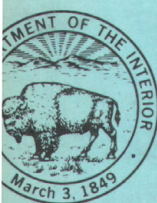
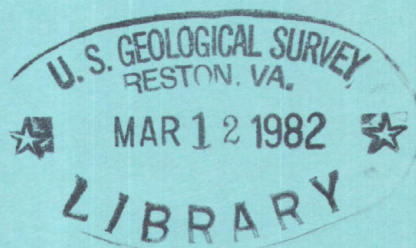


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Water Resources Data for Oregon

Volume 1. Eastern Oregon



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OR-80-1
WATER YEAR 1980

Prepared in cooperation with the Oregon Water
Resources Department and with other agencies

CALENDAR FOR WATER YEAR 1980

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Water Resources Data for Oregon

Volume 1. Eastern Oregon

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OR-80-1

WATER YEAR 1980

Prepared in cooperation with the Oregon Water
Resources Department and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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U.S. Geological Survey
P.O. Box 3202
Portland, Oregon 97208

1981

PREFACE

This report was prepared by the U.S. Geological Survey in cooperation with the State of Oregon and with other agencies by personnel of the Oregon district of Water Resources Division under the supervision of S. F. Kapustka, District Chief, and J. D. Bredehoeft, Regional Hydrologist, Western Region.

This report is one of a series issued State by State under the general direction of P. Cohen, Chief Hydrologist, and R. J. Dingman, Assistant Chief Hydrologist for Scientific Publications and Data Management.

Data for the State of Oregon are in two volumes as follows:

Volume 1: Eastern Oregon

Volume 2: Western Oregon

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GAGING STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED

VII

LETTER AFTER STATION NAME DESIGNATES TYPE OF DATA:
(D) DISCHARGE, (E) ELEVATION OR CONTENTS, (C) CHEMICAL,
(B) BIOLOGICAL AND MICROBIOLOGICAL, (T) WATER TEMPERATURE,
(S) SEDIMENT

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WATER RESOURCES DATA FOR OREGON, 1980

INTRODUCTION

Water resources data for the 1980 water year for Oregon consists of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; water-levels and water quality of wells and springs; and water quality of precipitation. This report, in two volumes, contains discharge records for 287 gaging stations; stage only records for 10 gaging stations; stage and contents for 41 lakes and reservoirs; water quality for 98 gaging stations; and water levels for 68 observation wells; and water quality for 6 precipitation stations. Also included are data for 49 crest-stage partial-record stations. Locations of these sites, except for precipitation stations, are shown on figures 2, 3, 4, and 5. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements and analyses. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Oregon.

Records of discharge of streams, and contents (or stage) of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a multi-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Records of ground-water levels are published from 1935 to 1974 in a series of water-supply papers entitled, "Ground-water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from the Branch of Distribution, U.S. Geological Survey, 1200 Eads Street, Arlington, VA 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report OR-80-1." For archiving and general distribution, the reports for water years 1971-74 are also identified as water-data reports. These water-data reports are for sale, in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. Additional information, including current prices, for ordering specific reports may be obtained from the district chief at the address given on the back of the title page or by telephone (503) 231-2009.

COOPERATION

The U.S. Geological Survey and organizations of the State of Oregon have had cooperative agreements for the systematic collection of surface-water records since 1905. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Oregon Water Resources Department, James E. Sexson, Director.

Oregon Department of Fish and Wildlife, John R. Donaldson, Director.

Oregon Department of Transportation, Highway Division, H.S.Coulter,
State Highway Engineer.

Coos, Douglas, Lane, Multnomah, Wasco, Counties, and Clark County,
Washington.

Lane Council of Governments

Cities of Coos Bay-North Bend, Eugene, McMinnville, Medford, Portland,
Reedsport, Salem.

Burnt River Irrigation District.

Umatilla Tribal Council.

Warm Springs Tribal Council.

Assistance in the form of funds or services was given by the Forest Service, Soil Conservation Service, U.S. Department of Agriculture; Corps of Engineers, U.S. Army; Bonneville Power Administration, U.S. Department of Energy; Bureau of Reclamation, Fish and Wildlife Service, Bureau of Land Management, and National Park Service, U.S. Department of the Interior; Eugene Water & Electric Board; Pacific Power & Light Co.; Portland General Electric Co.; Idaho Power Co., Idaho; Clark County Department of Public Works, Washington.

GENERAL HYDROLOGIC SETTING

The hydrology of Oregon is influenced by five mountain ranges. These ranges divide the state into drainage basins and greatly affect the distribution of precipitation. The Cascade Range provides a natural division between western and eastern Oregon. Hydrologic patterns are generally uniform from drainage basin to drainage basin throughout western Oregon, whereas in eastern Oregon hydrologic patterns vary widely between drainage basins.

Western Oregon Hydrology

Western Oregon, which composes about one-third of the total area of the state, has a climate characterized by moderate temperatures, wet winters, and dry summers. About 80 percent of the precipitation occurs between October and March. Annual precipitation in western Oregon ranges from about 20 in. per year in the lower elevations in the southern part of the area to about 200 in. per year in the Coast and Cascade Ranges. In general, streamflow characteristics are similar throughout western Oregon, with most of the runoff and flooding on both large and small streams being caused by winter rains. Major floods have occurred when winter rains combine with melting snow.

Eastern Oregon Hydrology

Eastern Oregon has more complex hydrologic patterns than western Oregon. Precipitation is less than 10 in. per year in the semiarid regions, such as parts of the north-central area, the closed basin in south-central Oregon, and southeastern Oregon. The northeastern part of the state receives as much as 80 in. of precipitation per year, much of it occurring as snow fall. On the large streams in eastern Oregon, flooding can result from winter rains and (or) seasonal snowmelt; in the smaller drainage basins, flooding can result from winter rains, seasonal snowmelt, and convection storms.

In eastern Oregon, major hydrologic areas include: (1) the three semiarid regions mentioned above; (2) the northeastern part of the state, which includes the drainage basins of the Wallowa and Blue Mountains; and (3) the Klamath River basin which drains the east side of the Cascades and also the semiarid areas to the east.

HYDROLOGIC CONDITIONS FOR EASTERN OREGON DURING THE 1980 WATER YEAR

Streamflow varied measurably from long term average throughout eastern Oregon during the 1980 water year. Precipitation was generally above average for eastern Oregon. Snowpack was below average throughout eastern Oregon on April 1. No major flooding or drought occurred in eastern Oregon during the 1980 water year.

Closed Basins

Flows in the closed basins varied considerably from basin to basin in eastern Oregon. Gaged streams in the Warner Lakes basin recorded average annual flows that were from 117 to 145 percent of the long-term average flows, while the average annual flow of Drews Creek in the Goose Lake basin was only 53 percent of the long-term average.

Average flow of the Donner und Blitzen River of the Harney Lake basin was 129 percent of the long-term average. The peak for the year occurred on May 14, and resulted from snowmelt in the Steens Mountains. The peak of 1230 ft³/s was a relatively small peak with an exceedance probability of 50 percent. This means there is about a 50 percent chance that a peak of at least this magnitude will occur in any one year.

Higher average flows of the Donner und Blitzen River caused lower specific-conductance values than in the previous 3 years of record. Other values that changed significantly from the previous 3 years included higher average concentrations of chloride, organic nitrogen, and total nitrogen.

Klamath River Basin

Flows in the Klamath River basin were generally average or slightly below average in the 1980 water year. As an example, mean flow of Williamson River below Sprague River near Chiloquin (station 11502500) was 93 percent of the long-term average.

Snowpack on April 1 in the southern Cascade Range and throughout the Klamath River basin was well below average. Peak discharge of the year occurred on Jan. 17 as a result of a general rain storm at an exceedance probability of 20 percent. This represents a fairly low magnitude maximum discharge.

Southeast Region

In the extreme southeastern part of the state, which is drained by the Owyhee and Malheur Rivers, flow of Owyhee River near Rome (station 13181000) was slightly below average. At that site, the 1980 mean flow was 93 percent of the 31-year average. The river has some regulation from upstream reservoirs. Head-waters of the Owyhee River are in northern Nevada, southwestern Idaho, and southeastern Oregon. The Malheur River, which has its headwaters in the Blue Mountains of northeastern Oregon and is highly regulated, had slightly below-average flow.

Snowpack on April 1 was below average throughout the Owyhee River basin and in the Malheur River basin.

Maximum flow for the year of Owyhee River near Rome occurred during the middle of January as the result of a statewide rainstorm.

The Owyhee River at Owyhee station (13184000) is downstream from a regulating reservoir that controls the flow and water quality at the gaging station. Generally, high flows during the irrigation season are caused by water released from the reservoir and result in lower concentrations of chemical constituents. During the nonirrigation season, most flow is from ground-water seepage and has higher concentrations of chemical constituents. For example, average dissolved-solids concentration during the irrigation season was 440 mg/L compared to 734 mg/L during the rest of the year.

Northeast Region

Flows in the northeastern part of the state were slightly below average in the 1980 water year. Typical of the area was Grande Ronde River at Troy (station 13333000) which had an annual mean discharge which was 83 percent of the 36-year average. Mean flow of Minam River at Minam (station 13331500) was 91 percent of the 16-year average.

Snowpack on April 1 was below average in the Powder and Burnt River drainage basins and in the Wallowa and Blue Mountains, headwaters of the Grande Ronde River.

Peak flow of the Grande Ronde River at Troy resulted from snowmelt and occurred on April 29 and had an exceedance probability of 90 percent, which indicates an extremely low peak flow.

