	54	38	4	86	7.4	--	.0
MAY									
05...	.0	.0	43	29	1	0	7.5	5	5.0
JUNE									
25...	.3	.6	36	26	4	62	7.5	5	.0
JULY									
31...	.1	.4	38	27	4	66	7.6	10	13
SEP.									
09...	.1	2.9	41	30	5	67	7.7	20	9.0
15266500 BEAVER CREEK NEAR KENAI (LAT 60 33 50 LONG 151 07 05)									
JAN., 1969									
15...	.1	.4	110	64	0	158	7.6	30	.0
FEB.									
26...	.0	.1	113	64	0	158	7.4	15	.0
APR.									
09...	.0	.6	77	42	0	106	7.3	25	1.0
MAY									
05...	.2	.6	100	58	0	137	7.8	5	5.0
AUG.									
20...	.1	.2	112	67	0	153	7.8	10	8.0
21...	.2	.1	150	40	0	202	8.1	10	4.0
SEP.									
09...	.1	.9	102	59	0	141	7.9	20	5.0
30...	.1	.2	273	83	0	430	8.0	10	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED										
15267000 BISHOP CREEK NEAR KENAI (LAT 60 46 35 LONG 151 05 45)										
AUG., 1969										
20...	4.2	12	380	14	3.2	4.5	1.0	64	.0	2.8
15267050 SWANSON RIVER NEAR STERLING (LAT 60 44 40 LONG 150 50 55)										
AUG., 1969										
20...	--	16	480	29	--	--	--	--	--	--
15267060 SWANSON RIVER NEAR KENAI (LAT 60 47 15 LONG 151 00 30)										
AUG., 1969										
20...	--	16	480	29	6.4	.1	2.5	140	.4	3.5
15267900 RESURRECTION CREEK NEAR HOPE (LAT 60 53 40 LONG 149 38 13)										
OCT., 1968										
25...	111	6.8	--	17	2.2	4.8	.2	52	8.5	6.5
JAN., 1969										
23...	64	7.2	250	18	2.5	5.9	.0	50	6.8	12
MAR.										
24...	58	6.9	--	25	2.6	6.6	1.3	59	28	8.5
MAY										
12...	131	7.3	11000	16	2.0	4.6	.3	49	7.6	7.1
22...	519	2.8	160	11	1.3	2.3	.5	34	4.8	2.8
AUG.										
01...	309	5.6	130	14	1.6	2.8	.1	43	6.4	3.5
15272550 GLACIER CREEK AT GIRDWOOD (LAT 60 56 29 LONG 149 09 44)										
APR., 1969										
01...	33	4.0	10	21	2.6	3.7	1.0	66	16	2.8
15273900 SOUTH FORK CAMPBELL CREEK AT CANYON MOUTH, NEAR ANCHORAGE 1 (LAT 61 08 55 LONG 149 43 10)										
OCT., 1968										
04...	31	7.1	60	13	1.9	1.3	.1	32	12	.2
DEC.										
05...	18	8.6	20	13	2.3	1.5	.5	40	12	.2
MAR., 1969										
28...	8.9	9.5	30	18	.0	1.8	.8	44	12	.0
15274000 SOUTH FORK CAMPBELL CREEK NEAR ANCHORAGE (LAT 61 10 00 LONG 149 46 30)										
APR., 1969										
07...	4.0	7.9	20	17	2.6	1.6	.2	48	13	.4
08...	4.0	7.8	150	16	2.8	1.5	.6	48	12	1.1
21...	4.0	8.0	70	15	2.6	1.5	.3	46	13	.0
JULY										
01...	40	5.2	90	10	1.4	.9	.2	28	11	.0
02...	.00	5.2	40	11	1.3	.0	.7	4	9.3	.0
15274600 CAMPBELL CREEK NEAR SPENARD (LAT 61 08 20 LONG 149 55 20)										
MAR., 1969										
28...	17	9.6	50	16	4.1	3.4	1.1	60	17	3.5
APR.										
07...	19	9.2	230	17	4.0	2.9	1.1	58	15	3.5
08...	19	8.9	280	17	4.0	2.9	1.2	55	14	3.2
21...	22	7.5	1200	12	3.2	2.0	.9	42	11	.7
JULY										
01...	67	6.2	90	14	2.3	1.4	.3	40	12	.0
02...	.00	5.8	50	13	2.4	1.0	.2	39	12	7.0
15274800 SOUTH BRANCH OF SOUTH FORK CHESTER CREEK NEAR ANCHORAGE (LAT 61 12 22 LONG 149 44 02)										
DEC., 1968										
02...	--	12	160	17	4.6	2.1	.7	66	14	.7
APR., 1969										
16...	--	11	1900	28	6.1	3.6	.9	98	18	3.5
MAY										
07...	--	11	470	20	3.2	1.8	.6	64	11	.4
15274970 CHESTER CREEK AT NORTHERN LIGHTS BOULEVARD, NEAR ANCHORAGE 1 (LAT 61 11 45 LONG 149 49 37)										
APR., 1969										
16...	9.0	9.0	2900	13	3.7	2.1	1.4	50	12	1.1
15274980 RUSSIAN JACK SPRINGS NEAR ANCHORAGE (LAT 61 12 25 LONG 149 46 55)										
MAY , 1969										
07...	--	12	10	31	5.8	4.3	.7	110	16	3.5
15275000 CHESTER CREEK AT ANCHORAGE (LAT 61 12 00 LONG 149 50 10)										
DEC., 1968										
02...	12	13	270	24	5.1	3.8	1.1	84	17	2.2
APR., 1969										
02...	13	11	80	25	5.6	4.2	1.7	91	17	4.0
MAY										
09...	14	11	840	25	5.0	3.5	.6	83	16	2.5
JULY										
14...	10	10	650	26	5.7	3.3	1.1	89	16	3.2

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED									
15267000 BISHOP CREEK NEAR KENAI (LAT 60 46 35 LONG 151 05 45)									
AUG., 1969									
20...	.0	.1	70	48	0	113	7.9	10	15
15267050 SWANSON RIVER NEAR STERLING (LAT 60 44 40 LONG 150 50 55)									
AUG., 1969									
20...	--	--	--	--	--	229	8.3	--	--
15267060 SWANSON RIVER NEAR KENAI (LAT 60 47 15 LONG 151 00 30)									
AUG., 1969									
20...	.1	.0	129	99	0	229	8.3	--	13
15267900 RESURRECTION CREEK NEAR HOPE (LAT 60 53 40 LONG 149 38 13)									
OCT., 1968									
25...	.4	1.3	74	51	8	131	8.2	10	1.0
JAN., 1969									
23...	.1	1.2	79	55	14	156	7.9	5	.0
MAR.									
24...	.3	1.2	109	74	26	164	7.7	5	.0
MAY									
12...	.0	1.5	70	49	9	123	7.8	5	--
22...	.0	2.0	45	33	5	79	7.6	10	5.0
AUG.									
01...	.1	.1	55	42	7	100	7.8	10	11
15272550 GLACIER CREEK AT GIRDWOOD (LAT 60 56 29 LONG 149 09 44)									
APR., 1969									
01...	.1	1.0	85	64	10	146	7.7	0	1.0
15273900 SOUTH FORK CAMPBELL CREEK AT CANYON MOUTH, NEAR AHCNORAGE 1 (LAT 61 08 55 LONG 149 43 10)									
OCT., 1968									
04...	.4	.4	52	40	14	88	7.2	5	2.0
DEC.									
05...	.0	.4	59	44	11	101	7.4	5	.0
MAR., 1969									
28...	.0	.9	65	45.	9	108	7.7	0	.0
15274000 SOUTH FORK CAMPBELL CREEK NEAR ANCHORAGE (LAT 61 10 00 LONG 149 46 30)									
APR., 1969									
07...	.1	1.5	68	53	13	108	7.7	0	1.0
08...	.1	1.4	68	52	12	108	7.9	20	--
21...	.2	1.9	66	48	10	106	7.8	10	2.0
JULY									
01...	.4	.2	43	32	9	73	7.5	0	--
02...	.2	40	41	33	9	74	7.7	5	--
15274600 CAMPBELL CREEK NEAR SPENARD (LAT 61 08 20 LONG 149 55 20)									
MAR., 1969									
28...	.0	1.4	76	58	9	138	7.6	0	.0
APR.									
07...	.1	.9	82	58	10	133	7.4	0	--
08...	.1	1.2	80	58	13	127	7.2	0	--
21...	.1	.7	60	44	10	100	7.5	30	1.0
JULY									
01...	.3	.2	57	44	11	97	7.6	10	15
02...	.3	.4	61	43	11	96	7.9	5	14
15274800 SOUTH BRANCH OF SOUTH FORK CHESTER CREEK NEAR ANCHORAGE (LAT 61 12 22 LONG 149 44 02)									
DEC., 1968									
02...	.0	.7	90	62	8	141	7.6	5	.0
APR., 1969									
16...	.2	3.1	124	94	14	201	7.5	20	--
MAY									
07...	.0	1.2	82	62	10	131	7.7	5	--
15274970 CHESTER CREEK AT NORTHERN LIGHTS BOULEVARD, NEAR ANCHORAGE 1 (LAT 61 11 45 LONG 149 49 37)									
APR., 1969									
16...	.1	1.0	71	48	7	104	7.3	30	--
15274980 RUSSIAN JACK SPRINGS NEAR ANCHORAGE (LAT 61 12 25 LONG 149 46 55)									
MAY , 1969									
07...	.0	5.0	132	101	11	219	--	5	5.0
15275000 CHESTER CREEK AT ANCHORAGE (LAT 61 12 00 LONG 149 50 10)									
DEC., 1968									
02...	.0	2.6	111	81	12	147	7.7	5	.0
APR., 1969									
02...	.0	1.6	116	85	10	194	7.7	0	1.0
MAY									
09...	.1	2.0	108	83	15	179	7.9	5	5.0
JULY									
14...	.2	1.0	112	89	16	18	7.9	10	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED										
15275070 CHESTER CREEK AT C STREET, AT ANCHORAGE (LAT 61 12 12 LONG 149 53 05)										
APR., 1969										
21...	--	9.8	1300	22	5.2	4.2	1.0	76	17	6.0
15275100 CHESTER CREEK AT ARCTIC BOULDEVARD, AT ANCHORAGE (LAT 61 12 20 LONG 149 53 45)										
DEC., 1968										
02...	12	13	360	24	6.9	5.0	1.0	105	19	4.2
APR., 1969										
02...	17	10	60	29	7.6	7.5	2.0	110	19	11
AUG.										
28...	12	11	130	28	7.3	4.6	1.1	102	23	5.3
15276000 SHIP CREEK NEAR ANCHORAGE (LAT 61 13 25 LONG 149 38 00)										
NOV., 1968										
29...	19	8.6	0	20	3.8	2.4	.6	67	20	.4
MAR., 1969										
26...	13	7.3	20	22	3.8	2.5	1.1	70	20	.4
APR.										
07...	10	7.3	80	22	3.6	2.3	.9	70	19	.7
08...	10	7.9	120	21	3.8	2.3	.4	69	18	.7
17...	13	8.2	230	22	4.0	2.3	.9	72	16	.7
JULY										
01...	--	4.9	0	17	2.3	1.9	.3	48	17	.0
02...	.00	4.9	0	18	2.4	2.1	.2	48	17	.0
15276500 SHIP CREEK AT ELMENDORF AIR FORCE BASE (LAT 61 14 20 LONG 149 47 25)										
NOV., 1968										
29...	2.7	9.2	0	25	4.5	3.0	.7	70	22	1.2
MAR., 1969										
26...	1.3	9.0	0	24	4.9	3.0	1.0	84	18	.0
15276550 SHIP CREEK ABOVE POWER PLANT AT ELMENDORF AIR FORCE BASE 1										
APR., 1969										
07...	--	9.6	50	42	6.1	2.9	.7	143	17	3.2
08...	--	9.2	80	44	5.5	3.0	.8	143	17	3.2
JULY										
01...	--	5.7	30	21	2.9	2.0	.3	62	16	.0
02...	--	5.1	260	19	2.9	2.3	1.1	61	16	.4
15291000 SUSITNA RIVER NEAR DENALI (LAT 63 06 20 LONG 147 30 55)										
OCT., 1968										
01...	963	7.4	610	29	3.6	10	2.1	92	20	11
15291500 SUSITNA RIVER NEAR CANTWELL (LAT 62 42 00 LONG 147 32 50)										
MAY , 1969										
15...	8670	2.7	5000	17	2.4	4.8	2.8	54	12	7.4
JUNE										
24...	15800	4.6	12000	18	4.4	2.1	5.2	64	14	2.1
15292700 TALKEETNA RIVER NEAR TALKEETNA (LAT 62 20 50 LONG 150 00 45) (HYDROLOGIC BENCH-MARK STATION)										
OCT., 1968										
01...	2440	2.9	80	19	2.4	7.8	.6	55	8.3	11
DEC.										
21...	544	12	370	26	2.8	13	1.6	70	16	24
APR., 1969										
03...	373	8.5	80	26	2.5	15	1.7	63	15	33
MAY										
01...	974	7.8	780	19	2.4	13	1.4	49	10	26
JUNE										
20...	5750	5.9	980	11	1.6	4.7	1.7	33	5.9	6.4
JULY, 1969										
25...	7420	5.0	1460	13	1.2	4.8	2.2	40	6.3	5.3
STREAMS ON KODIAK ISLAND										
15296000 UGANIK RIVER NEAR KODIAK (LAT 57 41 05 LONG 153 25 10)										
JAN., 1969										
09...	80	5.6	70	7.2	1.2	2.6	.2	21	7.9	2.2
SEP.										
17...	1140	3.6	40	4.4	.8	1.8	.2	13	2.3	2.1
15297200 MYRTLE CREEK NEAR KODIAK (LAT 57 36 15 LONG 152 24 10)										
JAN., 1969										
08...	1.5	6.0	30	3.5	.7	3.2	.0	1	3.0	3.6
FEB.										
18...	1.8	5.8	20	3.4	.7	3.8	.9	11	5.6	5.3
SEP.										
16...	58	6.0	40	2.2	.7	2.9	.1	9	2.9	3.9
15297439 DEVILS CREEK NEAR KODIAK (LAT 57 44 50 LONG 152 31 00)										
OCT., 1968										
05...	--	5.8	50	9.4	1.1	3.6	.2	26	8.3	4.1

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (ND3) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED									
15275070 CHESTER CREEK AT C STREET, AT ANCHORAGE (LAT 61 12 12 LONG 149 53 05)									
APR., 1969									
21...	.2	1.6	105	78	16	177	7.4	30	1.0
15275100 CHESTER CREEK AT ARCTIC BOULEVARD, AT ANCHORAGE (LAT 61 12 20 LONG 149 53 45)									
DEC., 1968									
02...	.0	2.4	128	84	0	215	7.5	5	.0
APR., 1969									
02...	.1	2.3	143	104	14	242	8.1	0	1.0
AUG.									
28...	.2	1.6	132	101	17	221	7.8	20	8.5
15276000 SHIP CREEK NEAR ANCHORAGE (LAT 61 13 25 LONG 149 38 00)									
NOV., 1968									
29...	.0	.3	89	66	11	152	7.7	5	.0
MAR., 1969									
26...	.1	.5	93	71	14	153	7.7	--	.0
APR.									
07...	.1	1.2	91	71	13	154	8.0	0	1.0
08...	.1	.9	89	69	13	152	7.9	0	--
17...	.0	1.5	91	72	13	146	8.0	10	--
JULY									
01...	.4	.6	68	52	13	115	7.8	5	--
02...	.3	.4	69	54	15	118	8.0	5	8.0
15276500 SHIP CREEK AT ELMENDORF AIR FORCE BASE (LAT 61 14 20 LONG 149 47 25)									
NOV., 1968									
29...	.0	.5	101	73	16	172	7.6	5	2.0
MAR., 1969									
26...	.1	.6	102	80	11	174	7.0	0	3.0
15276550 SHIP CREEK ABOVE POWER PLANT AT ELMENDORF AIR FORCE BASE 1									
APR., 1969									
07...	.1	.6	152	130	13	253	8.0	0	3.0
08...	.1	.3	153	132	15	253	8.4	0	--
JULY									
01...	.4	.0	79	64	13	137	7.6	5	14
02...	.0	.8	78	61	11	135	7.9	10	13
15291000 SUSITNA RIVER NEAR DENALI (LAT 63 06 20 LONG 147 30 55)									
OCT., 1968									
01...	.0	.0	130	87	12	226	7.8	5	1.0
15291500 SUSITNA RIVER NEAR CANTWELL (LAT 62 42 00 LONG 147 32 50)									
MAY , 1969									
15...	.1	.7	77	54	10	136	7.6	30	4.0
JUNE									
24...	.2	.2	95	62	10	145	8.0	5	--
15292700 TALKEETNA RIVER NEAR TALKEETNA (LAT 62 20 50 LONG 150 00 45) (HYDROLOGIC BENCH-MARK STATION)									
OCT., 1968									
01...	.1	.6	79	53	8	152	7.8	5	4.0
DEC.									
21...	.2	.1	138	76	18	230	7.9	20	1.0
APR., 1969									
03...	.1	1.6	134	75	23	235	8.1	0	.0
MAY									
01...	.3	.9	114	58	18	187	7.7	5	2.0
JUNE									
20...	.6	.2	55	34	7	95	7.6	10	12
JULY, 1969									
25...	.0	.2	54	36	2	120	7.6	25	10
STREAMS ON KODIAK ISLAND									
15296000 UGANIK RIVER NEAR KODIAK (LAT 57 41 05 LONG 153 25 10)									
JAN., 1969									
09...	.0	.1	44	23	6	64	7.3	0	--
SEP.									
17...	.0	.2	24	14	0	41	7.3	20	8.5
15297200 MYRTLE CREEK NEAR KODIAK (LAT 57 36 15 LONG 152 24 10)									
JAN., 1969									
08...	.0	.1	21	12	11	45	7.1	0	--
FEB.									
18...	.1	.8	31	12	3	49	7.1	5	.0
SEP.									
16...	.0	1.6	25	8	5	35	7.0	15	8.0
15297439 DEVILS CREEK NEAR KODIAK (LAT 57 44 50 LONG 152 31 00)									
OCT., 1968									
05...	.0	.8	44	26	4	71	7.5	10	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES IN ALASKA