Concentrations of chemical constituents in the Minam River were not significantly different from previous years, with the exception of about 25 percent lower sulfate concentrations.

North-Central Region

Flows in the north-central part of the state were about average in the 1980 water year. The John Day River at McDonald Ferry (station 14048000) was about average and had an annual mean discharge which was 104 percent of the 76-year average. Mean discharge of Deschutes River at Moody, near Biggs (station 14103000) was 96 percent of the 78-year average. Flow of the Deschutes River is regulated by several reservoirs.

On April 1, snowpack throughout the mountains of the north-central area was below average. Peak discharge of John Day River at McDonald Ferry was 10,200 ft³/s on Jan. 15 and resulted primarily from a statewide rainstorm. That peak discharge has an exceedance probability of about 50 percent. This is a very small flow event. A flood of this size is exceeded about every two years. Peak discharge upstream from McDonald Ferry at Service Creek (station 14046500) also had an exceedance probability of 50 percent.

Concentrations of chemical constituents in John Day River at McDonald Ferry and Deschutes River at Moody were not significantly different from previous years.

GROUND-WATER LEVELS IN EASTERN OREGON, 1980 WATER YEAR

In eastern Oregon, ground-water levels were slightly below average throughout the year. In the Columbia Plateau ground-water reservoir in north-central Oregon, ground-water levels continued to decline. The decline rate varies in the region, accelerating in some areas and remaining steady in others. Probable cause of this trend is the withdrawal of large quantities of ground water from the basalt aquifer for irrigation purposes.

WATER RESOURCES DATA FOR OREGON, 1980

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WATER QUALITY OF PRECIPITATION

Between June and September 1980, precipitation samples were collected at La Grande, Pendleton, and Sisters, Oreg. These wetfall samples were collected only during rainfall events and exclude the effects of dry fallout. A summary of the data is listed below:

<u>Parameter</u>	<u>No. of analysis</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Median</u>
pH (units)	7	5.3	4.0	5.0
Specific conductance (umho/cm at 25°C)	7	44	5	14
Sulfate, dissolved (ug/L as SO ₄)	7	5,000	300	900
Nitrogen, dissolved nitrate (ug/L as N)	7	1,000	<10	170

Pure water (distilled water saturated with atmospheric carbon dioxide) would have a pH of 5.6 and a specific conductance of equal to, or less than, 5 umho/cm at 25°C.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also table for converting English units to International System of Units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Algae are mostly aquatic single-celled, colonial, or multicelled plants containing chlorophyll and lacking roots, stems, and leaves.

Bacteria are microscopic unicellular organisms, typically spherical, rod-like, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that may be used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C \pm 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warmblooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C \pm 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warmblooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C \pm 1.0°C on M-enterococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Benthic organisms (invertebrates) are animals inhabiting the bottom of an aquatic environment. They include a number of different types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are frequently used as indicators of environmental quality because many have restricted mobility during their aquatic life phase, as well as a relatively long lifespan which allows for response to prevailing and changing water-quality conditions. Many benthic organisms inhabit specific types of environments which, if changed, result in changes in the composition of the benthic community.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, used for decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the weight per unit area or volume of habitat.

Ash weight is the weight or amount of residue present after the residue from the dry weight determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash weight values of zooplankton and phytoplankton are expressed as g/m (grams per cubic meter), and periphyton and benthic organisms in g/m² (grams per square meter).

Dry weight refers to the weight of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the weight remains unchanged. This weight represents the total organic matter, ash and sediment, in the sample. Dry weight values are expressed in the same units as ash weight.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Cfs-day (ft³/s-day) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, or about 646,000 gallons, or 2,445 cubic meters. It represents a runoff of approximately 0.0372 inch from 1 square mile or 0.3468 millimeter from 1 square kilometer.

Chemical oxygen demand (COD) indicates the quantity of oxidizable compounds in water and varies with water composition(s), temperature, period of contact, and other factors.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Continuing water-quality record station is a specified site which meets one or all conditions listed.

1. Where chemical samples are collected daily or monthly for 10 or more months during the water year.
2. Where water-temperature records include observations taken one or more times daily.
3. Where sediment discharge records include those periods for which sediment loads are computed and are considered to be representative of the runoff for the water year.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Cubic foot per second (ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, total fluids) that passes a given point within a given period of time.

Mean discharge is the arithmetic average of discharge during a specific period.

Instantaneous discharge is the discharge at a given time.

Dissolved refers to that material in a representative water sample which passes through a 0.45 μm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate. It is recognized that certain kinds of samples cannot be filtered; to provide for this, procedures that are considered equivalent to filtering through a 0.45 μm membrane filter will be identified and announced at a later date.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeable with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (CaCO_3).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per liter (UG/L, ug/l) is a unit expressing the concentration of chemical constituents in solution as weight (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/l) is a unit for expressing the concentrations of chemical constituents in solution. Milligrams per liter represents the weight of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/l, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample volume, usually milliliters (ml) or liters (l).

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m), acres, or hectares. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (ml) or liters (l). Number of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined either by sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-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 particles in transport in the stream. Most of the organic material 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.

Percent of total is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, number, weight, or volume.

Periphyton is the assemblage of microorganisms attached to and growing upon solid surfaces. While consisting primarily of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton is a useful indicator of water quality.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per ml of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per ml of sample.

Plankton is the floating (or weakly swimming) animal or plant life in a body of water consisting chiefly of minute plants (as diatoms and blue-green algae) and of minute animals (as protozoan, entomostracans, and various larvae).

Runoff in inches (IN.) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff." Streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total".

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with kingdom and ending with species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom.....	Animal
Phylum.....	Arthropoda
Class.....	Insecta
Order.....	Emphemeroptera
Family.....	Ephemeridae
Genus.....	Hexagenia
<u>Species</u>	<u>Hexagenia limbata</u>

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the presence of a thermograph or a digital mechanism that records water temperature in digital format on punched paper tape.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. 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 stream each day for the water year.

Tons per acre-foot indicates the dry weight of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total". (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Turbidity of a sample is the reduction of transparency due to the presence of particulate matter. In this report it is expressed in Jackson turbidity units (JTU).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a 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. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the summary "REVISIONS" paragraph to refer to previously published State annual hydrologic data reports.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

SPECIAL NETWORKS AND PROGRAMS

Some of the stations for which data are published in this report 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.

National stream-quality accounting network (NASQAN) is an accounting network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated in the network design. Areal configuration of the network is based on river-basin accounting units designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of water-quality conditions nationwide on a year-to-year basis and (2) to detect and assess long-term changes in stream quality.

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.

Pesticides are chemical compounds used to control the growth of undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Since the first application of DDT as an insecticide in the early 1930's, there have been almost 60,000 pesticide formulations registered, each containing at least one of the approximately 800 different basic pesticide compounds. The United States annually produces about 1 billion pounds. Chlorinated hydrocarbon pesticides are still commonly used in many areas of the country, although efforts are being made to replace many of them with more specific, fast-acting, and easily degradable compounds.

Precipitation program was initiated by the U.S. Geological Survey after the eruption of Mount St. Helens to collect data on the quantity and quality of precipitation for specific events. Primary objectives of the program are to determine (1) the general quality of precipitation and (2) the effect of ash from Mount St. Helens on the quality of precipitation.

Radiochemical program is a network of regularly sampled water-quality stations where additional samples are collected monthly or 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.

Radioisotopes are isotope forms of an element that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight, but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus. For example: Ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, with the natural mixture having atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron (Rose, 1966). There are 275 isotopes of the 81 stable elements in addition to more than 800 radioactive isotopes.

Radioisotopes that are determined in this program are natural uranium in ug/l (micrograms per liter), radium as radium-226 in PC/L (pCi/l, picocuries per liter), gross beta radiation as equivalent strontium/yttrium-90 or cesium-137 in PC/L, and gross alpha radiation as micrograms of uranium equivalent per liter (ug/l). Gross alpha and beta radioactivity associated with the fine-grained (silt- and clay- sized) sediments in the samples are also determined.

A picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.2 dpm (disintegrations per minute).

DOWNSTREAM ORDER AND STATION NUMBER

Stations are listed in downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all main-stream stations are listed before the first main-stream station. Stations on tributaries to tributaries are listed in a similar manner. In the list of stations in the front of this report, the rank of tributaries is indicated by indentation, each indentation representing one rank.

As an added means of identification, each water-quality station, gaging station, and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record and continuous-record stations; therefore, the station number for a partial-record station indicated downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging stations or partial-record stations have the same number as the gaging or partial-record station. Gaps are left in the numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 14105700 which appears just to the left of the station name, includes the 2-digit part number "14" plus the 6-digit downstream order number "105700." In this report, the records are listed in downstream order by parts. The part number refers to an area whose boundaries coincide with certain natural drainage lines. All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and Computation of Data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals; and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from a water-stage recorder which gives a continuous graph of the fluctuations (for digital recorders, a tape punched at 15-, 30-, or 60-minute intervals) or from direct readings on a nonrecording gage. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in standard textbooks on the measurement of stream discharge. Surface areas of lakes or reservoirs are determined from instrument surveys using standard methods.

For a stream-gaging station, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), velocity-area studies, and logarithmic plotting. The application of the daily mean gage heights to the rating table gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relations is affected by backwater from reservoirs, tributary streams, or other causes. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in determining discharge. Information required for determining the slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in determining discharge.

At some stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. Discharge over spillways is computed from a stage-discharge relations curve defined by discharge measurements. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys, the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, good record at adjoining stations, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated on the basis of operator's log, good record at adjoining stations, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of hydrologic data. For gaging stations on streams or canals, a table showing the daily discharge and monthly and yearly discharge is given.