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
STREAMS ON KODIAK ISLAND--CONTINUED										
15297450 MIDDLE FORK PILLAR CREEK NEAR KODIAK (LAT 57 48 15 LONG 152 25 50)										
OCT., 1968										
05...	--	6.1	80	7.1	1.2	4.2	.5	22	4.5	5.4
FEB., 1969										
18...	1.3	6.4	30	5.0	1.0	5.8	.9	16	5.2	8.9
STREAMS ON AMCHITKA ISLAND										
15297660 CONSTANTINE SPRING ON AMCHITKA ISLAND (LAT 51 22 50 LONG 179 15 00)										
JAN., 1969										
12...	--	14	540	.4	3.6	50	4.6	83	9.5	38
MAR.										
12...	--	15	30	1.6	3.9	50	4.8	87	7.0	40
15297666 WEST END PUMPHOUSE LAKE ON AMCHITKA ISLAND (LAT 51 22 13 LONG 179 16 45)										
OCT., 1968										
12...	.00	.7	220	.8	1.4	63	3.6	84	13	41
MAR., 1969										
12...	--	13	20	1.0	3.0	62	4.1	65	13	61
15297667 PUMPHOUSE LAKE OUTLET ON AMCHITKA ISLAND (LAT 51 22 08 LONG 179 16 45)										
OCT., 1968										
12...	.00	5.4	60	.5	1.0	67	3.8	92	12	41
MAINLAND STREAMS WEST OF LONGITUDE 141°										
15304000 KUSKOKWIM RIVER AT CROOKED CREEK (LAT 61 52 10 LONG 158 06 40)										
MAR., 1969										
11...	8630	11	50	40	8.3	2.7	1.7	145	18	.0
MAY										
14...	82900	4.1	56	13	2.7	1.2	.9	44	7.7	.0
15356000 YUKON RIVER AT EAGLE (LAT 64 47 30 LONG 141 12 00)										
JUNE, 1969										
14...	--	5.1	--	30	5.9	1.8	3.4	100	17	.4
AUG.										
28...	--	6.0	630	28	6.7	2.1	1.0	93	24	.7
15389000 PORCUPINE RIVER NEAR FORT YUKON (LAT 66 59 35 LONG 143 07 45)										
APR., 1969										
28...	951	3.0	0	60	12	4.8	.3	214	21	5.7
MAY										
28...	57100	2.6	22	21	3.7	1.3	1.2	76	8.2	.7
15389500 CHANDALAR RIVER NEAR VENETIE (LAT 67 06 00 LONG 147 10 30)										
APR., 1969										
29...	400	3.0	--	48	6.0	.8	.1	161	17	.7
MAY										
29...	4960	2.1	--	34	5.1	.8	.6	119	12	.4
SEP.										
24...	2500	3.3	0	32	7.2	1.2	.6	108	22	.7
15439800 BOULDER CREEK NEAR CENTRAL (LAT 65 34 10 LONG 144 52 50)										
MAY , 1969										
13...	52	4.0	89000	5.8	2.0	.7	1.3	10	6.9	2.1
14...	49	5.2	760	7.0	1.9	.6	1.6	12	1.4	.7
JUNE										
25...	1.3	7.2	350	19	5.5	1.8	1.1	35	41	.4
AUG.										
19...	5.4	7.1	--	16	5.1	1.6	.5	34	32	.7
SEP.										
27...	3.5	7.7	--	15	5.0	1.6	.4	32	30	.0
15476D00 TANANA RIVER NEAR TANACROSS (LAT 63 23 20 LONG 143 44 45)										
JULY, 1969										
18...	28800	9.0	150	20	4.6	4.4	1.9	85	11	.4

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)
STREAMS ON KODIAK ISLAND--CONTINUED									
15297450 MIDDLE FORK PILLAR CREEK NEAR KODIAK (LAT 57 48 15 LONG 152 25 50)									
OCT., 1968									
05...	.0	1.1	39	22	4	61	7.2	10	--
FEB., 1969									
18...	.2	.4	42	16	3	73	7.0	5	5.0
STREAMS ON AMCHITKA ISLAND									
15297660 CONSTANTINE SPRING ON AMCHITKA ISLAND (LAT 51 22 50 LONG 179 15 00)									
JAN., 1969									
12...	.4	.2	168	16	0	282	7.6	15	4.0
MAR.									
12...	.4	.2	166	20	0	290	6.8	5	--
15297666 WEST END PUMPHOUSE LAKE ON AMCHITKA ISLAND (LAT 51 22 13 LONG 179 16 45)									
OCT., 1968									
12...	.4	.4	167	7	0	309	7.6	50	--
MAR., 1969									
12...	.3	.3	190	15	0	338	6.6	15	--
15297667 PUMPHOUSE LAKE OUTLET ON AMCHITKA ISLAND (LAT 51 22 08 LONG 179 16 45)									
OCT., 1968									
12...	.5	.5	178	7	0	313	7.7	5	--
MAINLAND STREAMS WEST OF LONGITUDE 141°									
15304000 KUSKOKWIM RIVER AT CROOKED CREEK (LAT 61 52 10 LONG 158 06 40)									
MAR., 1969									
11...	.4	.8	154	134	15	251	7.9	5	.0
MAY									
14...	.2	.4	53	44	8	92	7.4	50	5.0
15356000 YUKON RIVER AT EAGLE (LAT 64 47 30 LONG 141 12 00)									
JUNE, 1969									
14...	.1	1.0	114	98	16	193	8.1	10	15
AUG.									
28...	.2	.0	115	97	59	197	8.0	20	10
15389000 PORCUPINE RIVER NEAR FORT YUKON (LAT 66 59 35 LONG 143 07 45)									
APR., 1969									
28...	.2	.6	213	198	22	363	8.2	5	.0
MAY									
28...	.1	.5	76	68	6	138	7.2	50	5.5
15389500 CHANDALAR RIVER NEAR VENETIE (LAT 67 06 00 LONG 147 10 30)									
APR., 1969									
29...	.2	.8	156	144	12	272	8.1	0	.0
MAY									
29...	.1	.3	114	106	8	203	8.0	20	8.0
SEP.									
24...	.0	.8	121	110	22	217	8.1	35	1.0
15439800 BOULDER CREEK NEAR CENTRAL (LAT 65 34 10 LONG 144 52 50)									
MAY , 1969									
13...	.7	1.7	31	22	14	53	6.3	150	.0
14...	.5	1.8	28	26	16	48	6.4	100	.0
JUNE									
25...	.3	.4	94	70	41	156	7.6	10	--
AUG.									
19...	.2	1.5	82	61	33	133	7.5	20	4.0
SEP.									
27...	.3	2.4	78	58	32	130	7.4	20	1.0
15476000 TANANA RIVER NEAR TANACROSS (LAT 63 23 20 LONG 143 44 45)									
JULY, 1969									
18...	.2	1.4	95	74	4	162	8.1	--	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES IN ALASKA

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED										
15514500 WOOD RIVER NEAR FAIRBANKS (LAT 64 26 00 LONG 148 12 45)										
OCT., 1968										
12...	358	10	250	48	10	2.2	1.3	139	50	.2
FEB., 1969										
15...	130	15	190	35	6.8	2.5	2.0	131	13	.0
APR.										
09...	29	14	480	32	6.5	2.1	1.2	136	2.1	1.1
MAY										
23...	1050	6.0	110	35	7.5	1.4	1.9	96	43	.4
JULY										
12...	2030	5.8	--	41	8.0	1.4	2.5	100	56	.0
AUG.										
12...	895	6.9	220	44	10	2.3	1.9	120	55	.7
SEP.										
30...	350	9.0	1800	51	9.0	2.5	1.5	139	51	.7
15515500 TANANA RIVER AT NENANA (LAT 64 34 50 LONG 149 05 30)										
JUNE, 1969										
03...	23200	9.8	180	28	7.4	4.2	2.2	112	25	3.5
15518350 TEKLANIKA RIVER NEAR LIGNITE (LAT 63 55 10 LONG 149 29 50)										
JUNE, 1969										
04...	953	5.8	50	32	11	5.7	.8	120	37	.4
SEP.										
24...	390	7.4	50	55	10	6.6	1.0	164	53	2.1

DATE	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)
15564900 KOYUKUK RIVER AT HUGHES (LAT 66 02 50 LONG 154 15 30)							
JUNE							
22...	9.6	0	144	6.3	1.2	560	8.8

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
15621000 SNAKE RIVER NEAR NOME (LAT 64 33 50 LONG 165 30 15)										
MAR., 1969										
10...	19	4.4	0	30	5.7	4.6	1.8	100	15	11
JUNE										
01...	550	4.6	70	21	4.4	1.8	.4	70	12	2.8
SEP.										
27...	88	4.7	180	30	6.0	3.0	.8	100	17	6.4
15621500 MOONLIGHT SPRINGS NEAR NOME (LAT 64 33 00 LONG 165 24 00)										
MAR., 1969										
10...	.25	4.3	20	46	2.6	2.7	1.5	153	6.6	3.2
15744000 KOBUK RIVER AT AMBLER (LAT 67 05 30 LONG 157 50 30)										
MAR., 1969										
09...	555	6.2	120	33	5.3	1.5	1.2	122	10	.0
MAY										
31...	5890	3.2	160	18	2.8	.8	.7	64	7.6	.7
SEP.										
25...	5050	3.6	--	25	5.0	1.0	.8	92	12	.0

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED									
15514500 WOOD RIVER NEAR FAIRBANKS (LAT 64 26 00 LONG 148 12 45)									
OCT., 1968									
12...	.1	.6	191	161	47	306	7.7	10	1.0
FEB., 1969									
15...	.2	123	140	116	8	227	7.6	5	.0
APR.									
09...	.1	1.8	128	107	0	205	7.7	10	.0
MAY									
23...	.4	1.3	144	118	39	240	7.9	10	6.0
JULY									
12...	.6	.2	165	14	0	272	8.0	10	--
AUG.									
12...	.1	.6	181	151	146	299	8.0	30	8.0
SEP.									
30...	.1	.6	193	165	51	322	8.1	30	8.0
15515500 TANANA RIVER AT NENANA (LAT 64 34 50 LONG 149 05 30)									
JUNE, 1969									
03...	.1	.6	136	108	16	232	7.9	10	--
15518350 TEKLANIKA RIVER NEAR LIGNITE (LAT 63 55 10 LONG 149 29 50)									
JUNE, 1969									
04...	.1	.2	152	125	27	264	8.1	5	6.0
SEP.									
24...	.1	1.4	218	179	45	356	8.3	20	3.5

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
15564900 KOYUKUK RIVER AT HUGHES (LAT 66 02 50 LONG 154 15 30)							
JUNE							
22...	1.1	.3	496	482	23	921	7.5

DATE	FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TEMPER-ATURE (DEG C)
15621000 SNAKE RIVER NEAR NOME (LAT 64 33 50 LONG 165 30 15)									
MAR., 1969									
10...	.1	.0	122	99	17	217	7.3	5	.0
JUNE									
01...	.0	.0	81	70	13	148	7.8	0	9.0
SEP.									
27...	.0	.0	119	98	16	210	8.2	20	6.0
15621500 MOONLIGHT SPRINGS NEAR NOME (LAT 64 33 00 LONG 165 24 00)									
MAR., 1969									
10...	.1	.0	142	126	0	251	7.9	5	2.0
15744000 KOBUK RIVER AT AMBLER (LAT 67 05 30 LONG 157 50 30)									
MAR., 1969									
09...	.1	.5	118	105	5	203	8.4	0	.0
MAY									
31...	.0	.2	65	58	6	114	7.6	20	10
SEP.									
25...	.0	.6	93	84	12	171	8.2	25	1.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES IN ALASKA

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED										
15875000 COLVILLE RIVER NEAR UMIAT (LAT 69 21 45 LONG 152 05 40)										
APR., 1969 30...	--	8.0	--	83	27	13	1.8	382	38	.0
MAY 01...	--	5.2	230	36	12	5.5	1.3	152	26	.0
15878000 CHANDLER LAKE (LAT 68 13 45 LONG 152 36 10)										
APR., 1969 30...	--	1.0	100	4.6	2.5	.8	.0	24	4.0	.7
15886000 LAKE AT VABM BOWL NEAR UMIAT (LAT 69 36 00 LONG 151 10 00)										
MAY , 1969 06...	--	5.0	5190	105	12	5.0	1.5	355	14	9.2
15895000 KUPARUK RIVER NEAR UMIAT (LAT 69 36 00 LONG 151 10 00)										
MAY , 1969 06...	--	3.2	200	6.4	1.1	2.3	.2	28	.6	.4
15895100 LAKE AT EAST KUPARUK RIG (LAT 69 17 40 LONG 150 11 50)										
MAY , 1969 06...	--	2.1	2100	19	4.2	1.3	.7	78	.4	.4
15910000 SAGAVANIRTOK RIVER AT SAGWON (LAT 69 22 00 LONG 148 43 30)										
MAY , 1969 02...	--	8.8	12000	172	24	5.9	1.5	574	67	.4
15920000 SAGAVANIRTOK RIVER NEAR PRUDHOE BAY (LAT 70 11 40 LONG 148 06 40)										
MAY , 1969 07...	--	18	60	280	74	9.2	2.3	1000	184	100

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TEMPERATURE (DEG C)
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED									
15875000 COLVILLE RIVER NEAR UMIAT (LAT 69 21 45 LONG 152 05 40)									
APR., 1969									
30...	.1	.0	359	318	5	637	7.6	10	.4
MAY									
01...	1.0	2.2	164	140	15	283	8.0	5	.3
15878000 CHANDLER LAKE (LAT 68 13 45 LONG 152 36 10)									
APR., 1969									
30...	.1	.2	26	23	4	51	7.5	5	2.0
15886000 LAKE AT VABM BOWL NEAR UMIAT (LAT 69 36 00 LONG 151 10 00)									
MAY , 1969									
06...	.0	2.5	334	311	20	558	7.8	--	.2
15895000 KUPARUK RIVER NEAR UMIAT (LAT 69 36 00 LONG 151 10 00)									
MAY , 1969									
06...	.1	1.4	30	20	0	56	--	5	1.0
15895100 LAKE AT EAST KUPARUK RIG (LAT 69 17 40 LONG 150 11 50)									
MAY , 1969									
06...	.1	1.9	70	64	0	136	7.2	120	.1
15910000 SAGAVANIRTOK RIVER AT SAGWON (LAT 69 22 00 LONG 148 43 30)									
MAY , 1969									
02...	.5	.0	563	528	57	905	8.0	5	.2
15920000 SAGAVANIRTOK RIVER NEAR PRUDHOE BAY (LAT 70 11 40 LONG 148 06 40)									
MAY , 1969									
07...	.8	5.5	1077	1000	180	1604	--	5	.2

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
SOUTHEASTERN MAINLAND STREAMS																	
15008000 SALMON RIVER NEAR HYDER (LAT 56 01 34 LONG 130 03 55)																	
MAR 15, 1969	1250	0.0	23	0	0	--	--	--	--	--	--	--	--	--	--	--	
15015600 KLAHINI RIVER NEAR BEEL ISLAND (LAT 56 03 15 LONG 131 02 55)																	
MAR 18, 1969	1530	1.0	34	0	0	--	--	--	--	--	--	--	--	--	--	--	
MAY 25.....	0938	4.0	1080	3	8.7	--	--	--	--	--	--	--	--	--	--	--	
AUG 4.....	1627	10.0	340	1	.92	--	--	--	--	--	--	--	--	--	--	--	
15022000 HARDING RIVER NEAR WRANGELL (LAT 56 13 LONG 131 38)																	
MAR 13, 1969	1040	0.0	38	1	.10	--	--	--	--	--	--	--	--	--	--	--	
15031000 LONG RIVER ABOVE LONG LAKE NEAR JUNEAU (LAT 58 10 56 LONG 133 53 06)																	
OCT 1, 1968	1230	3.0	84	14	3.2	--	--	--	--	--	--	--	--	--	--	--	
APR 1, 1969	1110	0.0	2.3	2	.01	--	--	--	--	--	--	--	--	--	--	--	
MAY 1.....	1040	1.0	25	2	.14	--	--	--	--	--	--	--	--	--	--	--	
MAY 29.....	1202	2.0	141	8	3.0	--	--	--	--	--	--	--	--	--	--	--	
JUL 8.....	1624		945	569	1450	--	--	--	--	--	38	53	74	86	100	--	VW
JUL 16.....	1530	4.0	155	88	37	--	--	--	--	--	--	--	--	--	--	--	
AUG 8.....	1400	4.0	241	182	118	--	--	--	--	--	69	80	93	96	100	--	VW
SEP 18.....	1210	4.0	67	39	7.1	--	--	--	--	--	--	--	--	--	--	--	
15034000 LONG RIVER NEAR JUNEAU (LAT 58 10 00 LONG 133 41 50)																	
MAY 1, 1969	1255	1.0	183	2	.99	--	--	--	--	--	--	--	--	--	--	--	
15052000 LEMON CREEK NEAR JUNEAU (LAT 58 23 30 LONG 134 25 15)																	
APR 18, 1969	1430	2.0	21	0	0	--	--	--	--	--	--	--	--	--	--	--	
15052500 MENDENHALL RIVER NEAR AUKE BAY (LAT 58 25 05 LONG 134 32 40)																	
APR 21, 1969	1541	2.0	121	10	3.3	--	--	--	--	--	--	--	--	--	--	--	
15052800 MONTANA CREEK NEAR AUKE BAY (LAT 58 23 53 LONG 134 36 34)																	
APR 21, 1969	1515	3.0	70	1	.19	--	--	--	--	--	--	--	--	--	--	--	
STREAMS ON REVILLAGIGEDO ISLAND																	
15059500 WHIPPLE CREEK NEAR WARD COVE (LAT 55 26 30 LONG 130 47 38)																	
MAY 21, 1969	1208	9.0	13	7	.25	--	--	--	--	--	--	--	--	--	--	--	
JUL 30.....	1535	13.0	8.7	1	.02	--	--	--	--	--	--	--	--	--	--	--	
STREAMS ON PRINCE OF WALES ISLAND																	
15081800 NORTH BRANCH TROCADERO CREEK NEAR HYDABURG (LAT 55 21 41 LONG 132 52 20)																	
MAR 22, 1969	1815	0.0	57	1	.15	--	--	--	--	--	--	--	--	--	--	--	
MAY 17.....	1250		109	2	.59	--	--	--	--	--	--	--	--	--	--	--	
JUL 27.....	1039	10.0	74	1	.20	--	--	--	--	--	--	--	--	--	--	--	
STREAMS ON DOUGLAS ISLAND																	
15108600 HILDA CREEK NEAR DOUGLAS (LAT 58 13 38 LONG 134 29 50)																	
APR 23, 1969	1400	2.0	11	1	.03	--	--	--	--	--	--	--	--	--	--	--	
AUG 19.....	1305	8.0	23	2	.12	--	--	--	--	--	--	--	--	--	--	--	
15108800 LAWSON CREEK AT DOUGLAS (LAT 58 17 05 LONG 134 24 40)																	
JUL 9, 1969	1345	10.0	84	14	3.2	--	--	--	--	--	--	--	--	--	--	--	
15200000 GAKONA RIVER AT GAKONA (LAT 62 18 05 LONG 145 18 20)																	
OCT 3, 1968	1400	3.0	362	20	20	--	--	--	--	--	--	--	--	--	--	--	
15208100 SQUIRREL CREEK AT TONSINA (LAT 61 40 05 LONG 145 10 26)																	
MAY 21, 1969	2330	4.0	87	86	20	--	--	--	--	--	--	--	--	--	--	--	
15212000 COPPER RIVER NEAR CHITINA (LAT 61 27 56 LONG 144 27 21)																	
OCT 4, 1968	1345	2.0	21600	111	6470	--	--	--	--	--	52	56	69	98	100	--	VW
15216000 POWER CREEK NEAR CORDOVA (LAT 60 35 15 LONG 145 37 05)																	
NOV 1, 1968	0845	2.0	103	1	.28	--	--	--	--	--	--	--	--	--	--	--	
FEB 12, 1969	1100	1.0	22	1	.06	--	--	--	--	--	--	--	--	--	--	--	

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED																	
15238600 SPRUCE CREEK NEAR SEWARD (LAT 60 04 10 LONG 149 27 10)																	
OCT 24, 1968	0930	4.0	19	2	.10	--	--	--	--	--	--	--	--	--	--	--	
MAY 6, 1969	1320	3.0	15	0	0	--	--	--	--	--	--	--	--	--	--	--	
JUL 29.....	1800	6.0	103	1	.28	--	--	--	--	--	--	--	--	--	--	--	
15239900 ANCHOR RIVER NEAR ANCHOR POINT (LAT 59 44 50 LONG 151 45 11)																	
OCT 22, 1968	1315	0.0	58	37	5.8	--	--	--	--	--	--	--	--	--	--	--	
JAN 13, 1969	1500		28	6	.45	--	--	--	--	--	--	--	--	--	--	--	
JUN 24.....	1800	12.0	101	5	1.4	--	--	--	--	--	--	--	--	--	--	--	
JUL 30.....	1612	13.0	91	11	2.7	--	--	--	--	--	--	--	--	--	--	--	
15258000 KENAI RIVER AT COOPER LANDING (LAT 60 29 34 LONG 149 48 28)																	
OCT 23, 1968	1515	4.0	1120	16	48	--	--	--	--	--	--	--	--	--	--	--	
FEB 28, 1969	1500	1.0	420	7	7.9	--	--	--	--	--	--	--	--	--	--	--	
JUN 25.....	1600	9.0	8030	8	173	--	--	--	--	--	--	--	--	--	--	--	
15266300 KENAI RIVER AT SOLDOTNA (LAT 60 20 39 LONG 151 04 46)																	
OCT 23, 1968	1230	2.0	2090	11	62	--	--	--	--	--	--	--	--	--	--	--	
JAN 15, 1969	1300	0.0	1190	28	90	--	--	--	--	--	--	--	--	--	--	--	
FEB 27.....	1630	0.0	1880	41	208	--	--	--	--	--	51	58	71	89	98	100	SW
MAR 19.....	1530	0.0	1530	4	17	--	--	--	--	--	--	--	--	--	--	--	
MAY 5.....	1600	5.0	1480	11	44	--	--	--	--	--	--	--	--	--	--	--	
JUN 25.....	1100	8.0	14200	58	2220	--	--	--	--	--	65	75	93	99	100	--	VW
JUL 31.....	1600	13.0	11000	16	475	--	--	--	--	--	--	--	--	--	--	--	
SEP 9.....	1600	9.0	5450	4	59	--	--	--	--	--	--	--	--	--	--	--	
15267900 RESURRECTION CREEK NEAR HOPE (LAT 60 53 40 LONG 149 38 13)																	
OCT 25, 1968	1345	1.0	111	6	1.8	--	--	--	--	--	--	--	--	--	--	--	
JAN 23, 1969	1205	0.0	64	4	.69	--	--	--	--	--	--	--	--	--	--	--	
MAR 24.....	1205	0.0	59	2	.32	--	--	--	--	--	--	--	--	--	--	--	
MAY 12.....	1330	6.0	131	4	1.4	--	--	--	--	--	--	--	--	--	--	--	
AUG 1.....	1700	11.0	309	3	2.5	--	--	--	--	--	--	--	--	--	--	--	
15272550 GLACIER CREEK NEAR GIRDWOOD (LAT 60 56 29 LONG 149 09 44)																	
OCT 3, 1968	1030	4.0	343	<8	26	--	--	--	--	--	--	--	--	--	--	--	
MAY 27, 1969	1330	4.0	1230	354	1180	5	11	15	20	25	32	46	66	86	95	100	SCBW
DEC 3, 1968	1045	0.0	36	7	.68	--	--	--	--	--	--	--	--	--	--	--	
JAN 23, 1969	1515	1.0	24	2	.13	--	--	--	--	--	--	--	--	--	--	--	
APR 1.....	1305	1.0	33	5	.45	--	--	--	--	--	--	--	--	--	--	--	
AUG 27.....	1400	9.0	163	16	7.0	--	--	--	--	--	--	--	--	--	--	--	
15273900 SOUTH FORK CAMPBELL CREEK AT CANYON MOUTH, NEAR ANCHORAGE (LAT 61 08 55 LONG 149 43 10)																	
OCT 4, 1968	0930	2.0	31	2	.17	--	--	--	--	--	--	--	--	--	--	--	
MAR 28, 1969	1000	0.0	8.9	0	0	--	--	--	--	--	--	--	--	--	--	--	
JUN 10.....	1100	6.0	74	2	.40	--	--	--	--	--	--	--	--	--	--	--	
15274600 CAMPBELL CREEK NEAR SPENARD (LAT 61 08 17 LONG 149 55 20)																	
AUG 28, 1969	1500	9.0	44	4	.48	--	--	--	--	--	--	--	--	--	--	--	
15275000 CHESTER CREEK AT ANCHORAGE (LAT 61 11 59 LONG 149 50 07)																	
OCT 1, 1968	1400	4.0	16	30	1.3	--	--	--	--	--	--	--	--	--	--	--	
DEC 2.....	1000	0.0	11	9	.27	--	--	--	--	--	--	--	--	--	--	--	
APR 2, 1969	0900	1.0	13	26	.91	--	--	--	--	--	--	--	--	--	--	--	
JUN 9.....	1030	7.0	16	30	1.3	--	--	--	--	--	--	--	--	--	--	--	
JUL 25.....	1025	9.0	30	348	28	--	--	--	--	--	65	76	94	99	100	--	SW
JUL 25.....	1520	11.0	25	425	29	--	--	--	--	--	--	--	--	--	--	--	

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED																	
15275100 CHESTER CREEK AT ARCTIC BOULEVARD, NEAR ANCHORAGE (LAT 61 12 19 LONG 149 53 43)																	
OCT 1, 1968	1500	4.0	20	18	.97	--	--	--	--	--	--	--	--	--	--	--	
OCT 1.....	1815	5.0	21	117	6.6	--	--	--	--	--	--	--	--	--	--	--	
OCT 2.....	1815	5.0	17	402	18	--	--	--	--	--	--	--	--	--	--	--	
OCT 3.....	1815	5.0	15	408	17	--	--	--	--	--	--	--	--	--	--	--	
OCT 4.....	1815	5.0	14	387	15	--	--	--	--	--	--	--	--	--	--	--	
OCT 5.....	1815	5.0	14	392	15	--	--	--	--	--	--	--	--	--	--	--	
OCT 6.....	1815	5.0	16	386	17	--	--	--	--	--	--	--	--	--	--	--	
OCT 7.....	1815	5.0	18	402	20	--	--	--	--	--	--	--	--	--	--	--	
OCT 8.....	1815	5.0	18	390	19	--	--	--	--	--	--	--	--	--	--	--	
OCT 9.....	1815	5.0	18	390	19	--	--	--	--	--	--	--	--	--	--	--	
OCT 10.....	1815	5.0	18	405	20	--	--	--	--	--	--	--	--	--	--	--	
OCT 11.....	1815	5.0	16	251	11	--	--	--	--	--	--	--	--	--	--	--	
OCT 12.....	1815	5.0	16	236	10	--	--	--	--	--	--	--	--	--	--	--	
OCT 13.....	1815	5.0	15	243	9.8	--	--	--	--	--	--	--	--	--	--	--	
OCT 14.....	1815	5.0	18	208	10	--	--	--	--	--	--	--	--	--	--	--	
OCT 15.....	1815	5.0	21	246	14	--	--	--	--	--	--	--	--	--	--	--	
OCT 16.....	1815	5.0	19	226	12	--	--	--	--	--	--	--	--	--	--	--	
OCT 17.....	1815	0.0	17	67	3.1	--	--	--	--	--	--	--	--	--	--	--	
OCT 18.....	1815	0.0	16	65	2.8	--	--	--	--	--	--	--	--	--	--	--	
OCT 19.....	1815	0.0	14	73	2.8	--	--	--	--	--	--	--	--	--	--	--	
OCT 20.....	1815	0.0	11	29	.86	--	--	--	--	--	--	--	--	--	--	--	
OCT 21.....	1815	0.0	14	24	.91	--	--	--	--	--	--	--	--	--	--	--	
OCT 22.....	1815	0.0	14	57	2.2	--	--	--	--	--	--	--	--	--	--	--	
OCT 23.....	1815	0.0	14	81	3.1	--	--	--	--	--	--	--	--	--	--	--	
OCT 24.....	1815	0.0	14	56	2.1	--	--	--	--	--	--	--	--	--	--	--	
OCT 25.....	1815	0.0	14	40	1.5	--	--	--	--	--	--	--	--	--	--	--	
OCT 26.....	1815	0.0	14	40	1.5	--	--	--	--	--	--	--	--	--	--	--	
OCT 27.....	1815	0.0	14	31	1.2	--	--	--	--	--	--	--	--	--	--	--	
OCT 28.....	1815	0.0	13	25	.88	--	--	--	--	--	--	--	--	--	--	--	
OCT 29.....	1815	0.0	12	26	.84	--	--	--	--	--	--	--	--	--	--	--	
OCT 30.....	1815	0.0	12	28	.91	--	--	--	--	--	--	--	--	--	--	--	
OCT 31.....	1815	0.0	12	15	.49	--	--	--	--	--	--	--	--	--	--	--	
DEC 2.....	1000	0.0	12	21	.68	--	--	--	--	--	--	--	--	--	--	--	
MAR 2, 1969	1430	1.0	8.0	5	.11	--	--	--	--	--	--	--	--	--	--	--	
MAR 14.....	0930	1.0	7.5	5	.10	--	--	--	--	--	--	--	--	--	--	--	
APR 2.....	1000	1.0	17	40	1.8	--	--	--	--	--	--	--	--	--	--	--	
JUL 25.....	1100	11.0	39	256	27	31	43	--	61	--	84	91	98	100	--	--	SCPW
JUL 25.....	1415	11.5	38	308	32	--	--	--	--	--	--	--	--	--	--	--	
JUL 25.....	1600	12.0	33	262	23	--	--	--	--	--	--	--	--	--	--	--	
15276500 SHIP CREEK AT ELMENDORF AIR FORCE BASE (LAT 61 14 20 LONG 149 47 24)																	
OCT 1, 1968	1100	4.0	46	8	.99	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1340	2.0	2.7	8	.06	--	--	--	--	--	--	--	--	--	--	--	
MAR 26, 1969	1515	3.0	1.3	2	.01	--	--	--	--	--	--	--	--	--	--	--	
15281000 KNIK RIVER NEAR PALMER (LAT 61 30 18 LONG 149 01 50)																	
OCT 2, 1968	1330	3.0	4970	193	2590	65	79	85	88	89	91	94	100	--	--	--	VCBW
JAN 24, 1969	1500	0.0	485	4	5.2	--	--	--	--	--	--	--	--	--	--	--	
JUN 12.....	1330	9.0	17200	852	39600	34	39	52	62	70	80	87	96	100	--	--	VCPW
JUL 29.....	1400	5.0	19300	877	45700	20	28	--	40	--	48	52	59	79	100	--	VCPW
SEP 2.....	1430	6.0	11400	302	9300	42	61	68	76	81	86	89	97	100	--	--	VCPW
15282000 CARIBOU CREEK NEAR SUTTON (LAT 61 48 12 LONG 147 40 57)																	
JUL 8, 1969	1530	12.0	1270	13200	45300	24	34	50	68	83	93	98	99	100	--	--	SPCW
15290000 LITTLE SUSITNA RIVER NEAR PALMER (LAT 61 42 32 LONG 149 13 36)																	
APR 28, 1969	1130	2.0	25	1	.07	--	--	--	--	--	--	--	--	--	--	--	
15291000 SUSITNA RIVER NEAR DENALI (LAT 63 06 14 LONG 147 30 57)																	
OCT 1, 1968	1430	1.0	963	85	221	--	--	--	--	--	55	69	98	100	--	--	VW
15291500 SUSITNA RIVER NEAR CANTWELL (LAT 62 41 57 LONG 147 32 40)																	
MAY 15, 1969	1730	4.0	8670	726	17000	--	--	--	--	--	38	63	81	97	100	--	VW
JUN 24.....	1000	11.0	15800	1860	79300	23	31	36	50	62	73	83	92	99	100	--	VCPW
JUL 29.....	1515	8.0	10600	713	20400	11	17	25	33	43	56	71	88	99	100	--	VCBW
15292400 CHULITNA RIVER NEAR TALKEETNA (LAT 62 33 31 LONG 150 14 02)																	
OCT 2, 1968	1100	2.0	4080	162	1780	33	44	49	54	57	60	63	70	87	100	--	VCBW
APR 4, 1969	1130	0.0	874	28	66	--	--	--	--	--	78	94	100	--	--	--	VW