For gaging stations on lakes and reservoirs, a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gage, general remarks, average discharge, and extremes of published records. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published, along with the current records, in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report.

In listing the water years only one number is given; for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If no daily, monthly, or annual figures of discharge are affected by the revision, that fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only the peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given.

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 11.

Information pertaining to the accuracy of the discharge records, and to conditions that affect the natural flow at the gaging station, is given under "REMARKS"; for reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway and purpose and use of the reservoir is also given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "EXTREMES" are given: First, the extremes for the period of record; second, information available outside the period of record; and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a non-recording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR: if they are all independent peaks (including the maximum for the year) above the selected base, with the time of occurrence and corresponding gage heights, are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The line headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the

month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharges are introduced by the word "NOTE." Footnotes are used to indicated periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and monthly summary table to stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but it is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in a table of annual maximum stage and discharge at crest-stage stations. The table of partial-record stations is followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of Data

The accuracy of discharge data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges is within 5 percent, "good" within 10 percent, and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft³/s, to tenths between 1.0 and 10 ft³/s, to whole numbers between 10 and 1,000 ft³/s, and to three significant figures greater than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumptive use, regulation, evaporation, or other factors. For such stations, discharge in cubic feet per second per square mile and runoff in inches are not published unless satisfactory adjustments can be made for such effects. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or unadjusted losses (consumptive use, evaporation, seepage, etc.) are large in comparison with the observed discharge.

Other Data Available

Monthly records for several ungaged sites are given in a separate section following the gaged sites. The accuracy of records for ungaged sites is generally lower than that for gaged sites, depending on the precision of the computation method and the accuracy of data used in the computations.

For most gaging stations, unpublished, detailed information, on file in the district office, includes discharge measurements, gage-height records, and rating tables. Many gaging-station records in Oregon through 1967 have been analyzed to determine several statistical summaries: (1) the number of days in each year that the daily discharge was between selected limits (duration tables), (2) the lowest mean discharge for selected numbers of consecutive days in each year, and (3) the highest mean discharge for selected number of consecutive days in each year.

Records of Discharge Collected by Agencies Other than the
Geological Survey

Other Federal and State agencies have collected discharge data at other sites in Oregon during the current water year. Although these records have not been published by the U.S. Geological Survey, the National Water Data Exchange, NAWDEX, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA., 22092, maintains an index of these sites and will furnish information about them.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and Computation of Data

Records of surface water quality are listed in downstream order by station number. The data generally are collected at or near gaging stations, and are reported immediately following other records for those stations. Water-quality data for most ungaged sites are listed with the records for other surface-water stations, in regular downstream order. The exceptions are the less detailed data for several ungaged sites, which are grouped separately in the section titled "Analyses of samples collected at water-quality partial-record stations."

The descriptive headings for detailed records of surface-water quality give periods of record for the various categories of data, extremes for certain pertinent data, and general remarks. For less detailed records, only the overall period of record is listed.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey publications on Techniques of Water-Resources Investigations, which are listed on page 33.

One stream-water sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample for the accurate determination of mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling

as much as possible, consistent with available sampling techniques and methods of analysis. Where an apparent inconsistency exists between a reported pH value and relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the published records consist of daily maximum, minimum, and mean values. More detailed records may be obtained from the district office.

Since October 1967, the U.S. Geological Survey has used the metric system for reporting data on chemical constituents and concentrations of suspended sediment. Chemical constituents are now reported in milligrams per liter (mg/l) except for certain minor elements that are reported in micrograms per liter (ug/l). Suspended sediment is reported in milligrams per liter and water temperatures in degrees Celsius (°C). In water with a density of 1,000 g/ml, values in parts per million should be multiplied by the density to convert to milligrams per liter. To convert temperature in degrees Celsius to degrees Fahrenheit, see table 1 below.

In October 1968, the Geological Survey began reporting many of the chemical constituents as well as the minor elements in micrograms per liter instead of milligrams per liter. (See "Definitions of terms", page 11.)

Table 1.--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.

Solutes

The methods of collecting and analyzing water samples to determine the kinds and concentrations of solutes are described by Brown, Skougstad, and Fishman (1970). If the mixture of solutes throughout the stream cross section is homogeneous, one sample can adequately define the water quality at a given time. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge depending on the source of material and the turbulence and mixing of the stream. Some sites must be sampled at several vertical intervals across the channel to determine the solute load accurately.

At chemical-quality stations where monitors are installed, the records consists of daily maximum, minimum, and mean values for each constituent measured. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. The water temperatures for daily stations are taken when a sample is collected, at about the same time each day. Large streams have small diurnal temperature changes; shallow streams may have a daily range of several degrees and may closely follow the changes in air temperature. Some streams may be affected by waste-heat discharges. At stations where continuously recording thermographs are used maximum and minimum temperatures for each day are published.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section or a single sample at a fixed point and a coefficient applied to determine concentration in the cross sections.

During periods of rapidly changing flow or concentration, samples may have been collected twice daily or, in some instances, hourly. The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment discharges observed for other periods of similar discharge. A blank in the daily mean concentration column of the suspended-sediment discharge table indicates the value in the sediment discharge column was estimated.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions at the times of observations only, such data are useful in establishing seasonal relations between quality and streamflow for predicting long-term sediment-discharge characteristics of the stream.

In addition to records of the quantities of suspended sediment, records of periodic measurements of particle-size distribution of suspended sediment and bed material are included.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of Data

The observation-well program in Oregon, begun in 1928, was continued through 1979 in cooperation with the Oregon Water Resources Department. During the period 1962-65, the number of wells in the observation-well network was increased from 102 to 840. Observation wells in the program are part of a basic national network for providing a historical record of water-level changes in selected aquifers in the nation. Most of the wells are measured periodically by personnel of the Oregon Water Resources Department. Measurements are made in most of the wells three or four times a year to obtain records of the effects of pumping and seasonal changes in ground-water storage. The measurements are generally made in winter and spring before pumping begins, during the pumping season, and at the end of the pumping season. Water-level measurements in 81 representative wells in the Oregon observation-well network are included in this report; the locations of these wells are shown in figure 5.

Each well is identified by means of a 15-digit number that is based on the grid system of latitude and longitude. The first six digits represent degrees, minutes, and seconds of north latitude; the next seven digits are degrees, minutes, and seconds, of west longitude; and the last two numbers are sequential numbers assigned in the order the wells are inventoried in a 1-second quadrangle. Each well is also identified by a local well number that provides continuity with older reports and local needs.

Well Descriptions

For each well, the well description includes, if available, the following information: Latitude-longitude number, local well number, owner, method of construction, use of well, aquifer name or lithology, diameter of casing, depth of well, depth interval perforated or screened, altitude of land surface datum (1sd) National Geodetic Vertical Datum of 1929 (NGVD), and a description of the measuring point.

The depth of the well at the time it was inventoried is given in the well description, and any subsequent changes also are described. Well diameter reported is the inside of the innermost well casing at land surface.

Water Levels

Measurements are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Water-level measurements in this report are given in feet below land-surface datum unless otherwise indicated. Those water levels that are above land-surface datum are preceded by a plus (+) sign. Land-surface datum is a datum plane that is approximately at land surface at each well. The height of the measuring point (MP) above or below land-surface datum is given in each well description.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Most measurements are reported to a hundredth of a foot; others are reported only to a tenth of a foot or a larger unit. Water levels determined by air line are less accurate than those measured by other methods; therefore, these water levels are reported only to the nearest half a foot.

The highest and lowest water levels measured at each well for the period of record are reported. These are intended to represent static water levels, but the lowest levels reported for some wells may reflect recent pumping.

Hydrographs

Hydrographs show fluctuations of water levels during 1956-79 in 15 selected observations wells. Generally, water levels are highest during the wet winter and spring months and lowest during the dry summer and autumn months. Water levels are shown on the hydrographs in feet below the land surface at the well.

Well-Numbering System

Local designations of wells discussed in this report are based on the official system for the rectangular subdivision of public lands, referenced to the Willamette base line and meridian. The number indicates the location of the well, by township, range, section, and its position within the section. A graphic illustration of this method of well numbering is shown below. The numbers indicate the township, the range, and the section, respectively, in which the well is located. The letters following the section number locate the well within the section. The first letter denotes the quarter section (160 acres); the second, the quarter-quarter section (40 acres); and the third, the quarter-quarter-quarter section (10 acres). Where two or more wells are in the same 10-acre subdivision, serial numbers are added after the third letter. The section number and three-letter position indicator are shown on the location map adjacent to the well symbol. Within a county, the wells are arranged in sequential order based on increasing numbers for township and range and are shown on the map (fig. 5) by section number. For example, well 27S/18E-21aaa is in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.21, T.27 S., R.18 E., in Lake County, and will be labeled as 21AAA.

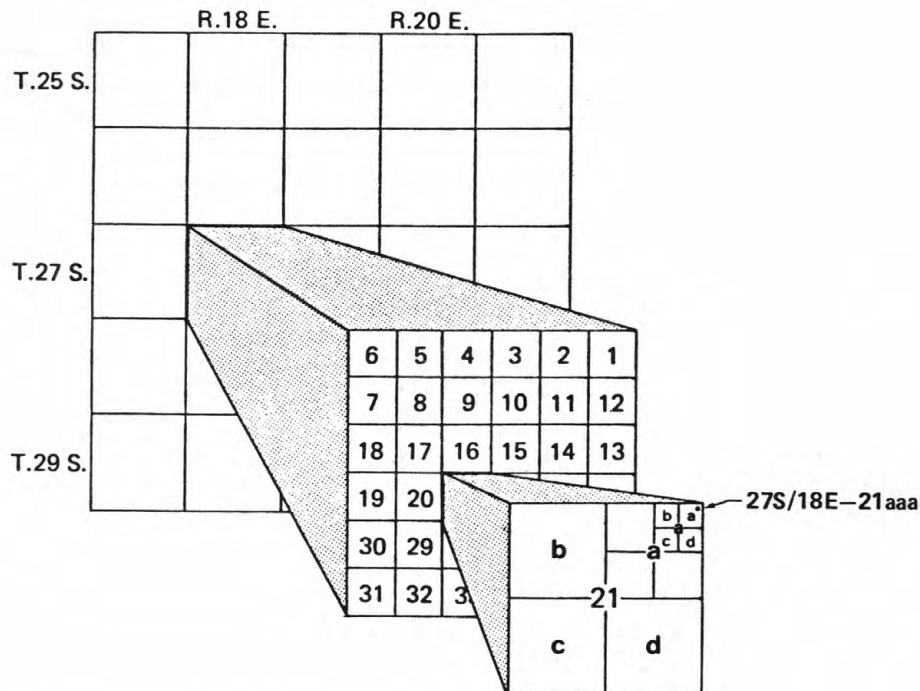


Figure 1.--Local identifier well-numbering system.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-five manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The manuals listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office).

Prices are subject to change. Customers should verify prices with the USGS Branch of Distribution, phone (202) 751-6777 before placing orders. Prices include cost of domestic surface transportation. For transmittal outside the U.S.A. (except to Canada and Mexico) a surcharge of 25 percent of the net bill should be included to cover surface transportation.

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

- 1-D1. WATER TEMPERATURE-INFLUENTIAL FACTORS, FIELD MEASUREMENT, AND DATA PRESENTATION, by H.H. Stevens, Jr., J.F. Ficke, and G.F. Smoot: USGS--TWRI, Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. GUIDELINES FOR COLLECTION AND FIELD ANALYSIS OF GROUND-WATER SAMPLES FOR SELECTED UNSTABLE CONSTITUENTS, by W.W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. APPLICATION OF SURFACE GEOPHYSICS TO GROUND-WATER INVESTIGATIONS, by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-E1. APPLICATION OF BOREHOLE GEOPHYSICS TO WATER-RESOURCES INVESTIGATIONS, by W.S. Keys and L.M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 3-A1. GENERAL FIELD AND OFFICE PROCEDURES FOR INDIRECT DISCHARGE MEASUREMENTS, by M.A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. MEASUREMENT OF PEAK DISCHARGE BY THE SLOPE-AREA METHOD, by Tate Dalrymple and M.A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. MEASUREMENT OF PEAK DISCHARGE AT CULVERTS BY INDIRECT METHODS, by G.L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. MEASUREMENT OF PEAK DISCHARGE AT WIDTH CONTRACTIONS BY INDIRECT METHODS, by H.F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. MEASUREMENT OF PEAK DISCHARGE AT DAMS BY INDIRECT METHODS, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
- 3-A6. GENERAL PROCEDURE FOR GAGING STREAMS, by R.W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6, 1968. 13 pages.
- 3-A7. STAGE MEASUREMENTS AT GAGING STATIONS, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. DISCHARGE MEASUREMENTS AT GAGING STATIONS, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

- 3-A11. MEASUREMENT OF DISCHARGE BY MOVING-BOAT METHOD, by G.F. Smoot and C.E. Novak: USGS-TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. FLUOROMETRIC PROCEDURES FOR DYE TRACING, by J.F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. Not currently available.
- 3-B1. AQUIFER-TEST DESIGN, OBSERVATION, AND DATA ANALYSIS, by R.W. Stallman: USGS-TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. INTRODUCTION TO GROUND-WATER HYDRAULICS, A PROGRAMED TEXT FOR SELF-INSTRUCTION, By G.D. Bennett: USGS-TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-C1. FLUVIAL SEDIMENT CONCEPTS, by H.P. Guy: USGS-TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. FIELD METHODS FOR MEASUREMENT OF FLUVIAL SEDIMENT, by H.P. Guy and V.W. Norman: USGS-TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. COMPUTATION OF FLUVIAL-SEDIMENT DISCHARGE, by George Porterfield: USGS-TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. SOME STATISTICAL TOOLS IN HYDROLOGY, by H.C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. FREQUENCY CURVES, by H.C. Riggs: USGS-TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. LOW-FLOW INVESTIGATIONS, by H.C. Riggs: USGS-TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. STORAGE ANALYSES FOR WATER SUPPLY, by H.C. Riggs and C.H. Hardison: USGS-TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. REGIONAL ANALYSES OF STREAMFLOW CHARACTERISTICS, by H.C. Riggs: USGS-TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. COMPUTATION OF RATE AND VOLUME OF STREAM DEPLETION BY WELLS, by C.T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES FOR DISSOLVED MINERALS AND GASES, by Eugene Brown, M.W. Skougstad, and M.J. Fishman: USGS-TWRI Book 5, Chapter A1. 1970. 160 pages.
- 5-A2. DETERMINATION OF MINOR ELEMENTS IN WATER BY EMISSION SPECTROSCOPY, by P.R. Barnett and E.C. Mallory, Jr.: USGS-TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. METHODS FOR ANALYSIS OF ORGANIC SUBSTANCES IN WATER, by D.F. Goerlitz and Eugene Brown: USGS-TWRI Book 5, Chapter A3. 1972. 40 pages.
- 5-A4.* METHODS FOR COLLECTION AND ANALYSIS OF AQUATIC BIOLOGICAL AND MICROBIOLOGICAL SAMPLES, edited by P.E. Greeson, T.A. Ehlike, G.A. Irwin, B.W. Lium, and K.V. Slack: USGS-TWRI Book 5, Chapter A4. 1977. 332 pages.
- 5-A5.* METHODS FOR DETERMINATION OF RADIOACTIVE SUBSTANCES IN WATER AND FLUVIAL SEDIMENTS, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS-TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-C1. LABORATORY THEORY AND METHODS FOR SEDIMENT ANALYSIS, by H.P. Guy: USGS-TWRI Book 5, Chapter C1. 1969. 58 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

- 7-C1. FINITE DIFFERENCE MODEL FOR AQUIFER SIMULATION IN TWO DIMENSIONS WITH RESULTS OF NUMERICAL EXPERIMENTS, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. COMPUTER MODEL OF TWO-DIMENSIONAL SOLUTE TRANSPORT AND DISPERSION IN GROUND WATER, by L.F. Konikow and J.D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1976. 90 pages.
- 8-A1. METHODS OF MEASURING WATER LEVELS IN DEEP WELLS, by M.S. Garber and F.C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-B2. CALIBRATION AND MAINTENANCE OF VERTICAL-AXIS TYPE CURRENT METERS, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

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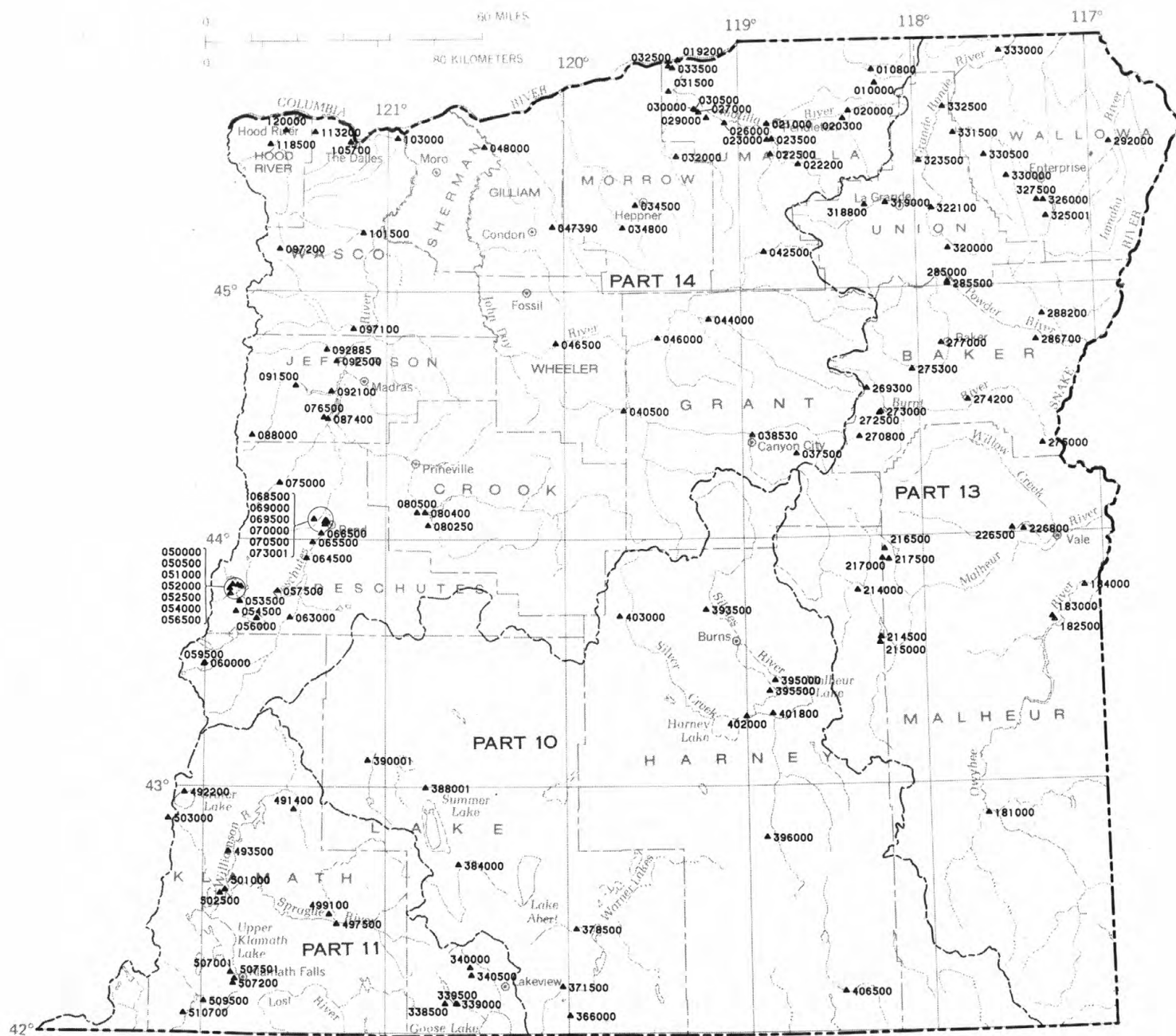