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED																	
15292700 TALKEETNA RIVER NEAR TALKEETNA (LAT 62 20 49 LONG 150 01 01) (BENCH-MARK STATION)																	
OCT 1, 1968	1630	4.0	2740	29	215	--	--	--	--	--	--	--	--	--	--	--	
APR 3, 1969	1340	0.0	373	3	3.0	--	--	--	--	--	--	--	--	--	--	--	
MAY 1.....	1145	2.0	974	21	55	--	--	--	--	--	--	--	--	--	--	--	
JUN 20.....	1245	12.0	5750	451	4570	15	26	38	52	62	72	77	88	99	100	--	VCBW
AUG 28.....	1200	8.0	2020	38	207	--	--	--	--	--	--	--	--	--	--	--	
15296000 UGANIK RIVER NEAR KODIAK (LAT 57 41 29 LONG 153 25 10)																	
SEP 17, 1969	1200	8.0	1160	4	13	--	--	--	--	--	--	--	--	--	--	--	
15297200 MYRTLE CREEK NEAR KODIAK (LAT 57 36 16 LONG 152 24 09)																	
JAN 8, 1969	1100	0.0	1.5	1	0	--	--	--	--	--	--	--	--	--	--	--	
SEP 16.....	1200	8.0	58	4	.63	--	--	--	--	--	--	--	--	--	--	--	
15304000 KUSKOKWIM RIVER AT CROOKED CREEK (LAT 61 52 10 LONG 158 06 40)																	
MAR 12, 1969	1000	0.0	8630	2	47	--	--	--	--	--	--	--	--	--	--	--	
MAY 14.....	1635	5.0	82900	223	49900	5	9	15	23	32	43	57	86	96	100	--	VCBW
JUL 1.....	1700	18.0	53100	245	35100	28	44	--	70	--	87	91	99	100	--	--	VCBW
AUG 14.....	2200	9.0	74800	388	78400	--	--	--	--	--	76	83	99	100	--	--	VW
15356000 YUKON RIVER AT EAGLE (LAT 64 47 22 LONG 141 11 52)																	
JUN 14, 1969	1200	15.0	229000	1220	754000	17	24	28	39	55	79	93	99	100	--	--	VCPW
AUG 28.....	1230	10.0	126000	157	53400	--	--	--	--	--	56	78	100	--	--	--	VW
15389000 PORCUPINE RIVER NEAR FORT YUKON (LAT 66 59 26 LONG 143 08 16)																	
MAY 28, 1969	1930	6.0	57100	265	40900	27	38	--	62	--	85	93	98	100	--	--	
AUG 8.....	2030	8.0	66400	281	50400	--	--	--	--	--	--	--	--	--	--	--	
15389500 CHANDALAR RIVER NEAR VENETIE (LAT 67 05 49 LONG 147 11 04)																	
MAY 29, 1969	1545	8.0	4960	7	94	--	--	--	--	--	--	--	--	--	--	--	
AUG 9.....	1630	8.0	9600	20	518	--	--	--	--	--	--	--	--	--	--	--	
SEP 24.....	0930	1.0	2500	1	6.8	--	--	--	--	--	--	--	--	--	--	--	
15439800 BOULDER CREEK NEAR CENTRAL (LAT 65 34 10 LONG 144 52 50)																	
MAY 13, 1969	1700	0.0	57	34	5.2	--	--	--	--	--	--	--	--	--	--	--	
MAY 14.....	1000	0.0	46	15	1.9	--	--	--	--	--	--	--	--	--	--	--	
JUN 25.....	1700	8.0	1.3	0	0	--	--	--	--	--	--	--	--	--	--	--	
AUG 19.....	1200	4.0	5.4	0	0	--	--	--	--	--	--	--	--	--	--	--	
15476000 TANANA RIVER NEAR TANACROSS (LAT 63 23 20 LONG 143 44 45)																	
JUL 18, 1969	1930	11.0	29400	3460	275000	10	13	18	22	25	59	65	69	80	94	100	SPWC
15514500 WOOD RIVER NEAR FAIRBANKS (LAT 64 26 06 LONG 148 02 46)																	
OCT 12, 1968	1500	1.0	358	960	928	--	--	--	--	--	1	2	24	94	100	--	VW
MAY 23, 1969	1400	6.0	1180	2120	6750	--	--	--	--	--	--	--	--	--	--	--	
JUL 12.....	1430	13.0	1980	3250	17400	--	--	--	--	--	--	--	--	--	--	--	
AUG 12.....	1800	8.0	834	697	1570	5	8	--	14	--	26	42	74	98	100	--	VPWC
SEP 30.....	1200	4.0	347	101	95	--	--	--	--	--	10	18	69	100	--	--	VW
15515500 TANANA RIVER AT NENANA (LAT 64 34 55 LONG 149 05 30)																	
JUN 3, 1969	1704	12.0	22600	527	32200	--	--	--	--	--	--	--	--	--	--	--	
15518350 TEKLANIKA RIVER NEAR LIGNITE (LAT 63 55 10 LONG 149 29 50)																	
JUN 4, 1969	1300	6.0	810	127	278	--	--	--	--	--	20	25	37	60	87	100	VW
JUL 9.....	1330	7.0	893	182	439	--	--	--	--	--	--	--	--	--	--	--	
ALASKA WEST OF LONGITUDE 141°																	
15910000 SAGAVANIRTAK RIVER NEAR LUPINE RIVER (LAT 69 05 30 LONG 148 46 00)																	
AUG 16, 1969	2100	4.0	2800	24	181	--	--	--	--	--	--	--	--	--	--	--	
15621000 SNAKE RIVER NEAR NOME (LAT 64 33 50 LONG 165 30 15)																	
JUN 1, 1969	2000	9.0	551	12	18	--	--	--	--	--	69	80	92	100	--	--	VW
SEP 27.....	1230	6.0	88	1	.24	--	--	--	--	--	--	--	--	--	--	--	
15712000 KUZITRIN RIVER NEAR NOME (LAT 65 13 17 LONG 164 37 15)																	
JUN 1, 1969	1200	5.0	2560	7	48	--	--	--	--	--	--	--	--	--	--	--	
JUL 2.....	1600	22.0	469	5	6.3	--	--	--	--	--	--	--	--	--	--	--	
AUG 11.....	1100	7.0	1590	2	8.6	--	--	--	--	--	--	--	--	--	--	--	
SEP 26.....	1630	2.0	329	2	1.8	--	--	--	--	--	--	--	--	--	--	--	

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
ALASKA WEST OF LONGITUDE 141°--CONTINUED																	
15744000 KOBUK RIVER AT AMBLER (LAT 67 05 13 LONG 157 50 51)																	
MAR 9, 1969	1445	0.0	555	1	1.5	--	--	--	--	--	--	--	--	--	--	--	
MAY 31.....	1345	10.0	5890	8	127	--	--	--	--	--	--	--	--	--	--	--	
SEP 25.....	1130	2.0	5050	2	27	--	--	--	--	--	--	--	--	--	--	--	
15746000 NOATAK RIVER AT NOATAK (LAT 67 34 18 LONG 162 56 38)																	
MAY 31, 1969	1900	8.0		8		--	--	--	--	--	--	--	--	--	--	--	
SEP 25.....	1530	4.0	14400	3	117	--	--	--	--	--	--	--	--	--	--	--	

PARITCLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHOD OF ANALYSIS: H, HYDROMETER; O, OPTICAL ANALYZER; S, SIEVE; V, VISUAL ACCUMULATION TUBE)

DATE	TIME	WATER TEMPERATURE (C)	NUMBER OF SAMPLING POINTS	DISCHARGE (CFS)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .062	.125	.250	.500	1.00	2.00	4.00	8.00	16.0	32.0	64.0	METHOD OF ANALYSIS
MAINLAND STREAMS WEST OF LONGITUDE 141°--CONTINUED																
15243900 SNOW RIVER NEAR LAWING (LAT 60 20 03 LONG 149 21 02)																
MAY 13, 1969					1	3	7	18	35	50	69	85	99	100	--	S
15514500 WOOD RIVER NEAR FAIRBANKS (LAT 64 26 06 LONG 148 12 46)																
SEP 30, 1969	1200	4.0	1	349	--	--	4	52	95	97	99	100	--	--	--	S

RYUKYU ISLANDS, ISLAND OF OKINAWA

16878200 HANECHI-OKAWA AT KAWAKAMI

LOCATION.--Lat 26°36'28" N., long 128°01'16" E., Okinawa, at gaging station 0.4 mile south of Kawakami, 0.7 mile southeast of Taira School, and 1.0 mile southwest of Nakaoshi.

DRAINAGE AREA.--4.4 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: October 1966 to September 1969 (partial records).
Water temperatures: October 1966 to September 1969 (discontinued).
Sediment records: October 1966 to September 1969 (discontinued).

EXTREMES.--1968-69:
Water temperatures: Maximum, 30.0°C Oct. 5; minimum, 12.0°C Dec. 18.
Sediment concentrations: Maximum daily, 644 mg/l May 13; minimum daily, 1 mg/l on many days.
Sediment loads: Maximum daily, 1,480 tons June 3; minimum daily, 0.01 ton on many days.

Period of record:
Water temperatures: Maximum, 34.0°C Aug. 6, 1968; minimum, 10.0°C Dec. 14, 1967.
Sediment concentrations: Maximum daily, 718 mg/l June 13, 1967; minimum daily, 1 mg/l on many days each year.
Sediment loads: Maximum daily, 1,950 tons June 4, 1967; minimum daily, 0.01 ton on many days in 1968-69.

REMARKS.--Chemical analyses for this station in "Analyses of Samples Collected at Partial-Record Stations in Hawaii and Other Pacific Areas."

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	29	28	29	29	30	29	26	29	27	27	27	26	26	25	26	25	24	24	24	24	24	24	23	23	23	26	24	24	24	26	24	26
NOVEMBER.	24	24	26	25	26	24	24	24	23	23	24	24	24	22	23	24	24	23	23	26	24	24	24	24	26	26	26	24	26	24	--	24
DECEMBER.	24	24	26	24	24	26	26	25	24	24	24	24	22	18	19	14	13	12	18	14	13	13	16	16	16	17	16	17	16	16	18	19
JANUARY..	16	14	14	13	14	13	14	13	18	18	19	16	15	15	15	15	17	17	18	19	18	18	18	22	23	22	21	22	24	22	22	18
FEBRUARY.	21	22	22	19	13	--	16	18	18	16	18	21	21	21	18	21	21	22	21	21	18	19	21	19	21	21	17	18	--	--	--	19
MARCH....	17	18	16	15	16	19	18	19	19	20	21	15	15	16	17	18	18	18	19	19	18	19	19	20	18	19	20	18	19	--	15	18
APRIL....	18	19	20	21	16	16	18	21	19	21	21	23	22	22	24	22	22	24	24	24	24	21	24	25	26	24	26	24	20	20	--	22
MAY.....	19	19	24	25	24	24	--	26	26	26	26	24	24	26	24	24	24	24	24	26	26	24	24	24	23	24	24	24	24	24	24	24
JUNE.....	26	26	26	24	23	24	24	23	--	26	27	--	26	26	22	27	26	26	22	24	--	25	24	24	26	24	24	27	27	27	--	25
JULY.....	27	--	27	27	27	27	--	--	--	--	--	--	--	--	--	--	26	27	26	27	26	27	27	27	27	28	27	27	28	27	28	--
AUGUST...	28	28	27	28	28	27	27	28	28	29	29	29	28	29	28	29	29	28	28	--	27	27	27	27	26	28	28	28	28	28	28	28
SEPTEMBER	28	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER MEAN DISCHARGE (CFS)	OCTOBER MEAN CONCEN-TRATION (MG/L)	OCTOBER LOAD (TONS)	NOVEMBER MEAN DISCHARGE (CFS)	NOVEMBER MEAN CONCEN-TRATION (MG/L)	NOVEMBER LOAD (TONS)	DECEMBER MEAN DISCHARGE (CFS)	DECEMBER MEAN CONCEN-TRATION (MG/L)	DECEMBER LOAD (TONS)
1	4.6	2	.02	2.4	2	.01	1.8	1	.01
2	4.6	2	.02	2.3	2	.01	2.0	3	.02
3	4.1	1	.01	2.3	2	.01	2.8	4	.03
4	3.7	1	.01	2.2	2	.01	2.3	3	.02
5	6.5	8	.30	2.5	4	.03	2.5	4	.03
6	4.7	4	.10	4.7	10	.10	1.9	3	.02
7	16	10	1.4	4.3	4	.05	1.8	2	.01
8	9.1	8	.20	5.8	13	.20	1.8	2	.01
9	5.8	4	.10	13	16	.60	1.8	2	.01
10	4.8	3	.04	4.1	4	.04	1.9	2	.01
11	4.3	3	.03	3.1	3	.03	2.4	6	.04
12	4.0	2	.02	2.7	2	.01	8.0	24	.50
13	3.8	2	.02	2.6	2	.01	3.2	4	.03
14	3.8	2	.02	2.5	2	.01	2.7	2	.01
15	3.5	2	.02	2.3	2	.01	2.8	2	.02
16	3.3	2	.02	2.2	2	.01	2.3	2	.01
17	3.3	2	.02	2.1	2	.01	1.9	2	.01
18	3.1	2	.02	2.1	2	.01	2.7	10	.10
19	2.9	2	.02	2.1	2	.01	3.7	5	.05
20	2.8	2	.02	2.1	2	.01	2.4	2	.01
21	3.0	2	.02	2.2	2	.01	2.1	2	.01
22	3.2	2	.02	2.2	2	.01	3.4	6	.10
23	3.0	2	.02	2.4	3	.02	2.6	3	.02
24	2.8	2	.02	2.2	2	.01	2.1	2	.01
25	2.4	2	.01	2.6	3	.02	1.9	2	.01
26	2.3	2	.01	2.2	2	.01	1.9	1	.01
27	2.4	2	.01	1.9	2	.01	1.9	1	.01
28	2.4	2	.01	1.9	1	.01	2.1	1	.01
29	2.4	2	.01	1.7	1	.01	1.8	1	.01
30	2.3	2	.01	1.7	1	.01	2.1	2	.01
31	2.3	2	.01	--	--	--	2.2	2	.01
TOTAL	12.72	--	2.56	88.4	--	1.30	76.8	--	1.16

16878200 HANECHI-OKAWA AT KAWAKAMI--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	4.5	5	.10	18	12	.60	9.2	4	.10
2	2.8	3	.02	18	8	.40	56	13	2.9
3	2.2	2	.01	10	5	.10	22	5	.30
4	1.9	2	.01	25	19	1.8	14	4	.20
5	3.2	5	.04	16	6	.30	11	3	.10
6	3.1	3	.03	11	4	.10	9.7	2	.10
7	2.2	2	.01	9.4	3	.10	9.0	2	.05
8	2.0	2	.01	7.6	3	.10	27	15	1.1
9	1.9	2	.01	6.7	2	.04	77	19	5.2
10	1.9	2	.01	6.9	3	.10	40	6	.60
11	2.0	2	.01	6.0	2	.03	100	20	12
12	2.3	3	.02	5.4	2	.03	63	10	1.7
13	1.8	2	.01	5.0	2	.03	35	8	.80
14	3.5	15	.10	6.8	10	.20	25	6	.40
15	5.8	5	.10	6.0	3	.05	20	4	.20
16	5.1	4	.10	5.8	3	.05	15	3	.10
17	16	18	1.0	5.6	2	.03	13	3	.10
18	5.0	4	.10	6.0	2	.03	12	2	.10
19	44	98	54	5.4	2	.03	11	2	.10
20	14	12	.50	5.0	2	.03	10	2	.10
21	7.2	6	.10	4.7	1	.01	10	5	.10
22	5.6	4	.10	4.4	1	.01	8.7	3	.10
23	4.6	3	.04	4.1	1	.01	8.2	2	.04
24	4.0	2	.02	12	12	.40	8.0	2	.04
25	3.6	2	.02	10	4	.10	12	10	.30
26	4.0	3	.03	31	15	1.3	9.7	5	.10
27	4.0	3	.03	12	4	.10	7.8	3	.10
28	4.8	5	.10	10	3	.10	20	10	.50
29	26	17	1.6	--	--	--	11	5	.10
30	14	10	.40	--	--	--	9.0	3	.10
31	10	6	.20	--	--	--	8.0	2	.04
TOTAL	213.0	--	58.83	273.8	--	6.18	691.3	--	27.77

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	7.2	2	.04	4.0	3	.03	53	6	.90
2	6.5	2	.04	5.3	8	.10	67	120	149
3	6.3	2	.03	4.1	3	.03	296	631	1480
4	21	13	1.1	3.7	3	.03	76	16	3.3
5	14	6	.20	3.5	3	.03	335	375	1080
6	10	-	.10	3.8	4	.04	168	160	91
7	8.4	2	.05	3.7	3	.03	76	16	3.3
8	15	15	.60	14	15	1.4	95	26	11
9	11	4	.10	30	26	2.9	144	46	21
10	9.0	3	.10	12	16	.50	76	12	2.5
11	8.0	2	.04	8.0	12	.30	58	9	1.4
12	7.4	2	.04	7.2	10	.20	55	6	.90
13	7.1	2	.04	406	644	520	136	68	40
14	6.5	2	.04	137	72	38	71	14	2.7
15	6.3	2	.03	110	59	21	53	6	.90
16	6.3	4	.10	44	12	1.4	46	3	.40
17	7.4	5	.10	40	8	.90	40	2	.20
18	5.7	4	.10	29	5	.40	37	3	.30
19	5.4	3	.04	29	6	.50	236	117	146
20	5.2	3	.04	146	93	62	418	245	1080
21	5.2	3	.04	79	30	6.4	280	47	64
22	5.2	3	.04	44	10	1.2	157	53	31
23	5.0	3	.04	93	66	23	175	34	16
24	4.7	2	.03	77	30	6.2	203	60	38
25	4.6	2	.02	55	14	2.1	109	12	3.5
26	4.6	3	.04	37	8	.80	104	25	11
27	4.8	4	.10	87	42	17	292	256	281
28	4.4	3	.04	72	12	2.3	98	25	6.6
29	4.2	3	.03	78	28	7.4	65	8	1.4
30	4.1	3	.03	140	32	14	48	6	.80
31	--	--	--	79	10	2.1	--	--	--
TOTAL	220.5	--	3.34	1881.3	--	732.29	4067	--	4568.10

16878200 HANECHI-OKAWA AT KAWAKAMI--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	37	2	.20	5.6	2	.03	9.4	2	.10
2	33	2	.20	5.2	2	.03	8.7	2	.05
3	27	2	.10	5.1	2	.03	8.7	5	.10
4	27	2	.10	8.2	14	.30	8.4	4	.10
5	22	2	.10	6.3	5	.10	8.7	6	.10
6	22	2	.10	6.7	6	.10	7.2	4	.10
7	16	2	.10	5.4	3	.04	6.7	3	.10
8	14	1	.04	7.1	10	.20	6.2	2	.03
9	12	1	.03	9.0	10	.20	29	16	1.3
10	12	1	.03	8.4	12	.30	20	8	.40
11	12	2	.10	6.0	5	.10	9.2	6	.10
12	11	1	.03	5.1	4	.10	8.0	3	.10
13	10	1	.03	4.8	3	.04	7.4	2	.04
14	9.4	1	.03	4.6	3	.04	7.2	4	.10
15	9.0	1	.02	4.4	3	.04	6.9	3	.10
16	8.4	1	.02	4.2	3	.03	6.3	3	.10
17	10	8	.20	4.1	2	.02	6.0	2	.03
18	12	8	.30	4.0	2	.02	5.6	2	.03
19	10	4	.10	6.9	14	.30	5.2	2	.03
20	9.4	5	.10	457	626	168	4.8	2	.03
21	8.7	3	.10	81	25	5.5	4.7	2	.03
22	9.6	10	.30	46	8	1.0	4.6	2	.02
23	7.8	4	.10	33	6	.50	5.0	4	.10
24	7.1	4	.10	24	5	.30	4.6	3	.04
25	7.1	5	.10	20	4	.20	4.3	2	.02
26	6.9	4	.10	15	4	.20	4.3	2	.02
27	7.7	7	.10	14	3	.10	4.2	1	.01
28	7.1	4	.10	12	3	.10	4.0	1	.01
29	7.2	3	.10	11	2	.10	4.0	2	.02
30	6.9	5	.10	10	2	.10	3.7	2	.02
31	6.0	2	.03	9.4	2	.10	--	--	--
TOTAL	405.2	--	3.16	843.5	--	178.22	223.0	--	3.33

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 9111.1
TOTAL LOAD FOR YEAR (TONS) 1018.14

16884200 FUKUJI-GAWA AT FUKUJI

LOCATION.--Lat 26°38'16" N., long 128°10'13" E., Okinawa, at gaging station at Fukuji, 0.9 mile north of Kawata and 1.3 miles northeast of Taira.

DRAINAGE AREA.--12 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: October 1966 to September 1969 (partial records).
Water temperatures: May 1964 to September 1969 (discontinued).
Sediment records: May 1964 to September 1969 (discontinued).

EXTREMES.--1968-69:
Water temperatures: Maximum, 27.0°C on many days during July to September; minimum, 9.0°C Dec. 22.
Sediment concentrations: Maximum daily, 1,790 mg/l May 13; minimum daily, 1 mg/l Apr. 2, 3.
Sediment loads: Maximum daily, 34,600 tons June 20; minimum daily, 0.04 ton Apr. 2.

Period of record:
Water temperatures: Maximum, 31.0°C Aug. 16, 1967; minimum, 9.0°C Dec. 22, 1968.
Sediment concentrations: Maximum daily, 4,500 mg/l June 23, 1965; minimum daily, 1 mg/l on many days of most years.
Sediment loads: Maximum daily, 64,000 tons Aug. 5, 1965; minimum daily, 0.04 ton Apr. 2, 1969.

REMARKS.--Chemical analyses for this station in "Analyses of Samples Collected at Water-Quality Partial-Record Stations in Hawaii and Other Pacific Areas." The sediment concentrations and loads during the year were higher than normal because clearing and scraping of the watershed about 1 mile upstream from the station for dam construction resulted in more than usual amounts of sediment being carried downstream.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	25	25	24	24	24	24	23	23	23	23	23	23	23	23	22	22	21	21	19	19	19	21	21	19	17	17	17	18	17	17	17	21
NOVEMBER.	18	18	18	18	19	20	19	20	19	19	17	16	17	16	16	16	15	15	15	16	16	18	19	18	19	18	18	19	17	18	--	18
DECEMBER.	17	19	20	19	20	18	17	18	18	18	18	19	17	17	16	19	13	14	13	14	14	9	11	12	13	13	14	16	16	17	17	16
JANUARY..	16	14	13	12	14	14	13	13	14	14	16	17	14	14	14	14	16	14	16	16	18	18	18	18	18	19	20	20	21	18	20	16
FEBRUARY.	17	16	15	17	13	12	12	13	12	14	15	14	17	19	17	18	17	19	17	18	17	17	17	19	17	17	18	16	--	--	--	16
MARCH....	15	17	17	17	16	14	16	18	18	18	17	16	14	14	13	14	13	14	15	17	16	16	16	16	17	16	18	19	18	19	18	16
APRIL....	16	16	18	19	14	19	14	17	16	17	17	19	19	19	21	22	21	20	18	19	19	21	21	22	22	22	22	21	21	22	--	19
MAY.....	22	22	22	23	22	23	23	22	21	21	--	--	23	21	22	22	23	22	23	23	21	21	22	--	20	20	22	20	21	21	20	22
JUNE.....	21	22	22	21	21	21	18	19	19	19	20	22	21	19	21	22	22	22	23	21	21	21	21	21	22	23	22	23	23	23	--	21
JULY.....	24	--	--	--	--	--	--	--	26	26	26	26	26	26	26	27	27	26	26	26	26	26	27	26	26	26	27	26	26	27	27	--
AUGUST...	27	27	27	27	27	27	27	27	26	26	27	27	27	26	26	27	27	27	27	26	24	24	26	26	26	26	27	27	27	27	26	26
SEPTEMBER	27	27	27	27	27	27	27	27	26	26	26	26	27	27	27	27	27	27	26	25	26	26	26	26	26	27	26	27	27	27	--	27

16884200 FUKUKI-GAWA AT FUKUJI--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	19	5	.30	9.7	5	.10	6.9	3	.10
2	18	4	.20	9.7	5	.10	7.3	3	.10
3	16	4	.20	9.7	4	.10	8.5	3	.10
4	15	4	.20	9.7	4	.10	7.7	3	.10
5	15	4	.20	9.7	5	.10	7.7	3	.10
6	16	3	.10	13	10	.40	7.3	3	.10
7	15	3	.10	15	6	.20	6.9	3	.10
8	16	6	.30	32	56	10	6.9	3	.10
9	16	6	.30	35	77	7.5	6.9	3	.10
10	17	6	.30	14	6	.20	6.5	3	.10
11	16	4	.20	10	5	.10	6.5	3	.10
12	14	3	.10	9.7	4	.10	12	14	.50
13	13	3	.10	8.9	4	.10	8.9	5	.10
14	13	3	.10	8.5	4	.10	7.7	4	.10
15	12	3	.10	8.5	4	.10	8.5	8	.20
16	12	3	.10	8.5	4	.10	6.9	6	.10
17	11	3	.10	7.7	4	.10	6.2	4	.10
18	11	3	.10	7.3	4	.10	6.2	4	.10
19	10	3	.10	7.3	4	.10	9.7	10	.30
20	10	3	.10	7.3	4	.10	6.5	6	.10
21	11	6	.20	7.3	4	.10	6.2	5	.10
22	13	4	.10	7.3	4	.10	8.9	14	.30
23	12	3	.10	7.7	4	.10	8.5	5	.10
24	11	3	.10	7.3	4	.10	6.5	3	.10
25	10	3	.10	8.1	4	.10	5.9	3	.05
26	9.7	3	.10	7.7	4	.10	5.9	3	.05
27	9.7	3	.10	6.9	4	.10	5.9	3	.05
28	9.7	4	.10	6.9	4	.10	5.6	3	.05
29	10	8	.20	6.9	4	.10	5.6	3	.05
30	9.7	7	.20	6.9	4	.10	6.5	7	.10
31	9.7	6	.20	--	--	--	6.2	6	.10
TOTAL	400.5	--	4.80	314.2	--	20.80	223.4	--	3.75

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	6.2	5	.10	40	30	3.2	20	5	.30
2	6.2	4	.10	29	10	.80	162	352	425
3	5.9	4	.10	18	5	.20	30	8	.60
4	5.9	4	.10	58	334	113	20	7	.40
5	7.3	12	.20	38	32	3.9	18	7	.30
6	8.1	7	.20	21	5	.30	17	5	.20
7	6.2	5	.10	17	4	.20	16	4	.20
8	5.6	4	.10	15	4	.20	79	168	47
9	5.3	4	.10	12	3	.10	195	271	240
10	5.0	4	.10	12	3	.10	62	22	3.7
11	9.0	36	1.1	12	3	.10	502	1090	5500
12	6.2	5	.10	12	2	.10	134	42	19
13	5.6	3	.05	11	2	.10	52	8	1.1
14	6.2	4	.10	11	2	.10	40	7	.80
15	10	10	.30	11	3	.10	28	6	.50
16	7.3	4	.10	11	2	.10	26	6	.40
17	11	70	2.1	10	2	.10	23	5	.30
18	7.3	10	2.0	22	23	1.9	21	5	.30
19	56	169	112	18	7	.30	19	5	.30
20	38	71	9.2	12	5	.20	18	5	.20
21	12	8	.30	11	4	.10	19	5	.30
22	8.9	6	.10	11	4	.10	18	5	.20
23	8.9	4	.10	10	4	.10	18	5	.20
24	8.5	4	.10	20	66	2.3	17	5	.20
25	8.1	3	.10	24	80	5.2	31	50	4.2
26	8.5	3	.10	170	248	1180	28	12	.90
27	9.7	3	.10	33	12	1.1	20	4	.20
28	9.7	3	.10	25	8	.50	231	918	1330
29	86	221	88	--	--	--	47	12	1.5
30	39	20	2.1	--	--	--	29	3	.20
31	26	16	1.1	--	--	--	22	2	.10
TOTAL	443.6	--	220.45	694	--	1314.50	1962	--	7578.60

16884200 FUKUJI-GAWA AT FUKUJI--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	19	2	.10	11	3	.10	58	7	1.1
2	17	1	.04	10	3	.10	78	--	200
3	16	1	.05	10	3	.10	800	--	7000
4	45	60	7.3	9.4	3	.10	122	12	4.0
5	31	10	.80	9.4	3	.10	1380	1310	19300
6	27	3	.20	9.4	3	.10	409	130	236
7	25	2	.10	9.4	3	.10	130	20	T.0
8	45	27	4.8	46	92	31	262	76	125
9	26	6	.40	474	848	2960	490	78	144
10	22	3	.20	67	22	5.2	130	5	1.8
11	19	3	.20	138	266	205	104	4	1.1
12	18	3	.10	51	12	1.7	91	4	1.0
13	17	3	.10	1470	1790	15900	628	486	2380
14	16	3	.10	276	136	147	138	10	3.7
15	15	3	.10	152	40	16	91	6	1.5
16	17	3	.10	76	10	2.1	76	3	.60
17	18	3	.10	75	16	3.4	64	3	.50
18	15	3	.10	58	8	1.3	51	3	.40
19	14	3	.10	51	10	1.4	966	817	4650
20	14	3	.10	915	1030	6030	1590	1740	34600
21	14	3	.10	188	36	18	648	162	635
22	13	3	.10	93	8	2.0	463	44	77
23	13	3	.10	623	595	1740	432	30	36
24	12	3	.10	250	151	167	819	296	1140
25	11	3	.10	122	11	3.6	298	12	9.7
26	12	3	.10	76	4	.80	249	29	32
27	11	3	.10	951	1320	10300	900	758	4990
28	11	3	.10	193	35	18	233	15	9.4
29	12	3	.10	150	--	180	163	5	2.2
30	11	3	.10	270	--	140	132	3	1.1
31	--	--	--	80	12	2.6	--	--	--
TOTAL	556	--	16.09	6913.6	--	37876.80	11995	--	75590.10

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	112	3	.90	21	3	.20	16	3	.10
2	98	--	1.1	20	3	.20	15	3	.10
3	84	--	.90	20	3	.20	15	3	.10
4	74	--	.80	20	12	.60	15	3	.10
5	66	--	.70	19	14	.70	14	3	.10
6	63	--	.70	19	7	.40	13	3	.10
7	58	--	.60	17	5	.20	13	3	.10
8	52	--	.60	21	10	.60	12	3	.10
9	48	4	.50	20	5	.30	45	56	21
10	46	4	.50	19	3	.20	33	16	1.4
11	45	4	.50	16	3	.10	33	23	2.4
12	42	4	.50	15	3	.10	24	12	.80
13	40	4	.40	15	3	.10	18	7	.30
14	37	4	.40	15	3	.10	16	4	.20
15	35	4	.40	14	3	.10	15	3	.10
16	35	4	.40	13	3	.10	14	3	.10
17	39	7	.70	13	3	.10	13	3	.10
18	33	3	.30	13	3	.10	13	3	.10
19	30	3	.20	18	12	.60	12	3	.10
20	35	7	.70	1280	1130	8910	12	3	.10
21	30	3	.20	147	70	2.8	11	3	.10
22	27	3	.20	51	10	1.4	10	3	.10
23	25	3	.20	33	8	.70	11	3	.10
24	24	3	.20	27	6	.40	10	3	.10
25	25	3	.20	24	4	.30	10	3	.10
26	25	3	.20	22	3	.20	9.4	3	.10
27	24	3	.20	20	3	.20	9.0	3	.10
28	29	14	1.1	19	3	.20	8.6	3	.10
29	29	10	.80	18	3	.10	8.4	3	.10
30	24	6	.40	18	3	.10	8.2	3	.10
31	24	3	.20	17	3	.10	--	--	--
TOTAL	1358	--	15.70	2004	--	8921.50	456.6	--	28.50

TOTAL DISCHARGE FOR YEAR (CFS-DAYS)	27320.9
TOTAL LOAD FOR YEAR (TONS)	124771.59

16884600 AHA-GAWA AT AHA

LOCATION.--Lat 26°42'41" N., long 128°16'55" E., Okinawa, at gaging station 0.3 mile southwest of Aha School and 1.4 miles upstream from mouth.

DRAINAGE AREA.--9 5 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1969 (partial records).
Water temperatures: March 1968 to September 1969.
Sediment records: March 1968 to September 1969.

EXTREMES.--1968-69:
Water temperatures: Maximum, 30.0°C Aug. 27; minimum, 11.0°C on several days during December, January and March.
Sediment concentrations: Maximum daily, 1,900 mg/l Aug. 20; minimum daily, 2 mg/l on many days.
Sediment loads: Maximum daily, 19,700 tons Aug. 20; minimum daily, 0.01 ton on many days.

Period of record:
Water temperatures: Maximum, 31.0°C Aug. 17, 1968; minimum, 11.0°C on several days in 1968-69.
Sediment concentrations: Maximum daily, 1,900 mg/l Aug. 20, 1969; minimum daily, 1 mg/l on many days in 1968.
Sediment loads: Maximum daily, 19,700 tons Aug. 20, 1969; minimum daily, less than 0.05 ton on several days in 1968.