Figure 2. -- Map of Eastern Oregon showing location of active gaging stations

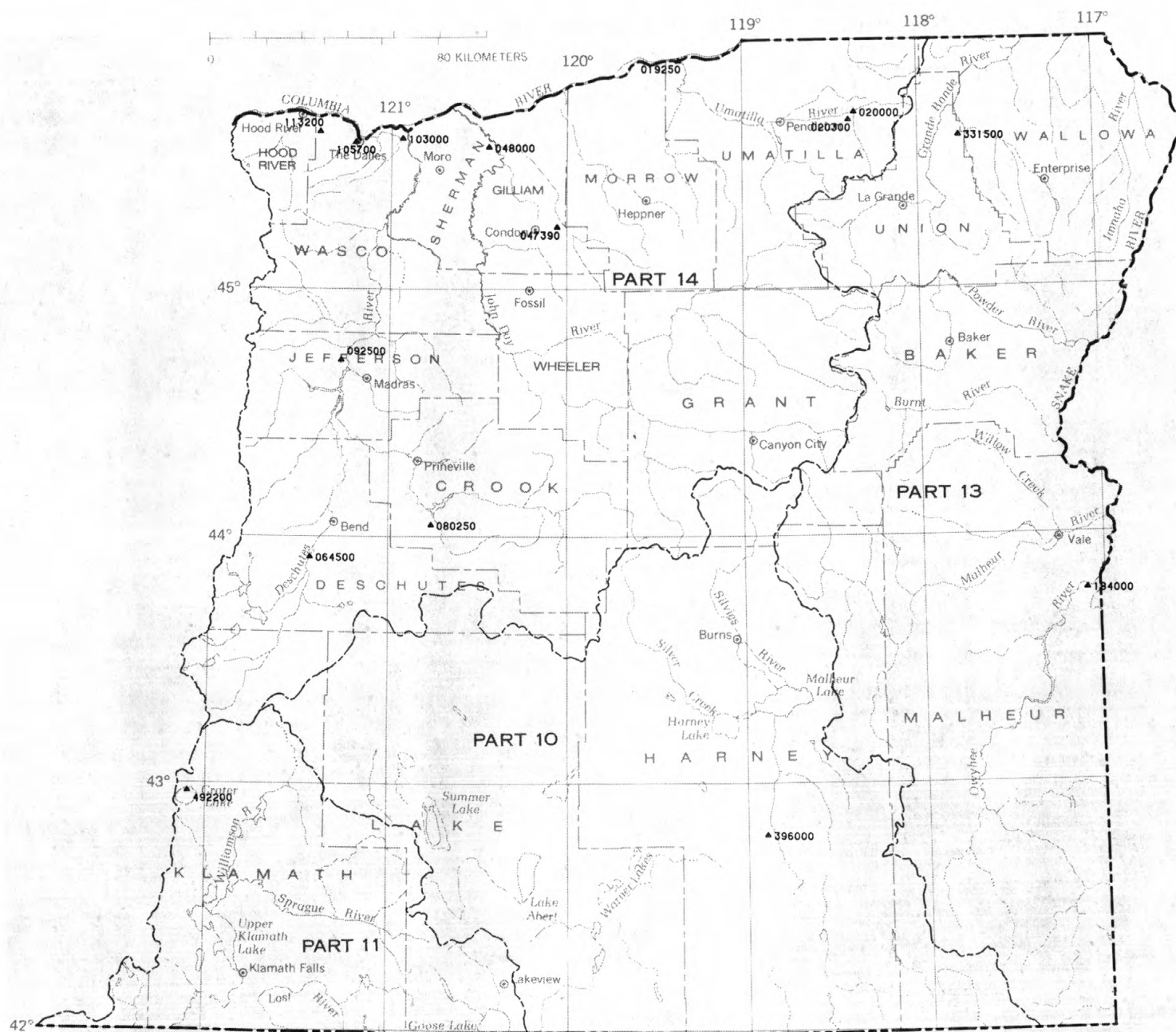


Figure 3. -- Map of Eastern Oregon showing sites where water-quality data are obtained

WARNER LAKES BASIN

LOCATION.—Lat 42°04'20", long 119°57'42", in SW¼ sec.25, T.40 S., R.23 E., Lake County, Hydrologic Unit 17120007, on left bank 1.5 mi (2.4 km) downstream from Twelvemile Creek and 8 mi (13 km) southwest of Adel.

PERIOD OF RECORD.-- March 1910 to July 1916, December 1917 to September 1919, and March 1921 to June 1922 (published as "near Warner Lake"), September 1940 to November 1944, March 1945 to current year.

GAGE.—Water-stage recorder and concrete control. Datum of gage is 4,560.83 ft (1,390.141 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 21, 1940, nonrecording gage or water-stage recorder at sites within 1 mi (2 km) downstream at various datums. Sept. 21, 1940, to Nov. 30, 1944, water-stage recorder at site 1.8 mi (2.9 km) upstream at different datums. Mar. 12, 1945, to June 28, 1952, water-stage recorder at site 70 ft (21 m) upstream at datum 0.88 ft (0.268 m) higher.

AVERAGE DISCHARGE.—45 years (water years 1911–15, 1919, 1941–44, 1946–80), 51.8 ft³/s (1.467 m³/s), 37,530 acre-ft/yr (46.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,670 ft³/s (104 m³/s) Dec. 23, 1964, gage height, 16.1 ft (4.91 m), from rating curve extended above 920 ft³/s (26.1 m³/s) on basis of contracted-opening measurement of 3,260 ft³/s (92.3 m³/s); no flow at times.

EXTREMES FOR CURRENT YEAR.—Peak discharges above base of 510 ft³/s (14.4 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)		Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)	
Jan. 13	1830	*2,940	83.3	*13.22	4.029	Feb. 26	2030	824	23.3	5.68	1.731
Feb. 18	0330	1,860	52.7	9.01	2.746						

No flow July 12, 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	5.5	5.9	10	14	119	61	131	75	26	5.3	5.1
2	2.5	5.5	54	9.5	18	116	42	152	74	31	4.3	4.6
3	2.5	6.0	75	8.9	100	148	14	173	74	33	3.9	4.1
4	2.5	8.3	39	9.0	86	119	15	208	72	28	4.3	4.1
5	2.5	8.6	21	12	61	110	34	217	63	25	4.1	3.6
6	2.5	7.9	14	26	72	96	78	208	60	23	4.0	2.9
7	2.5	6.6	11	31	38	85	58	195	49	20	3.9	3.2
8	2.9	6.1	9.5	17	24	75	100	188	45	19	3.7	3.6
9	2.9	5.8	10	13	12	72	88	188	46	17	3.6	4.1
10	2.5	5.5	11	23	12	72	66	160	45	15	3.3	4.6
11	2.5	5.0	5.6	22	9.5	88	58	134	47	8.2	3.5	6.2
12	2.5	5.0	5.4	1390	8.8	70	88	125	47	4.9	3.5	5.6
13	2.5	5.0	5.4	2450	8.8	64	154	118	45	5.2	3.7	7.5
14	2.9	5.0	6.2	1640	9.5	69	210	116	41	4.9	3.9	8.8
15	6.2	4.9	6.8	810	14	72	206	129	34	5.4	4.7	6.8
16	4.6	5.8	5.6	436	107	66	213	118	32	5.5	4.6	5.1
17	3.5	6.3	6.2	563	626	67	262	112	33	5.3	4.2	4.1
18	3.3	6.2	5.6	127	1280	74	269	116	35	4.1	4.3	4.1
19	7.1	4.4	6.2	102	902	78	254	131	36	3.1	4.4	4.1
20	9.7	3.7	6.2	88	493	112	217	146	32	3.1	4.7	4.1
21	6.7	4.1	6.8	69	250	75	184	169	29	2.7	4.3	4.6
22	4.7	4.7	5.6	54	154	67	142	186	27	1.9	4.0	4.1
23	4.5	4.8	3.6	45	116	107	154	150	26	1.6	3.9	3.6
24	4.4	11	11	34	107	77	150	116	20	1.4	3.4	3.6
25	10	16	7.5	27	213	67	138	96	13	1.2	3.4	3.6
26	14	8.5	5.1	18	456	67	129	85	22	.96	3.7	3.6
27	7.0	4.0	6.8	12	374	63	146	75	31	.63	3.8	3.2
28	5.7	4.5	5.8	19	271	60	154	72	28	1.5	3.6	3.2
29	5.0	5.0	6.4	21	162	61	164	75	25	4.6	4.6	3.2
30	4.8	4.8	7.5	15	---	74	150	77	26	4.1	4.6	3.6
31	5.2	---	8.1	12	---	63	---	78	---	4.1	5.1	---
TOTAL	142.6	184.5	383.8	8113.4	5998.6	2553	3998	4244	1232	311.39	126.3	132.6
MEAN	4.60	6.15	12.4	262	207	82.4	133	137	41.1	10.0	4.07	4.42
MAX	14	16	75	2450	1280	148	269	217	75	33	5.3	8.8
MIN	2.5	3.7	3.6	8.9	8.8	60	14	72	13	.63	3.3	2.9
AC=FT	283	366	761	16090	11900	5060	7930	8420	2440	618	251	263

CALL	YR 1979	TOTAL	13223.70	MEAN	36.2	MAX	670	MIN	2.2	AC-FT	26230
WTR	YR 1980	TOTAL	27420.19	MEAN	74.9	MAX	2450	MIN	.63	AC-FT	54390

WARNER LAKES BASIN

10371500 DEEP CREEK ABOVE ADEL, OR

LOCATION.-- Lat 42°11'21", long 120°00'02", in SW¼NW¼ sec.15, T.39 S., R.23 E., Lake County, Hydrologic Unit 17120007, on left bank 700 ft (213 m) downstream from Drake Creek and 5 mi (8 km) west of Adel.

DRAINAGE AREA.--249 mi² (645 km²).

PERIOD OF RECORD.--September 1922 to September 1923, October 1929 to current year. Monthly discharge only October 1929 to September 1932, published in WSP 1314.

GAGE.--Water-stage recorder. Datum of gage is 4,980.34 ft (1,518.008 m) National Geodetic Vertical Datum of 1929 (State Highway Department bench mark). Sept. 8 to Dec. 20, 1922, nonrecording gage. Dec. 21, 1922, to Sept. 30, 1923, and Oct. 11, 1929, to Dec. 23, 1964, water-stage recorder at site 700 ft (213 m) downstream at different datums. Jan. 20 to Sept. 30, 1965, nonrecording gage at site 2,000 ft (610 m) downstream at different datum.

REMARKS.--Records good. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--52 years, 129 ft³/s (3.653 m³/s), 93,460 acre-ft/yr (115 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s (267 m³/s) Dec. 23, 1964, gage height, 10.64 ft (3.243 m), from floodmark, from rating curve extended above 1,100 ft³/s (31.2 m³/s) on basis of slope-area measurements at 7.3 ft (2.2 m) and of peak flow; minimum, 1.7 ft³/s (0.048 m³/s) July 20, 27-29, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Jan. 12	1630	3,320 94.0	5.36 1.623	Apr. 30	0030	1,000 28.3	3.46 1.055
Feb. 19	2000	840 23.8	3.39 1.033	May 9	2200	848 24.0	3.24 0.988
Apr. 19	2245	*5,840a 165	*6.80b 2.073				

Minimum discharge, 9.4 ft³/s (0.27 m³/s) Aug. 24-31, Sept. 5.

a Result of dam failure.

b From high-water mark in gage well.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	37	40	33	80	211	90	708	244	88	15	11
2	13	35	60	31	102	199	83	714	244	90	14	11
3	13	39	149	29	238	193	85	744	258	100	14	11
4	13	50	103	28	178	184	84	792	289	94	13	9.9
5	13	61	73	27	147	173	95	813	247	86	13	11
6	13	59	62	27	147	169	98	771	240	74	13	13
7	13	46	53	28	108	145	94	714	218	64	13	13
8	13	39	49	29	98	129	110	666	197	57	12	13
9	14	38	47	31	89	123	128	744	192	51	12	14
10	13	31	42	32	88	121	121	738	197	45	12	15
11	14	31	35	56	85	136	119	720	200	36	11	17
12	15	30	27	1710	82	116	143	600	218	33	11	16
13	14	33	28	2290	80	111	208	520	251	32	11	20
14	14	30	29	1750	81	126	293	550	247	31	11	23
15	33	28	30	827	91	118	361	530	203	31	12	18
16	28	33	38	546	123	103	406	455	184	29	12	15
17	20	39	30	644	235	111	523	425	173	27	11	15
18	22	34	29	321	586	108	642	416	179	26	11	17
19	86	28	30	228	501	105	957	435	179	25	11	19
20	54	46	29	210	329	109	967	455	176	24	11	19
21	39	44	28	203	215	96	848	500	165	22	11	20
22	34	39	27	170	184	98	678	520	157	19	11	18
23	34	32	26	154	155	115	771	455	176	18	11	17
24	39	33	26	145	151	97	855	404	168	17	9.9	17
25	66	28	31	129	191	91	778	372	149	16	9.9	17
26	94	25	76	112	280	89	785	332	136	15	9.9	17
27	52	23	55	100	334	82	841	293	125	15	9.9	17
28	44	25	47	80	349	72	862	272	107	15	9.9	17
29	39	28	42	70	252	84	918	275	98	15	11	17
30	35	33	39	70	---	91	841	261	92	15	9.9	17
31	38	---	36	70	---	90	---	244	---	15	9.9	---
TOTAL	946	1077	1416	10180	5579	3795	13784	16438	5709	1225	356.3	474.9
MEAN	30.5	35.9	45.7	328	192	122	459	530	190	39.5	11.5	15.8
MAX	94	61	149	2290	586	211	967	813	289	100	15	23
MIN	13	23	26	27	80	72	83	244	92	15	9.9	9.9
AC-FT	1880	2140	2810	20190	11070	7530	27340	32600	11320	2430	707	942
CAL YR 1979	TOTAL	31844.1	MEAN	87.2	MAX	600	MIN	6.7	AC-FT	63160		
WTR YR 1980	TOTAL	60980.2	MEAN	167	MAX	2290	MIN	9.9	AC-FT	121000		

10378500 HONEY CREEK NEAR PLUSH, OR

LOCATION.--Lat 42°25'30", long 119°55'20", in SW¼SW¼ sec.20, T.36 S., R.24 E., Lake County, Hydrologic Unit 17120007, on right bank 700 ft (213 m) upstream from mouth of canyon, 1 mi (1.6 km) northwest of Plush, and 4 mi (6.4 km) downstream from Twelvemile Creek.

DRAINAGE AREA.--170 mi² (440 km²), approximately.

PERIOD OF RECORD.--May 1909 to September 1914 (prior to January 1910, gage heights only), March to May 1915, March to September 1921, March to June 1922, May 1930 to current year. Monthly discharge only May 1930 to September 1949, published in WSP 1314.

REVISED RECORDS.--WSP 1564: 1911-12. WSP 1714: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,552.60 ft (1,387.632 m) National Geodetic Vertical Datum of 1929. Dec. 24, 1964, to Sept. 30, 1965, nonrecording gage at site 100 ft (30 m) downstream at different datums. See WSP 1927 for history of changes prior to Dec. 24, 1964.

REMARKS.--Records good. Slight regulation by five small reservoirs, combined capacity, 870 acre-ft (1.07 hm³). Diversions for irrigation above station.

AVERAGE DISCHARGE.--54 years (water years 1911-14, 1931-80), 29.5 ft³/s (0.835 m³/s), 21,370 acre-ft/yr (26.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,000 ft³/s (312 m³/s) Dec. 23, 1964, gage height, 13.4 ft (4.08 m), from floodmark, from rating curve extended above 250 ft³/s (7.08 m³/s) on basis of slope-area measurements at gage height 10.46 ft (3.188 m) and of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Jan. 12	1500	*748 21.2	*5.52 1.682	Apr. 29a	-	unknown	unknown
Feb. 18	1100	288 8.16	4.10 1.250	May 13	0230	249 7.05	3.92 1.195
Apr. 19a	-	unknown	unknown				

Minimum, 0.37 ft³/s (0.010 m³/s) Oct. 11, 13.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.43	3.2	3.0	6.9	17	47	15	159	52	15	1.5	.85
2	.43	2.9	4.0	6.9	21	40	15	163	53	20	1.3	.68
3	.43	3.4	12	7.5	53	37	15	167	55	28	1.1	.61
4	.43	3.2	10	7.4	52	36	15	168	61	21	.98	.56
5	.43	3.4	8.7	7.0	26	37	17	179	52	14	.91	.52
6	.45	3.8	7.7	6.5	23	33	17	164	46	16	.89	.51
7	.43	3.4	7.3	6.2	20	28	17	156	43	14	.80	.49
8	.43	3.2	6.4	7.0	18	25	19	143	37	13	.76	.52
9	.40	3.4	6.4	7.5	15	24	21	166	32	11	.71	.54
10	.43	3.1	5.6	7.0	15	23	21	184	34	13	.68	.55
11	.40	2.8	4.3	12	14	24	21	216	27	13	.62	.57
12	.40	2.6	4.3	378	14	23	25	190	33	11	.62	1.1
13	.40	2.6	4.5	410	14	23	35	209	44	11	.64	2.1
14	.43	2.6	5.8	245	13	23	50	215	69	9.4	.63	3.5
15	.51	2.3	5.8	120	14	22	75	198	51	8.6	.65	2.6
16	.44	2.8	5.0	81	15	18	85	153	37	8.0	.65	1.7
17	.48	4.0	6.2	107	29	22	95	129	30	7.4	.64	1.4
18	.57	4.4	5.5	41	222	20	140	114	22	6.3	.62	1.5
19	.70	2.4	5.7	35	157	19	220	105	22	4.4	.78	1.2
20	1.2	2.3	5.3	35	99	20	210	95	29	4.0	.84	1.3
21	1.4	2.4	5.3	35	51	19	190	90	29	4.5	.84	2.0
22	1.3	2.8	3.9	35	49	18	150	85	20	3.5	.75	1.8
23	1.4	3.2	4.1	28	38	21	170	93	23	2.7	.68	2.0
24	1.4	2.7	4.4	24	35	19	190	101	26	2.4	.62	1.7
25	1.6	2.8	5.8	22	34	17	170	103	24	2.2	.64	1.7
26	2.2	2.4	5.8	19	50	17	175	98	24	2.0	.55	1.7
27	2.9	2.0	5.7	15	71	16	180	84	33	1.7	.54	1.8
28	3.8	2.1	5.7	12	71	14	190	76	26	1.6	.51	1.6
29	2.9	2.3	6.1	10	51	15	200	78	18	2.0	.50	1.2
30	2.7	2.6	6.4	10	---	15	180	70	15	2.3	.53	.95
31	3.1	---	7.0	13	---	15	---	56	---	1.8	.67	---
TOTAL	34.52	87.1	183.7	1756.9	1301	730	2923	4207	1067	274.8	23.15	39.25
MEAN	1.11	2.90	5.93	56.7	44.9	23.5	97.4	136	35.6	8.86	.75	1.31
MAX	3.8	4.4	12	410	222	47	220	216	69	28	1.5	3.5
MIN	.40	2.0	3.0	6.2	13	14	15	56	15	1.6	.50	.49
AC-FT	68	173	364	3480	2580	1450	5800	8340	2120	545	46	78