REMARKS.--Chemical analyses for this station in "Analyses of Samples Collected at Water-Quality Partial-Record Stations in Hawaii and Other Pacific Areas." The sediment concentrations and loads during the year were higher than normal because clearing and grading of the watershed just upstream from the station for a dirt road resulted in more than usual amounts of sediment being carried downstream.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(ONCE-DAILY MEASUREMENT)

MONTH	DAY 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	AVERAGE
OCTOBER..	22	22	24	24	24	22	24	22	22	22	22	24	23	22	22	22	21	21	17	19	21	21	21	18	18	17	16	19	18	17	15	21
NOVEMBER.	15	16	19	20	19	18	21	18	18	17	17	19	19	21	16	20	15	19	17	17	16	16	17	18	17	17	17	17	16	16	--	18
DECEMBER.	16	18	18	17	19	18	16	17	18	18	17	18	17	16	14	14	13	14	14	16	16	16	13	12	11	14	14	15	17	14	12	16
JANUARY...	14	12	12	12	13	11	13	13	12	14	16	14	13	13	13	13	14	14	17	17	18	19	17	16	18	18	19	19	17	16	17	15
FEBRUARY.	16	15	14	16	12	13	12	14	12	13	13	14	14	14	14	14	15	16	14	16	14	15	16	16	15	15	15	13	--	--	--	14
MARCH....	11	14	14	13	13	13	13	13	16	16	15	16	14	11	12	11	11	13	13	13	14	17	14	13	14	16	14	15	15	--	--	14
APRIL....	--	--	--	18	14	16	16	14	16	18	17	--	19	18	21	22	24	18	22	18	19	21	22	22	22	21	19	21	22	21	--	19
MAY.....	24	22	22	22	22	21	21	21	19	19	22	21	21	21	23	21	22	21	21	21	13	19	20	20	19	21	19	--	19	19	20	21
JUNE....	21	21	20	24	19	19	19	18	19	19	19	18	19	19	--	21	21	--	21	20	20	20	24	19	21	21	22	20	22	24	--	20
JULY....	23	24	--	23	26	24	23	28	25	24	23	24	23	25	24	26	24	25	26	25	23	26	27	25	24	26	26	26	27	24	28	25
AUGUST...	27	24	26	25	26	24	26	24	24	27	26	24	25	24	23	24	24	26	26	22	22	24	24	26	24	25	30	28	26	--	25	25
SEPTEMBER	23	26	26	25	26	26	26	25	23	25	25	26	26	25	26	26	26	23	24	26	24	24	23	24	26	24	26	24	25	25	--	25

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	18	6	.30	8.5	5	.10	8.0	3	.10
2	17	6	.30	8.0	5	.10	8.5	4	.10
3	16	6	.30	8.0	5	.10	10	6	.20
4	16	6	.30	8.5	6	.10	8.5	4	.10
5	15	6	.20	8.5	4	.10	9.0	3	.10
6	16	6	.30	13	10	.40	8.0	3	.10
7	15	6	.20	10	6	.20	7.5	3	.10
8	16	6	.30	21	139	15	8.0	3	.10
9	17	6	.30	46	159	21	8.0	3	.10
10	18	6	.30	20	8	.40	8.5	4	.10
11	16	6	.30	14	6	.20	10	8	.20
12	15	6	.20	13	6	.20	33	95	12
13	15	6	.20	12	6	.20	13	10	.40
14	14	6	.20	12	5	.20	10	6	.20
15	14	6	.20	12	5	.20	10	5	.10
16	13	6	.20	11	4	.10	9.0	5	.10
17	13	5	.20	10	4	.10	7.5	5	.10
18	12	5	.20	10	4	.10	12	25	1.7
19	12	5	.20	9.5	4	.10	16	12	.50
20	12	5	.20	9.0	4	.10	8.0	7	.20
21	13	12	.40	9.0	4	.10	7.5	5	.10
22	13	22	.80	9.0	4	.10	16	12	.50
23	12	14	.50	8.5	4	.10	10	4	.10
24	10	10	.30	8.5	4	.10	8.0	4	.10
25	9.5	7	.20	9.5	6	.20	7.5	3	.10
26	9.5	6	.20	8.5	5	.10	7.1	3	.10
27	9.5	6	.20	8.5	5	.10	7.5	3	.10
28	9.5	6	.20	8.5	4	.10	7.5	3	.10
29	9.5	8	.20	8.0	4	.10	7.1	3	.10
30	9.0	8	.20	8.0	4	.10	8.5	6	.10
31	8.5	6	.10	--	--	--	7.5	3	.10
TOTAL	413.0	--	8.20	350.0	--	40.10	306.7	--	18.10

RYUKYU ISLANDS, ISLAND OF OKINAWA

16884600 AHA-GAWA AT AHA--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	9.0	10	.20	50	60	8.1	25	4	.30
2	8.0	4	.10	35	12	1.1	200	--	89
3	7.1	3	.10	30	8	.60	53	12	1.7
4	6.7	3	.10	110	--	89	45	8	1.0
5	11	7	.20	52	10	1.4	36	5	.50
6	9.5	4	.10	35	8	.80	32	5	.40
7	7.1	3	.10	28	6	.50	30	5	.40
8	6.7	3	.10	25	6	.40	96	251	141
9	6.7	3	.10	23	5	.30	141	127	76
10	13	22	2.1	22	4	.20	92	160	40
11	9.0	10	.20	20	4	.20	423	828	3450
12	7.6	5	.10	19	4	.20	130	20	7.0
13	7.0	4	.10	18	4	.20	90	7	1.7
14	8.0	6	.10	21	3	.20	66	5	.90
15	13	18	.60	18	3	.10	54	4	.60
16	9.0	12	.30	17	3	.10	45	3	.40
17	14	22	.80	16	3	.10	40	3	.30
18	9.0	6	.10	30	10	.80	36	3	.30
19	70	--	94	20	5	.30	33	3	.30
20	35	70	6.6	17	4	.20	31	3	.30
21	15	9	.40	15	3	.10	29	3	.20
22	12	8	.30	14	3	.10	27	3	.20
23	11	6	.20	13	3	.10	25	3	.20
24	10	6	.20	30	40	3.2	24	3	.20
25	9.2	6	.10	21	8	.50	40	9	1.0
26	15	20	.80	130	--	105	35	9	.90
27	13	20	.70	50	8	1.1	27	5	.40
28	12	18	.60	30	6	.50	350	--	490
29	150	--	360	--	--	--	86	10	2.3
30	40	18	1.9	--	--	--	60	6	1.0
31	32	--	3.9	--	--	--	45	5	.60
TOTAL	585.6	--	475.20	909	--	215.40	2446	--	4309.10

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	40	3	.30	16	3	.10	74	4	.80
2	35	3	.30	16	3	.10	110	--	37
3	32	3	.30	16	3	.10	500	--	1280
4	70	81	15	16	3	.10	110	6	1.8
5	50	10	1.4	15	3	.10	1000	--	1280
6	42	7	.80	16	4	.20	250	120	81
7	38	4	.40	15	3	.10	115	6	1.9
8	80	85	18	42	185	24	380	140	140
9	40	6	.60	889	1440	7390	470	60	74
10	36	3	.30	80	14	3.0	150	12	4.9
11	31	3	.30	100	--	54	130	7	2.5
12	29	3	.20	40	10	1.1	120	16	5.2
13	27	3	.20	1000	1340	3620	670	340	1200
14	25	3	.20	200	35	19	160	15	6.5
15	25	3	.20	100	25	6.8	120	8	2.6
16	24	3	.20	75	10	2.0	100	5	1.4
17	27	6	.40	90	25	6.1	83	4	.90
18	23	3	.20	70	16	3.0	200	5	2.7
19	22	3	.20	58	10	1.6	700	--	1100
20	20	3	.20	400	--	1400	790	750	1600
21	20	3	.20	130	16	5.6	330	190	169
22	20	3	.20	84	8	1.8	280	190	144
23	19	3	.20	560	1290	2750	250	135	91
24	18	3	.10	160	20	8.6	600	320	520
25	18	3	.10	100	8	2.2	210	8	4.5
26	18	3	.10	84	5	1.1	155	4	1.7
27	19	4	.20	560	--	1440	800	--	600
28	18	3	.10	130	20	7.0	150	12	4.9
29	16	3	.10	120	40	13	120	9	2.9
30	16	3	.10	100	18	4.9	100	7	1.9
31	--	--	--	84	6	1.4	--	--	--
TOTAL	898	--	41.10	5366	--	16767.00	9227	--	8363.10

16884600 AHA-GAWA AT AHA--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS)
1	92	5	1.2	17	2	.10	24	15	1.0
2	79	4	.90	16	2	.10	16	4	.20
3	68	4	.70	16	2	.10	16	4	.20
4	65	8	1.4	70	--	150	16	4	.20
5	57	4	.60	20	18	1.0	14	4	.20
6	52	3	.40	20	15	.80	14	4	.20
7	50	3	.40	16	5	.20	13	4	.10
8	44	3	.40	21	10	.60	13	4	.10
9	40	3	.30	19	4	.20	103	120	57
10	38	2	.20	16	3	.10	46	8	1.0
11	35	2	.20	14	3	.10	84	235	229
12	34	2	.20	13	2	.10	62	12	2.0
13	31	2	.20	12	2	.10	29	5	.40
14	30	2	.20	12	2	.10	26	3	.20
15	28	2	.20	12	2	.10	23	3	.20
16	28	2	.20	12	2	.10	22	3	.20
17	31	4	.30	11	2	.10	19	3	.20
18	29	5	.40	11	2	.10	18	3	.10
19	25	3	.20	17	8	.40	16	3	.10
20	24	2	.10	1830	1900	19700	16	3	.10
21	23	2	.10	257	116	113	15	3	.10
22	23	2	.10	73	17	3.4	14	3	.10
23	23	2	.10	47	10	1.3	14	3	.10
24	21	2	.10	36	5	.50	14	2	.10
25	20	2	.10	30	3	.20	14	2	.10
26	21	4	.20	26	3	.20	14	2	.10
27	22	3	.20	25	3	.20	13	2	.10
28	22	4	.20	22	3	.20	12	2	.10
29	20	3	.20	20	2	.10	13	3	.10
30	21	4	.20	18	2	.10	12	2	.10
31	18	3	.10	16	2	.10	--	--	--
TOTAL	1114	--	10.30	2745	--	19973.70	725	--	293.70

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 25085.3
TOTAL LOAD FOR YEAR (TONS) 50515.00

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)
ISLAND OF OAHU									
16213000 WAIKELE STREAM AT WAIPAHU (LAT 21 23 09 LONG 158 00 48)									
JUNE, 1969									
18...	34	21	54	12	10	--	--	80	0
16260500 MAUNAWILI STREAM AT HIGHWAY 61, NEAR KAILUA (LAT 21 22 51 LONG 157 45 48)									
DEC., 1968									
05...	25	22	--	11	8.4	--	--	73	0
FEB., 1969									
24...	30	21	29	10	8.0	--	--	70	0
APR.									
14...	20	22	21	10	7.8	--	--	71	0
MAY									
24...	9.3	23	27	11	8.9	--	--	80	0
JULY									
10...	7.2	25	26	11	8.5	19	.9	80	0
AUG.									
19...	5.7	24	28	11	8.2	18	1.0	77	0
16270500 KAMOOALII STREAM BELOW KUOU STREAM, NEAR KANEOHE (LAT 21 23 42 LONG 157 48 26)									
JAN., 1969									
08...	24	20	21	8.0	6.3	--	--	54	0
FEB.									
27...	24	20	19	8.4	6.8	--	--	54	1
16273900 KAMOOALII STREAM AT KANEOHE (LAT 21 24 51 LONG 157 48 12)									
JAN., 1969									
09...	35	21	20	11	6.4	--	--	56	0
FEB.									
28...	29	21	18	10	6.8	--	--	60	1
APR.									
23...	20	22	20	10	7.3	--	--	64	0
MAY									
29...	19	22	18	9.8	7.2	--	--	64	0
JULY									
11...	7.7	29	22	9.1	6.6	15	.8	63	0
AUG.									
21...	12	31	22	9.2	6.6	15	.8	62	0
16283500 KAHALUU STREAM AT KAHALUU (LAT 21 27 23 LONG 157 50 15)									
JAN., 1969									
13...	--	21	23	14	7.8	--	--	67	0
APR.									
24...	9.0	26	26	15	7.4	--	--	82	0
JUNE									
28...	7.4	--	20	14	7.5	--	--	82	0
JULY									
14...	5.0	28	20	14	7.8	18	1.1	83	0
AUG.									
26...	2.8	--	23	15	8.2	17	1.1	89	0
16284500 WAIHEE STREAM AT KAHALUU (LAT 21 27 31 LONG 157 50 26)									
JAN., 1969									
13...	--	20	22	9.0	5.0	--	--	51	0
MAR.									
06...	--	21	23	8.6	5.2	--	--	53	0
APR.									
30...	--	20	25	9.2	5.4	--	--	54	0
JUNE									
02...	--	--	26	8.8	5.4	--	--	54	0
AUG.									
26...	--	22	23	8.4	5.5	12	1.0	56	0

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	CHLO-RIDE (CL) (MG/L)	FLUO-RIDE (F) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)
ISLAND OF OAHU								
16213000 WAIKELE STREAM AT WAIPAHU (LAT 21 23 09 LONG 158 00 48)								
JUNE, 1969								
18...	93	--	72	6	--	--	495	7.2
16260500 MAUNAWILI STREAM AT HIGHWAY 61, NEAR KAILUA (LAT 21 22 51 LONG 157 45 48)								
DEC., 1968								
05...	20	--	62	2	--	--	202	7.0
FEB., 1969								
24...	21	--	58	1	--	--	194	7.3
APR.								
14...	20	--	57	0	--	--	190	7.1
MAY								
24...	22	--	64	0	--	--	214	7.1
JULY								
10...	23	.1	62	0	39	1.0	210	7.7
AUG.								
19...	22	.1	61	0	39	1.0	204	7.4
16270500 KAMOOALII STREAM BELOW KUOU STREAM, NEAR KANEOHE (LAT 21 23 42 LONG 157 48 26)								
JAN., 1969								
08...	18	--	46	2	--	--	158	7.1
FEB.								
27...	20	--	46	3	--	--	167	8.4
16273900 KAMOOALII STREAM AT KANEOHE (LAT 21 24 51 LONG 157 48 12)								
JAN., 1969								
09...	19	--	54	8	--	--	177	6.3
FEB.								
28...	21	--	53	2	--	--	178	8.4
APR.								
23...	21	--	55	2	--	--	181	7.0
MAY								
29...	21	--	54	2	--	--	178	7.1
JULY								
11...	20	.1	50	0	39	.9	174	7.8
AUG.								
21...	20	.1	50	0	39	.9	173	7.6
16283500 KAHALUU STREAM AT KAHALUU (LAT 21 27 23 LONG 157 50 15)								
JAN., 1969								
13...	23	--	67	12	--	--	218	6.5
APR.								
24...	24	--	68	1	--	--	216	7.3
JUNE								
28...	22	--	66	0	--	--	215	7.2
JULY								
14...	23	.1	67	0	36	1.0	214	7.8
AUG.								
26...	22	.1	71	0	34	.9	222	7.4
16284500 WAIHEE STREAM AT KAHALUU (LAT 21 27 31 LONG 157 50 26)								
JAN., 1969								
13...	18	--	43	1	--	--	152	6.9
MAR.								
06...	19	--	43	0	--	--	153	7.1
APR.								
30...	19	--	45	1	--	--	156	6.9
JUNE								
02...	18	--	44	0	--	--	151	7.0
AUG.								
26...	18	.1	44	0	37	.8	150	7.1

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	CHLO-RIDE (CL) (MG/L)
ISLAND OF HAWAII										
16717000 HONOLII STREAM NEAR PAPAIKOU (LAT 19 46 00 LONG 155 09 16) (HYDROLOGIC BENCH-MARK STATION)										
SEP., 1969										
03...	71	21	5.1	1.8	1.2	2.0	.2	12	0	2.5

DATE	MEAN DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)
RYUKYU ISLANDS, ISLAND OF OKINAWA											
16878200 HANECHI-OKAWA AT KAWAKAMI (LAT 26 36 28 N LONG 128 01 16 E)											
OCT.											
29...	2.4	14	100	8.0	4.8	18	.0	39	0	11	24
FEB.											
25...	10	13	200	10	6.0	18	.6	44	0	13	26
16884200 FUKUJI-GAWA AT FUKUJI (LAT 26 38 16 N LONG 128 10 13 E)											
NOV.											
07...	15	17	200	5.6	3.4	21	1.0	32	0	8.0	30
MAR.											
05...	18	15	--	3.2	3.4	16	--	21	0	8.0	22
JUNE											
03...	800	10	--	2.0	1.7	10	.0	10	0	6.0	16
16884600 AHA-GAWA AT AHA (LAT 26 42 41 N LONG 128 16 55 E)											
FEB.											
20...	17	18	300	4.0	2.4	13	.6	24	0	5.0	22
MAR.											
03...	53	16	200	2.8	1.7	11	--	12	0	5.0	21
AUG.											
11...	14	18	80	5.6	2.4	18	.8	28	1	5.0	23

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEM-PERA-TURE (C)	DISCHARGE (CFS)	SUSPENDED CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALY-SIS
16883300 LEFT FORK O-KAWA NEAR KUSHI (LAT 26 31 18 N LONG 127 59 50 E)																	
MAR 1, 1969	1020	14	.32	3	0	--	--	--	--	--	--	--	--	--	--	--	--
APR 12.....	1030	18	.21	4	0	--	--	--	--	--	--	--	--	--	--	--	--
JUN 21.....	1130	22	5.5	6	.09	--	--	--	--	--	--	--	--	--	--	--	--
16883550 OURA-GAWA AT OKAWA (LAT 26 34 10 N LONG 128 02 23 E)																	
FEB 26, 1969	1155	18	14	5	.19	--	--	--	--	--	--	--	--	--	--	--	--
MAR 1.....	1155	16	4.3	1	.01	--	--	--	--	--	--	--	--	--	--	--	--
MAR 15.....	1155	15	8.5	4	.09	--	--	--	--	--	--	--	--	--	--	--	--
MAY 14.....	1240	20	39	7	.74	--	--	--	--	--	--	--	--	--	--	--	--
MAY 14.....	1440	20	35	8	.76	--	--	--	--	--	--	--	--	--	--	--	--
JUN 1.....	1320	22	56	12	1.8	--	--	--	--	--	--	--	--	--	--	--	--
16884100 FUKUJI-GAWA NEAR YUBARU (LAT 26 38 32 N LONG 128 13 00 E)																	
MAR 12, 1969	1100	17	46	4	.50	--	--	--	--	--	--	--	--	--	--	--	--
MAY 17.....	1145	22	20	1	.05	--	--	--	--	--	--	--	--	--	--	--	--
MAY 23.....	1145		2640	342	2440	--	--	--	--	--	--	--	--	--	--	--	--
MAY 23.....	1210		2720	367	2700	--	--	--	--	--	--	--	--	--	--	--	--
MAY 23.....	1230		2000	247	1330	--	--	--	--	--	--	--	--	--	--	--	--
MAY 27.....	1120		60	62	10	--	--	--	--	--	--	--	--	--	--	--	--
MAY 27.....	1135		86	73	17	--	--	--	--	--	--	--	--	--	--	--	--
MAY 27.....	1200		315	90	77	--	--	--	--	--	--	--	--	--	--	--	--
JUN 14.....	1125		57	2	.31	--	--	--	--	--	--	--	--	--	--	--	--
JUN 23.....	1230		114	12	3.7	--	--	--	--	--	--	--	--	--	--	--	--
JUN 23.....	1355		109	11	3.2	--	--	--	--	--	--	--	--	--	--	--	--
JUL 11.....	1300		20	10	.54	--	--	--	--	--	--	--	--	--	--	--	--
16884800 FUN-GAWA NEAR AHA (LAT 26 44 33 N LONG 128 16 53 E)																	
OCT 24, 1968	1340	21	3.7	1	.01	--	--	--	--	--	--	--	--	--	--	--	--
DEC 3.....	1415	20	3.7	1	.01	--	--	--	--	--	--	--	--	--	--	--	--
FEB 3, 1969	1630	16	8.8	1	.02	--	--	--	--	--	--	--	--	--	--	--	--
MAR 7.....	1305	17	12	6	.19	--	--	--	--	--	--	--	--	--	--	--	--
JUN 26.....	1030	22	51	4	.55	--	--	--	--	--	--	--	--	--	--	--	--

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
ISLAND OF HAWAII									
16717000 HONOLII STREAM NEAR PAPAIKOU (LAT 19 46 00 LONG 155 09 16) (HYDROLOGIC BENCH-MARK STATION)									
SEP., 1969									
03...	.1	24	.03	10	0	31	.3	27	6.9

DATE	FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)
RYUKYU ISLANDS, ISLAND OF OKINAWA											
16878200 HANECHI-OKAWA AT KAWAKAMI (LAT 26 36 28 N LONG 128 01 16 E)											
OCT.											
25...	.0	.0	99	.13	40	8	40	1.0	120	7.0	10
FEB.											
25...	.0	.9	110	.15	50	14	60	1.6	150	7.6	2
16884200 FUKUJI-GAWA AT FUKUJI (LAT 26 38 16 N LONG 128 10 13 E)											
NOV.											
07...	.1	.0	102	.14	28	2	61	1.7	135	7.4	10
MAR.											
05...	.0	.4	78	.11	22	5	61	1.5	110	7.2	10
JUNE											
03...	.0	.2	51	.07	12	4	64	1.3	70	7.5	7
16884600 AHA-GAWA AT AHA (LAT 26 42 41 N LONG 128 16 55 E)											
FEB.											
20...	.0	.0	73	.10	20	1	48	1.0	95	7.6	10
MAR.											
03...	.0	.0	64	.09	14	4	63	1.3	80	7.4	10
AUG.											
11...	.0	.0	88	.12	24	1	61	1.6	100	8.7	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHOD OF ANALYSIS: H, HYDROMETER; O, OPTICAL ANALYZER; S, SIEVE; V, VISUAL ACCUMULATION TUBE)

DATE	TIME	WATER TEMPERATURE (C)	NUMBER OF SAMPLING POINTS	DISCHARGE (CFS)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .062	.125	.250	.500	1.00	2.00	4.00	8.00	16.0	32.0	64.0	METHOD OF ANALYSIS
HAWAII, ISLAND OF OAHU																
16260500 MAUNAWILI STREAM AT HIGHWAY 61, NEAR KAILUA (LAT 21 22 51 LONG 157 45 48)																
SEP 25, 1969	0900			6.4	1	1	3	11	26	40	50	61	73	85	100	S
16270500 KAMOOALII STREAM BELOW KUOU STREAM, NEAR KANEOHE (LAT 21 23 42 LONG 157 48 26)																
SEP 25, 1969	1000			7.0	2	3	6	12	21	30	39	49	69	86	100	S
16273900 KAMOOALII STREAM AT KANEOHE (LAT 21 24 51 LONG 157 48 12)																
SEP 25, 1969	1100			12	1	2	6	19	32	42	54	72	94	100	--	S
16283500 KAHALUU STREAM AT KAHALUU (LAT 21 27 23 LONG 157 50 15)																
SEP 25, 1969	1500			6.4	--	2	7	22	41	58	70	92	96	100	--	S
16284500 WAIHEE STREAM AT KAHALUU (LAT 21 27 31 LONG 157 50 26)																
SEP 25, 1969	1300			13	--	1	2	8	23	42	64	83	--	87	100	S

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)
ISLAND OF OAHU									
16229000 KALIHI STREAM NEAR HONOLULU (LAT 21 21 59 LONG 157 50 49)									
APR., 1969									
29...	4.9	21	10	4.8	3.9	--	--	28	0
MAY									
27...	4.0	21	10	5.0	3.8	--	--	28	0
ISLAND OF MOLOKAI									
16400000 HALAWA STREAM NEAR HALAWA (LAT 21 09 31 LONG 156 45 53)									
JUNE, 1969									
28...	3.6	22	8.6	1.6	1.2	--	--	10	0
16404000 PELEKUNU STREAM NEAR PELEKUNU (LAT 21 08 12 LONG 156 52 46)									
JUNE, 1969									
24...	5.4	23	25	10	3.2	--	--	42	0
16405300 MOLOKAI TUNNEL AT WEST PORTAL (LAT 21 07 27 LONG 156 59 50)									
JUNE, 1969									
23...	5.8	18	--	6.6	3.0	--	--	41	0
16405500 WAIKOLU STREAM AT ALTITUDE 900 FT, NEAR KALAUPAPA (LAT 21 08 43 LONG 156 55 18)									
AUG., 1969									
22...	1.4	20	29	6.0	3.4	9.2	1.5	27	7
16408000 WAIKOLU STREAM BELOW PIPELINE CROSSING, NEAR KALAUPAPA (LAT 21 09 45 LONG 156 55 54)									
AUG., 1969									
22...	11	19	31	6.5	3.8	9.8	1.3	44	0
16415000 EAST FORK KAWELA GULCH NEAR KAMALO (LAT 21 06 46 LONG 156 54 23)									
AUG., 1969									
26...	4.3	15	2.6	.6	.8	4.2	.2	2	0
16416000 PUNAULA GULCH NEAR PUKOO (LAT 21 05 50 LONG 156 48 48)									
AUG., 1969									
25...	4.0	19	2.0	.9	.8	4.4	.4	5	0

DATE	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	SILICA (SIO2) (MG/L)	CAL-CIUM (CA) (MG/L)	MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	CHLO-RIDE (CL) (MG/L)
ISLAND OF HAWAII										
16755000 KEHENA DITCH NEAR KOHALA (LAT 20 07 25 LONG 155 45 05)										
DEC., 1968										
24...	--	--	3.5	.9	.7	--	--	3	0	3.0

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEM-PERA-TURE (C)	DISCHARGE (CFS)	SUSPENDED CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALY-SIS
ISLAND OF OAHU																	
16211600 MAKAHA STREAM NEAR MAKAHA (LAT 21 30 16 LONG 158 10 59)																	
DEC 19, 1968	1540	21	27	23	1.7	--	--	--	--	--	--	--	--	--	--	--	
KALOI GULCH AT FARRINGTON HIGHWAY, NEAR HONOULIULI (LAT 21 22 05 LONG 158 03 25)																	
OCT 1, 1968	1530		15	16300	660	48	57	71	89	98	99	100	--	--	--	--	VPWC
16216000 WAIAWA STREAM NEAR PEARL CITY (LAT 21 23 55 LONG 157 58 50)																	
JAN 3, 1969	1225	24	1850	1160	5790	--	--	--	--	--	--	--	--	--	--	--	
16228200 MOANALUA STREAM NEAR AIEA (LAT 21 22 37 LONG 157 53 03)																	
JAN 3, 1969	1030	21	113	44	13	--	--	--	--	--	--	--	--	--	--	--	
JAN 3.....	1405	22	71	17	3.3	--	--	--	--	--	--	--	--	--	--	--	
16329000 KAIWIKOELE STREAM TRIBUTARY NEAR MAUNAWAI (LAT 21 36 49 LONG 158 01 23)																	
JAN 3, 1969	1130	20	19	10	.51	--	--	--	--	--	--	--	--	--	--	--	

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	CHLORIDE (CL) (MG/L)	FLUORIDE (F) (MG/L)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
ISLAND OF OAHU								
16229000 KALIHI STREAM NEAR HONOLULU (LAT 21 21 59 LONG 157 50 49)								
APR., 1969								
29...	20	--	28	5	--	--	124	7.0
MAY								
27...	19	--	28	5	--	--	126	6.9
ISLAND OF MOLOKAI								
16400000 HALAWA STREAM NEAR HALAWA (LAT 21 09 31 LONG 156 45 53)								
JUNE, 1969								
28...	12	--	9	1	--	--	60	6.5
16404000 PELEKUNU STREAM NEAR PELEKUNU (LAT 21 08 12 LONG 156 52 46)								
JUNE, 1969								
24...	11	--	38	4	--	--	127	7.1
16405300 MOLOKAI TUNNEL AT WEST PORTAL (LAT 21 07 27 LONG 156 59 50)								
JUNE, 1969								
23...	12	--	29	0	--	--	110	7.0
16405500 WAIKOLU STREAM AT ALTITUDE 900 FT, NEAR KALAUPAPA (LAT 21 08 43 LONG 156 55 18)								
AUG., 1969								
22...	12	.1	29	0	39	.7	106	9.3
16408000 WAIKOLU STREAM BELOW PIPELINE CROSSING, NEAR KALAUPAPA (LAT 21 09 45 LONG 156 55 54)								
AUG., 1969								
22...	13	.2	32	0	39	.8	114	7.1
16415000 EAST FORK KAWELA GULCH NEAR KAMALO (LAT 21 06 46 LONG 156 54 23)								
AUG., 1969								
26...	8.0	--	5	4	64	.8	37	5.1
16416000 PUNAULA GULCH NEAR PUKOO (LAT 21 05 50 LONG 156 48 48)								
AUG., 1969								
25...	7.0	.1	6	2	61	.8	36	6.3

DATE	FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
ISLAND OF HAWAII									
16755000 KEHENA DITCH NEAR KOHALA (LAT 20 07 25 LONG 155 45 05)									
DEC., 1968									
24...	--	--	--	5	2	--	--	27	5.3

DATE	DISCHARGE (CFS)	TEMPERATURE (DEG C)	SILICA (SIO2) (MG/L)	CALCIUM (CA) (MG/L)	MAGNESIUM (MG) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	CHLORIDE (CL) (MG/L)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
SAMOA ISLANDS, ISLAND OF TUTUILA												
16906000 VAITOLU STREAM AT AOA (LAT 14 16 19 S LONG 170 35 32 W)												
FEB., 1969												
07...	.06	--	26	5.3	7.7	52	0	20	45	3	148	7.1
16931000 ATAULOMA STREAM AT AFAO (LAT 14 20 10 S LONG 170 48 02 W)												
FEB., 1969												
04...	.88	27	21	5.3	4.1	42	0	9.5	30	0	94	6.8

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHOD OF ANALYSIS: H, HYDROMETER; O, OPTICAL ANALYZER; S, SIEVE; V, VISUAL ACCUMULATION TUBE)

DATE	TIME	WATER TEMPERATURE (C)	NUMBER OF SAMPLING POINTS	DISCHARGE (CFS)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .062	.125	.250	.500	1.00	2.00	4.00	8.00	16.0	32.0	64.0	METHOD OF ANALYSIS
ISLAND OF OAHU																
16284000 WAIHEE STREAM NEAR HEEIA (LAT 21 27 00 LONG 157 51 40)																
SEP 25, 1969	1400			5.5	--	1	1	3	7	17	32	53	78	100	--	S

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
ISLAND OF OAHU																	
16213000 WAIKELE STREAM AT WAIPAHU (LAT 21 23 09 LONG 158 00 48)																	
OCT 1, 1968	1315	26	54	147	21	--	--	--	--	--	--	--	--	--	--	--	
OCT 1.....	1415	26	75	243	49	--	--	--	--	--	--	--	--	--	--	--	
NOV 14.....	1215	26	67	108	20	--	--	--	--	--	--	--	--	--	--	--	
DEC 13.....	1610	21	194	74	39	--	--	--	--	--	--	--	--	--	--	--	
MAR 15, 1969	1010	22	56	13	2.0	--	--	--	--	--	--	--	--	--	--	--	
APR 30.....	0915	21	118	77	25	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	1255	22	402	828	899	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	1350	22	286	694	536	--	--	--	--	--	--	--	--	--	--	--	
JUN 13.....	0825	21	25	7	.47	--	--	--	--	--	--	--	--	--	--	--	
AUG 12.....	0835	22	20	5	.27	--	--	--	--	--	--	--	--	--	--	--	
SEP 10.....	0830	24	22	5	.30	--	--	--	--	--	--	--	--	--	--	--	
16229300 KALIHI STREAM AT KALIHI (LAT 21 20 29 LONG 157 52 36)																	
NOV 14, 1968	1500		17	146	6.7	--	--	--	--	--	--	--	--	--	--	--	
NOV 20.....	1040	23	1.6	5	.02	--	--	--	--	--	--	--	--	--	--	--	
JAN 28, 1969	1230	19	3.4	20	.18	--	--	--	--	--	--	--	--	--	--	--	
APR 9.....	1450	24	9.3	6	.15	--	--	--	--	--	--	--	--	--	--	--	
MAY 20.....	0930	20	4.2	1	.01	--	--	--	--	--	--	--	--	--	--	--	
SEP 22.....	1135	23	18	8	.39	--	--	--	--	--	--	--	--	--	--	--	
16260500 MAUNAWILI STREAM AT HIGHWAY 61, NEAR KAILUA (LAT 21 22 51 LONG 157 45 48)																	
OCT 8, 1968	0830	23	4.6	42	.52	--	--	--	--	--	--	--	--	--	--	--	
OCT 8.....	1330	23	4.4	3	.04	--	--	--	--	--	--	--	--	--	--	--	
OCT 16.....	1510		170	A 4980	2290	--	--	--	--	--	--	--	--	--	--	--	
OCT 16.....	1540		340	A 3350	3080	--	--	--	--	--	--	--	--	--	--	--	
NOV 14.....	1040	24	17	179	8.2	--	--	--	--	--	--	--	--	--	--	--	
NOV 25.....	1445	24	4.8	5	.06	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1445		176	A 7140	3390	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1515		638	A 3040	5240	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1535		755	2600	5300	32	42	56	72	81	89	96	98	99	100	--	VPWC
NOV 29.....	1545		740	A 3020	6030	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1545		740	1340	2680	18	32	46	58	75	84	93	97	99	100	--	VPWC
NOV 29.....	1615		638	A 1620	2790	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1630		588	650	1030	21	31	--	63	--	83	91	97	100	--	--	VPWC
NOV 29.....	1645		500	A 1680	2270	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1700		500	663	895	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1710		460	491	610	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1715		420	A 1060	1200	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1720		440	560	665	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1745		358	A 685	662	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1815		300	A 587	475	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1845		300	A 455	369	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1915		268	A 386	279	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1945		252	A 352	240	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	2015		227	A 1410	864	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	2045		211	A 209	119	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	2115		211	A 175	100	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	2145		181	A 161	79	--	--	--	--	--	--	--	--	--	--	--	
NOV 30.....	0835	25	110	27	8.0	--	--	--	--	--	--	--	--	--	--	--	
DEC 1.....	0930	24	56	360	54	--	--	--	--	--	--	--	--	--	--	--	
DEC 1.....	0945	24	59	407	65	--	--	--	--	--	--	--	--	--	--	--	
DEC 1.....	0955	24	97	136	36	--	--	--	--	--	--	--	--	--	--	--	
DEC 1.....	1000	24	140	352	133	--	--	--	--	--	--	--	--	--	--	--	
DEC 1.....	1010	24	165	482	215	--	--	--	--	--	--	--	--	--	--	--	
DEC 1.....	1025	24	156	381	160	--	--	--	--	--	--	--	--	--	--	--	
DEC 1.....	1045	24	160	678	293	--	--	--	--	--	--	--	--	--	--	--	
DEC 1.....	1100	24	148	501	200	--	--	--	--	--	--	--	--	--	--	--	
DEC 1.....	1700	24	70	60	11	--	--	--	--	--	--	--	--	--	--	--	
DEC 2.....	1020	23	33	9	.80	--	--	--	--	--	--	--	--	--	--	--	
JAN 2, 1969	1450	23	135	261	95	--	--	--	--	--	--	--	--	--	--	--	
JAN 2.....	1505	23	221	660	394	--	--	--	--	--	--	--	--	--	--	--	

A SAMPLES COLLECTED WITH AUTOMATIC PUMPING SAMPLER.