CAL YR 1979 TOTAL 6987.11 MEAN 19.1 MAX 215 MIN .13 AC-FT 13860
WTR YR 1980 TOTAL 12627.42 MEAN 34.5 MAX 410 MIN .40 AC-FT 25050

NOTE.--No gage-height record Mar. 31 to Apr. 30.

ABERT LAKE BASIN

10384000 CHEWAUCAN RIVER NEAR PAISLEY, OR

LOCATION.--Lat 42°41'05", long 120°34'08", in SW¼NW¼ sec.26, T.33 S., R.18 E., Lake County, Hydrologic Unit 17120006, on left bank 1.2 mi (1.9 km) downstream from Mill Creek and 1.4 mi (2.3 km) southwest of Paisley.

DRAINAGE AREA.--275 mi² (712 km²).

PERIOD OF RECORD.--April 1912 to September 1921, May 1924 to current year. Published as "above Conn ditch, near Paisley" April to September 1912 and May 1924 to September 1955, as "above Mill Creek, near Paisley" October 1912 to December 1913, and as "at Chewaucan Land & Cattle Co.'s gage, near Paisley" January to September 1914.

REVISED RECORDS.--WSP 860: Drainage area. WSP 1927: 1957-59.

GAGE.--Water-stage recorder. Datum of gage is 4,430 ft (1,350 m) National Geodetic Vertical Datum of 1929 (river-profile survey). See WSP 1734 for history of changes prior to Oct. 6, 1956.

REMARKS.--Records excellent except those for winter periods, which are good. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--65 years, 143 ft³/s (4.050 m³/s), 103,600 acre-ft/yr (128 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,490 ft³/s (184 m³/s) Dec. 22, 1964, gage height, 8.35 ft (2.545 m), from rating curve extended above 900 ft³/s (25.5 m³/s) on basis of slope-area measurement of peak flow; no flow for part of each day Dec. 7, 1927, Dec. 12, 1932, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Jan. 12	1430	*1,320 37.4	*3.95 1.204	Apr. 29	0600	940 26.6	3.50 1.067
Feb. 19	2100	576 16.3	2.93 0.893				

Minimum, 12 ft³/s (0.34 m³/s) Dec. 11, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	42	30	88	116	203	111	754	268	115	25	28
2	24	37	50	68	112	198	103	750	271	117	27	27
3	24	43	148	64	160	192	107	764	274	173	34	28
4	24	50	98	63	168	192	112	798	266	143	33	27
5	24	56	76	63	123	184	118	826	248	125	33	28
6	24	57	72	60	147	173	131	790	245	112	32	28
7	24	48	62	55	108	155	120	750	219	107	31	27
8	25	43	57	60	100	147	141	700	199	97	29	28
9	25	42	54	50	89	138	143	698	195	90	28	28
10	24	36	40	45	90	140	134	664	199	84	27	28
11	25	33	22	45	89	149	130	624	208	79	26	34
12	25	31	34	702	86	132	143	529	214	78	26	35
13	24	31	40	747	86	136	179	497	218	75	26	45
14	26	29	45	764	86	157	235	531	225	71	27	45
15	38	28	54	497	88	148	258	531	198	69	30	38
16	38	30	57	382	98	116	296	482	182	66	25	34
17	30	35	56	380	146	141	367	462	178	61	20	32
18	30	30	48	221	371	134	442	460	180	55	20	33
19	66	28	48	148	449	122	551	462	181	54	18	40
20	64	27	48	158	345	134	693	475	181	51	22	38
21	45	27	48	176	240	112	685	498	178	43	26	40
22	39	27	36	147	214	110	582	528	169	38	26	37
23	38	27	29	131	184	114	647	502	171	38	26	34
24	42	33	46	126	174	106	726	451	159	35	25	32
25	59	38	65	112	177	101	716	411	147	34	25	32
26	86	30	65	91	202	105	741	372	144	33	25	31
27	51	25	61	60	229	97	786	336	147	29	26	30
28	49	25	50	51	257	90	846	312	120	25	26	29
29	44	26	50	52	225	100	872	294	116	28	25	28
30	40	26	65	54	---	100	827	279	118	29	27	28
31	41	---	89	95	---	99	---	269	---	27	28	---
TOTAL	1142	1040	1743	5755	4959	4225	11942	16799	5818	2181	824	972
MEAN	36.8	34.7	56.2	186	171	136	398	542	194	70.4	26.6	32.4
MAX	86	57	148	764	449	203	872	826	274	173	34	45
MIN	24	25	22	45	86	90	103	269	116	25	18	27
AC-FT	2270	2060	3460	11420	9840	8380	23690	33320	11540	4330	1630	1930

CAL YR 1979	TOTAL	34636	MEAN	94.9	MAX	700	MIN	17	AC-FT	68700
WTR YR 1980	TOTAL	57400	MEAN	157	MAX	872	MIN	18	AC-FT	113900

SUMMER LAKE BASIN

39

10388001 ANA RIVER NEAR SUMMER LAKE, OR

LOCATION.--Lat 43°00'00", long 120°45'00", in SE¼ sec.6, T.30 S., R.17 E., Lake County, Hydrologic Unit 17120005, on left bank 300 ft (91 m) downstream from diversion dam and 2.0 mi (3.2 km) northeast of town of Summer Lake.

DRAINAGE AREA.--Indeterminate, source of stream is Ana River Springs, three-quarters of a mile above station, which are flooded over by pondage behind diversion dam.

PERIOD OF RECORD.--October 1929 to September 1939 (river only); June to September 1928, April 1931 to July 1938, and April 1940 to September 1942 (irrigation season records for Summer Lake Canal only); June 1951 to current year. Prior to June 1951 monthly discharge only, published in WSP 1314.

GAGE.--Water-stage recorder. Altitude of gage is 4,160 ft (1,268 m) from plans of Ana River diversion dam. Oct. 1, 1929, to Sept. 30, 1939, at site 80 ft (24 m) downstream at different datum.

REMARKS.--Records good. All records presented herein include flow in Summer Lake Canal which diverts 300 ft (91 m) above station for irrigation of lands along west side of Summer Lake. Flow regulated by gates at diversion dam.

AVERAGE DISCHARGE.--32 years (water years 1931-32, 1936, 1952-80), 91.5 ft³/s (2.591 m³/s), 66,290 acre-ft/yr (81.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 188 ft³/s (5.32 m³/s) Dec. 22, 1964, gage height, 2.81 ft (0.856 m), no flow in canal; minimum, 1.0 ft³/s (0.028 m³/s) Jan. 21, 22, 1970; minimum daily, 3.0 ft³/s (0.085 m³/s) Oct. 31, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 123 ft³/s (3.48 m³/s) Sept. 15; minimum, 48 ft³/s (1.36 m³/s) Apr. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980												
DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	89	90	90	89	89	90	81	78	85	88	86
2	97	90	90	90	89	89	90	81	79	84	89	86
3	97	90	90	90	89	89	90	81	78	86	88	86
4	96	90	90	91	89	89	90	76	78	78	88	86
5	96	90	90	90	89	89	90	64	78	79	87	86
6	95	91	90	89	89	89	90	53	77	81	87	86
7	95	91	90	89	89	89	90	73	77	83	87	86
8	95	91	90	89	89	89	90	80	77	82	86	86
9	94	90	90	89	89	89	90	85	78	81	84	87
10	95	90	89	89	89	89	90	84	76	82	85	89
11	94	89	89	89	89	89	89	83	76	82	85	89
12	94	89	89	92	89	89	89	83	76	82	84	86
13	94	89	88	91	89	89	89	83	76	81	84	86
14	94	89	89	90	89	89	88	83	78	81	85	85
15	94	89	89	90	90	89	87	86	79	81	85	103
16	94	90	89	90	90	89	88	86	76	73	85	115
17	94	90	89	90	90	89	88	84	76	77	85	112
18	93	89	89	90	90	89	88	83	76	81	83	110
19	93	88	89	90	90	89	89	77	77	82	85	105
20	92	88	89	90	90	89	89	73	78	83	86	94
21	92	88	89	90	90	89	64	74	78	85	86	93
22	90	88	88	90	90	89	53	76	79	81	86	92
23	90	88	88	90	90	89	49	81	79	83	86	92
24	90	89	88	90	90	89	52	83	79	83	87	91
25	90	88	88	89	90	89	59	81	79	81	89	91
26	90	89	88	89	89	90	65	79	80	83	88	91
27	90	90	89	89	89	90	70	79	81	83	87	90
28	90	90	89	89	89	90	76	76	83	84	86	90
29	90	90	89	89	89	89	76	74	84	87	86	90
30	90	90	89	89	---	89	79	75	84	89	86	89
31	90	---	90	89	---	90	---	75	---	89	86	---
TOTAL	2885	2682	2763	2781	2592	2763	2427	2432	2350	2552	2669	2758
MEAN	93.1	89.4	89.1	89.7	89.4	89.1	80.9	78.5	78.3	82.3	86.1	91.9
MAX	97	91	90	92	90	90	90	86	84	89	89	115
MIN	90	88	88	89	89	89	49	53	76	73	83	85
AC-FT	5720	5320	5480	5520	5140	5480	4810	4820	4660	5060	5290	5470
CAL YR 1979	TOTAL	32471	MEAN 89.0	MAX 115	MIN 52	AC-FT 64410						
WTR YR 1980	TOTAL	31654	MEAN 86.5	MAX 115	MIN 49	AC-FT 62790						