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
ISLAND OF OAHU--CONTINUED																	
16260500 MAUNAWILI STREAM AT HIGHWAY 61, NEAR KAILUA--CONTINUED																	
JAN 2.....	1525	23	348	959	901	--	--	--	--	--	--	--	--	--	--	--	
JAN 2.....	1555	23	280	1030	779	--	--	--	--	--	--	--	--	--	--	--	
JAN 2.....	1640	23	218	549	323	--	--	--	--	--	--	--	--	--	--	--	
JAN 30.....	1340	23	410	1210	1340	--	--	--	--	--	--	--	--	--	--	--	
JAN 30.....	1345	23	380	1110	1140	--	--	--	--	--	--	--	--	--	--	--	
JAN 30.....	1355	23	340	1120	1030	40	52	71	86	94	96	98	99	100	--	--	VPWC
JAN 30.....	1410	23	295	1190	948	--	--	--	--	--	--	--	--	--	--	--	
JAN 30.....	1425	23	250	976	659	--	--	--	--	--	--	--	--	--	--	--	
JAN 30.....	1555	23	106	204	58	--	--	--	--	--	--	--	--	--	--	--	
JAN 30.....	1620	23	91	157	39	--	--	--	--	--	--	--	--	--	--	--	
JAN 31.....	0715	22	25	14	.95	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	0710	22	340	1430	1310	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	0720	22	320	1220	1050	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	0730	22	284	1230	943	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	0745	22	242	891	582	32	46	--	88	--	93	99	100	--	--	--	VPWC
FEB 1.....	1045	22	258	731	509	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1100	22	235	518	329	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1635	21	2030	1580	8660	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1645	21	1790	1180	5700	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1650	21	1730	1510	7050	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1730	22	1040	907	2550	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1745	22	920	841	2090	--	--	--	--	--	--	--	--	--	--	--	
FEB 2.....	0945	22	114	41	13	--	--	--	--	--	--	--	--	--	--	--	
FEB 24.....	1155	21	30	8	.65	--	--	--	--	--	--	--	--	--	--	--	
APR 14.....	1435	22	20	7	.38	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0700	20	72	447	87	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0710	20	58	318	50	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0720	20	50	219	30	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0735	20	45	170	21	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0745	20	42	133	15	--	--	--	--	--	--	--	--	--	--	--	
MAY 26.....	1345	23	9.3	5	.13	--	--	--	--	--	--	--	--	--	--	--	
JUL 10.....	1435	25	7.3	1	.02	--	--	--	--	--	--	--	--	--	--	--	
AUG 19.....	1310	24	5.8	5	.08	--	--	--	--	--	--	--	--	--	--	--	
SEP 22.....	1110	22	11	5	.15	--	--	--	--	--	--	--	--	--	--	--	
16270500 KAMOOALII STREAM BELOW KUOU STREAM, NEAR KANEOHE (LAT 21 23 42 LONG 157 48 26)																	
OCT 1, 1968	0800	22	7.0	2	.04	--	--	--	--	--	--	--	--	--	--	--	
NOV 14.....	1105	22	31	50	4.2	--	--	--	--	--	--	--	--	--	--	--	
NOV 19.....	1400	22	22	302	18	--	--	--	--	--	--	--	--	--	--	--	
NOV 26.....	1000	22	7.2	19	.37	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1215	22	17	18	.83	--	--	--	--	--	--	--	--	--	--	--	
JAN 3, 1969	0825	23	77	63	13	--	--	--	--	--	--	--	--	--	--	--	
JAN 8.....	1130	21	24	13	.84	--	--	--	--	--	--	--	--	--	--	--	
JAN 30.....	1400	21	80	204	44	--	--	--	--	--	--	--	--	--	--	--	
JAN 30.....	1455	23	41	120	13	--	--	--	--	--	--	--	--	--	--	--	
JAN 30.....	1535	23	34	42	3.9	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	0800	22	550	885	1310	25	38	--	63	--	84	94	99	100	--	--	VPWC
FEB 1.....	0845	21	418	412	465	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	0900	21	204	358	197	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	0915	21	134	662	240	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	0940	20	178	760	365	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1130	22	490	312	413	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1210	22	580	785	1230	36	51	--	81	--	96	99	100	--	--	--	VPWC
FEB 1.....	1215	22	680	463	850	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1230	22	720	668	1300	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1240	22	692	491	917	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1305	22	541	476	695	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1408	22	3600	B 2490	24200	24	33	46	58	77	80	93	97	--	--	100	VPWC
FEB 1.....	1415	22	3920	B 2200	23300	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1420	22	4240	B 2110	24200	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1525	22	10400	B 4130	116000	--	--	--	--	--	--	--	--	--	--	--	
FEB 1.....	1530	22	10700	B 4820	139000	22	30	40	53	68	72	86	92	93	--	100	VPWC
FEB 1.....	1800	22	700	3020	5710	28	38	53	67	80	84	91	95	--	--	100	VPWC
FEB 1.....	1930	22	300	1360	1100	--	--	--	--	--	--	--	--	--	--	--	
FEB 2.....	1030	22	60	41	6.6	--	--	--	--	--	--	--	--	--	--	--	
FEB 27.....	0850	20	24	10	.65	--	--	--	--	--	--	--	--	--	--	--	

B DIP-SAMPLE FROM BANK.

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
ISLAND OF OAHU--CONTINUED																	
16270500 KAMOOALII STREAM BELOW KUOU STREAM, NEAR KANEOHE--CONTINUED																	
APR 22.....	1200	22	17	6	.28	--	--	--	--	--	--	--	--	--	--	--	
APR 23.....	1110	22	18	118	5.7	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	1110	21	28	41	3.1	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	1150	21	24	32	2.1	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	1240	21	22	22	1.3	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	1315	21	20	19	1.0	--	--	--	--	--	--	--	--	--	--	--	
MAY 27.....	1210	22	14	9	.34	--	--	--	--	--	--	--	--	--	--	--	
MAY 27.....	1215	22	14	11	.42	--	--	--	--	--	--	--	--	--	--	--	
JUL 8.....	1045	23	10	1	.03	--	--	--	--	--	--	--	--	--	--	--	
AUG 20.....	1435	24	8.5	5	.11	--	--	--	--	--	--	--	--	--	--	--	
SEP 22.....	1140	21	10	3	.08	--	--	--	--	--	--	--	--	--	--	--	
16273900 KAMOOALII STREAM AT KANEOHE (LAT 21 24 51 LONG 157 48 12)																	
OCT 10, 1968	1145	26	9.4	4	.10	--	--	--	--	--	--	--	--	--	--	--	
NOV 14.....	1130		48	259	34	--	--	--	--	--	--	--	--	--	--	--	
JAN 9, 1969	0845	21	39	3	.32	--	--	--	--	--	--	--	--	--	--	--	
FEB 28.....	1100	21	33	3	.27	--	--	--	--	--	--	--	--	--	--	--	
MAY 29.....	0725	22	19	15	.77	--	--	--	--	--	--	--	--	--	--	--	
AUG 21.....	0800	23	12	17	.55	--	--	--	--	--	--	--	--	--	--	--	
AUG 21.....	1315	30	11	16	.48	--	--	--	--	--	--	--	--	--	--	--	
16283500 KAHALUU STREAM AT KAHALUU (LAT 21 27 23 LONG 157 50 15)																	
OCT 16, 1968	1145	24	4.2	40	.45	--	--	--	--	--	--	--	--	--	--	--	
NOV 14.....	1255	23	94	70	18	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	1020	22	5.1	9	.12	--	--	--	--	--	--	--	--	--	--	--	
JAN 3, 1969	1020	23	137	55	20	--	--	--	--	--	--	--	--	--	--	--	
JAN 13.....	1110	21	20	9	.49	--	--	--	--	--	--	--	--	--	--	--	
APR 24.....	1515	26	9.0	8	.19	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0930	21	67	191	35	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0945	21	61	133	22	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	1000	21	57	85	13	--	--	--	--	--	--	--	--	--	--	--	
JUN 2.....	1205	26	7.4	13	.26	--	--	--	--	--	--	--	--	--	--	--	
JUL 14.....	1325	28	5.0	22	.30	--	--	--	--	--	--	--	--	--	--	--	
16284500 WAIHEE STREAM AT KAHALUU (LAT 21 27 31 LONG 157 50 26)																	
OCT 11, 1968	1430	24	10	12	.32	--	--	--	--	--	--	--	--	--	--	--	
NOV 14.....	1235	23	60	858	139	--	--	--	--	--	--	--	--	--	--	--	
NOV 29.....	0905	21	13	24	.84	--	--	--	--	--	--	--	--	--	--	--	
JAN 3, 1969	0850	23	180	507	246	--	--	--	--	--	--	--	--	--	--	--	
JAN 3.....	0940	23	130	407	143	--	--	--	--	--	--	--	--	--	--	--	
JAN 13.....	0920	20	19	13	.67	--	--	--	--	--	--	--	--	--	--	--	
MAR 6.....	1015	21	14	30	1.1	--	--	--	--	--	--	--	--	--	--	--	
APR 30.....	0805	20	13	15	.53	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0830	20	56	210	32	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0845	20	51	174	24	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0900	20	46	138	17	--	--	--	--	--	--	--	--	--	--	--	
MAY 2.....	0915	20	42	121	14	--	--	--	--	--	--	--	--	--	--	--	
JUN 2.....	1030	23	11	21	.62	--	--	--	--	--	--	--	--	--	--	--	
AUG 26.....	0940	22	11	9	.27	--	--	--	--	--	--	--	--	--	--	--	
ISLAND OF HAWAII																	
16717000 HONOLII STREAM NEAR PAPAIKOU (LAT 19 46 00 LONG 155 09 16) (HYDROLOGIC BENCH-MARK STATION)																	
SEP 3, 1969	1430	21	71	2	.38	--	--	--	--	--	--	--	--	--	--	--	
RYUKYU ISLANDS, ISLAND OF OKINAWA																	
16875200 BENOKI-GAWA AT BENOKI (LAT 26 47 06 N LONG 128 14 59 E)																	
OCT 25, 1968	1030	17	4.3	1	.01	--	--	--	--	--	--	--	--	--	--	--	
DEC 4.....	1040	19	3.5	1	.01	--	--	--	--	--	--	--	--	--	--	--	
JUL 1, 1969	1130	23	43	3	.35	--	--	--	--	--	--	--	--	--	--	--	

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS AND PARTICLE-SIZE DISTRIBUTION, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
(METHODS OF ANALYSIS: B, BOTTOM WITHDRAWAL TUBE; C, CHEMICALLY DISPERSED; N, IN NATIVE WATER; P, PIPET; S, SIEVE; V, VISUAL-ACCUMULATION TUBE; W, IN DISTILLED WATER)

DATE	TIME	WATER TEMPERATURE (C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE: PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED .002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00	METHOD OF ANALYSIS
RYUKYU ISLANDS, ISLAND OF OKINAWA--CONTINUED																	
16875500 YONA-GAWA AT YONA (LAT 26 45 10 N LONG 128 13 18 E)																	
OCT 25, 1968	1120	18	2.4	1	.01	--	--	--	--	--	--	--	--	--	--	--	
DEC 3.....	1550	21	2.2	2	.01	--	--	--	--	--	--	--	--	--	--	--	
JAN 9, 1969	1510		1.4	32	.12	--	--	--	--	--	--	--	--	--	--	--	
FEB 5.....	1235	13	14	5	.19	--	--	--	--	--	--	--	--	--	--	--	
FEB 27.....	1315	16	16	9	.39	--	--	--	--	--	--	--	--	--	--	--	
MAR 11.....	1700		153	C 1300	537	--	--	--	--	--	--	--	--	--	--	--	
MAR 18.....	1600	14	6.2	9	.15	--	--	--	--	--	--	--	--	--	--	--	
MAY 1.....	1550	21	2.8	13	.10	--	--	--	--	--	--	--	--	--	--	--	
MAY 23.....	1050		358	C 8650	8360	--	--	--	--	--	--	--	--	--	--	--	
JUN 12.....	1555		24	5	.32	--	--	--	--	--	--	--	--	--	--	--	
JUN 13.....	0645		153	C 1550	640	--	--	--	--	--	--	--	--	--	--	--	
JUL 1.....	1445	25	16	3	.13	--	--	--	--	--	--	--	--	--	--	--	
JUL 2.....	1120	23	12	9	.29	--	--	--	--	--	--	--	--	--	--	--	
AUG 20.....	0840		153	C 2930	1210	--	--	--	--	--	--	--	--	--	--	--	
AUG 20.....	1020		358	C 4760	4600	--	--	--	--	--	--	--	--	--	--	--	
AUG 20.....	1045		664	C 4830	8660	--	--	--	--	--	--	--	--	--	--	--	
AUG 20.....	1140		1040	C11200	31400	--	--	--	--	--	--	--	--	--	--	--	
AUG 22.....	1445		16	2	.09	--	--	--	--	--	--	--	--	--	--	--	
16877000 RIGHT BRANCH OF SOUTH FORK HENAN-GAWA NEAR TSUHA (LAT 26 37 42 N LONG 128 05 52 E.																	
MAR 8, 1969	1125	17	.94	4	.01	--	--	--	--	--	--	--	--	--	--	--	
JUN 2.....	1345		5.2	3	.04	--	--	--	--	--	--	--	--	--	--	--	
JUN 28.....	1020	22	11	9	.27	--	--	--	--	--	--	--	--	--	--	--	
AUG 29.....	1400	25	1.6	1	D	--	--	--	--	--	--	--	--	--	--	--	
16878500 OI-KAWA AT JINGUSUKU (LAT 26 39 07 N LONG 127 57 24 E)																	
MAR 8, 1969	1440	16	80	5700	1230	--	--	--	--	--	--	--	--	--	--	--	
MAR 26.....	1415	21	3.6	10	.10	--	--	--	--	--	--	--	--	--	--	--	
16880500 NAGATA-GAWA AT KADENA (LAT 26 22 23 N LONG 127 45 50 E)																	
APR 10, 1969	1415		5.0	2	.03	--	--	--	--	--	--	--	--	--	--	--	
MAY 6.....	1110	22	2.9	9	.07	--	--	--	--	--	--	--	--	--	--	--	
JUN 16.....	1100		22	33	2.0	--	--	--	--	--	--	--	--	--	--	--	
16880900 MACHINATO-GAWA NEAR OJANA (LAT 26 14 43 N LONG 127 44 16 E)																	
APR 14, 1969	0850	19	1.0	24	.06	--	--	--	--	--	--	--	--	--	--	--	
JUN 16.....	0845		4.2	53	.60	--	--	--	--	--	--	--	--	--	--	--	
16882400 TENGAN-GAWA AT TENGAN (LAT 26 22 54 N LONG 127 51 39 E)																	
FEB 26, 1969	0945	19	11	43	1.3	--	--	--	--	--	--	--	--	--	--	--	
MAR 17.....	1000	16	8.0	4	.09	--	--	--	--	--	--	--	--	--	--	--	
APR 14.....	1125	22	4.7	7	.09	--	--	--	--	--	--	--	--	--	--	--	
MAY 8.....	0930	20	2.3	8	.05	--	--	--	--	--	--	--	--	--	--	--	
JUL 25.....	1015	25	27	23	1.7	--	--	--	--	--	--	--	--	--	--	--	
16882800 KANNA-GAWA NEAR KANNA (LAT 26 29 20 N LONG 127 56 46 E)																	
MAR 1, 1969	1445	16	1.8	2	.01	--	--	--	--	--	--	--	--	--	--	--	
MAR 15.....	1440	14	2.1	3	.02	--	--	--	--	--	--	--	--	--	--	--	
MAR 29.....	1530	19	1.6	8	.03	--	--	--	--	--	--	--	--	--	--	--	
APR 12.....	1245	20	1.5	6	.02	--	--	--	--	--	--	--	--	--	--	--	
JUN 21.....	0955	23	18	8	.29	--	--	--	--	--	--	--	--	--	--	--	

C SAMPLES COLLECTED WITH SINGLE-STAGE SAMPLER.

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