LOCATION.--Lat 43°06'50", long 121°03'59" in NE¼SW¼ sec.28, T.28 S., R.14 E., Lake County, Hydrologic Unit 17120005, on right bank 1.5 mi (2.4 km) downstream from diversion dam of Silver Lake Irrigation District, 1.5 mi (2.4 km) southwest of town of Silver Lake, and 3 mi (5 km) upstream from Bridge Creek.

PERIOD OF RECORD.--January 1905 to March 1907, January 1909 to September 1927, February to December 1928, February 1929 to current year.

GAGE.—Water-stage recorder. Concrete control since Sept. 15, 1932. Datum of gage is 4,361.22 ft (1,329.300 m) National Geodetic Vertical Datum of 1929. Prior to May 24, 1932, nonrecording gage or water-stage recorder at practically same location at datum 1.00 ft (0.305 m) higher, or nonrecording gage at diversion dam outlet 1.5 mi (2.4 km) upstream at different datum.

REMARKS.--Records good except those for November to January, which are fair. Flow regulated by reservoir, capacity, 800 acre-ft (986,000 m³), above diversion dam 1.5 mi (2.4 km) above station and by Thompson Valley Reservoir, capacity, 17,400 acre-ft (21.5 hm³), 11 mi (18 km) above station. Records given herein include flow in Silver Lake Irrigation District Canal which has diverted 1.5 mi (2.4 km) above station 1923-43, 1966-80.

AVERAGE DISCHARGE.--68 years (water years 1906, 1910-27, 1930-41, 1944-80), 30.0 ft³/s (0.850 m³/s), 21,740 acre-ft/yr (26.8 hm³/yr), including diversion by Silver Lake Irrigation District Canal.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 1,800 ft³/s (51.0 m³/s) Mar. 20, 1907, gage height, 10.08 ft (3.072 m), present datum, from rating curve extended above 700 ft³/s (19.8 m³/s); maximum gage height, 10.3 ft (3.139 m) Dec. 22, 1964; no flow at times in 1931–32, 1934, 1937.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 97 ft³/s (2.75 m³/s) May 13; minimum, 1.4 ft³/s (0.040 m³/s) Apr. 17, no flow in canal.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980												
DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	4.2	3.9	2.3	4.1	14	9.5	33	68	59	36	29
2	27	4.2	4.2	2.3	6.8	13	9.2	30	76	59	39	28
3	26	4.2	4.2	2.3	5.4	14	8.8	36	77	60	46	22
4	26	4.2	4.2	2.3	5.7	18	8.8	34	76	58	48	21
5	26	4.2	4.0	2.3	5.7	16	8.8	42	77	58	47	21
6	23	4.2	3.8	2.3	5.7	16	8.8	49	78	56	46	20
7	18	4.2	3.9	2.2	5.4	16	8.8	60	77	54	48	18
8	19	4.2	3.9	2.2	5.4	15	8.8	63	75	54	47	17
9	17	3.9	3.9	2.2	5.4	13	8.8	62	75	50	47	15
10	16	3.9	3.9	2.2	5.4	12	8.8	64	75	46	43	16
11	16	3.9	4.5	1.9	5.4	12	8.8	65	74	47	48	15
12	15	3.9	4.8	3.0	5.4	12	8.5	64	74	47	47	15
13	14	3.9	4.5	27	5.4	11	8.1	97	74	44	46	15
14	12	4.3	4.5	54	5.1	13	10	96	74	43	46	14
15	12	4.5	4.2	51	5.1	18	18	94	72	42	47	12
16	11	4.5	3.7	41	5.1	14	14	92	71	40	49	11
17	8.9	4.5	3.3	28	5.1	14	1.4	91	71	38	47	9.9
18	7.5	4.5	3.3	18	5.7	14	5.0	94	69	37	47	9.9
19	6.7	4.5	3.3	8.0	10	14	14	95	69	33	46	10
20	6.6	4.0	3.0	9.0	16	15	20	95	70	34	45	10
21	5.7	4.0	3.0	9.5	14	14	21	95	70	35	44	9.5
22	5.4	4.0	2.5	9.5	13	12	22	95	57	35	43	8.4
23	5.1	4.0	2.0	9.5	11	12	24	90	62	30	43	12
24	5.1	4.0	2.1	9.5	11	9.5	26	62	59	25	43	16
25	5.4	4.0	2.2	9.3	11	7.8	28	62	59	26	46	15
26	5.1	3.6	2.0	8.5	11	6.4	29	61	60	26	44	14
27	5.1	3.2	1.8	7.0	13	6.4	30	61	57	25	41	17
28	4.8	3.4	1.8	6.0	14	7.4	31	60	59	26	37	17
29	4.8	3.9	1.9	4.5	14	7.4	32	61	59	32	36	17
30	4.5	3.9	2.1	4.0	---	6.4	32	65	59	38	33	17
31	4.2	---	2.3	4.0	---	7.8	---	66	---	37	32	---
TOTAL	391.9	121.9	102.7	344.8	235.3	381.1	471.9	2134	2073	1294	1357	471.7
MEAN	12.6	4.06	3.31	11.1	8.11	12.3	15.7	68.8	69.1	41.7	43.8	15.7
MAX	29	4.5	4.8	54	16	18	32	97	78	60	49	29
MIN	4.2	3.2	1.8	1.9	4.1	6.4	1.4	30	57	25	32	8.4
AC-FT	777	242	204	684	467	756	936	4230	4110	2570	2690	936
CAL YR 1979	TOTAL	8739.0										
WTR YR 1980	TOTAL	9379.3										
MEAN 23.9												
MAX 90												
MIN 1.5												
AC-FT 17330												
AC-FT 18600												

MALHEUR AND HARNEY LAKES BASIN

41

10393500 SILVIES RIVER NEAR BURNS, OR

LOCATION.-- Lat 43°42'55", long 119°10'35", in NW¼NW¼ sec.31, T.21 S., R.30 E., Harney County, Hydrologic Unit 17120002, on left bank 5 mi (8 km) downstream from Emigrant Creek and 11 mi (18 km) northwest of Burns.

DRAINAGE AREA.--934 mi² (2,419 km²).

PERIOD OF RECORD.--May 1903 to July 1906, December 1908 to December 1912, March 1913 to September 1917 (irrigation seasons only), March 1918 to October 1920, March 1921 to July 1922 (irrigation seasons only), October 1922 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,195 ft (1,279 m) National Geodetic Vertical Datum of 1929 (river-profile survey). See WSP 1734 for history of changes prior to Oct. 4, 1951.

REMARKS.--Records good. No regulation. Diversions for irrigation above station during periods of high flow only.

AVERAGE DISCHARGE.--67 years (water years 1904-5, 1910-12, 1918-21, 1923-80), 166 ft³/s (4.701 m³/s), 120,300 acre-ft/yr (148 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,960 ft³/s (140 m³/s) Apr. 6, 1952, gage height, 15.2 ft (4.63 m); no flow July 19 to Sept. 22, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,120 ft³/s (31.7 m³/s) Feb. 18, gage height, 9.70 ft (2.957 m); minimum, 16 ft³/s (0.45 m³/s) Aug. 26-30, Sept. 4, 6-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	42	46	50	180	499	316	636	233	97	31	17
2	22	41	50	50	210	481	312	596	227	92	30	17
3	22	43	54	52	270	469	307	589	216	107	29	17
4	21	46	54	52	200	494	304	546	216	114	30	17
5	21	50	50	45	150	488	330	506	219	121	29	17
6	21	51	50	37	130	474	378	474	233	123	28	16
7	21	51	50	37	120	450	362	440	242	117	27	16
8	21	50	50	45	115	419	367	414	253	107	25	16
9	21	49	50	55	115	392	377	414	263	102	24	16
10	21	46	44	65	110	390	408	432	242	97	23	20
11	21	41	44	80	110	408	404	443	209	88	22	21
12	22	38	44	114	105	374	437	439	197	83	22	18
13	38	42	44	443	105	367	494	401	219	76	22	24
14	28	46	47	914	110	384	575	362	216	70	21	29
15	28	58	55	931	160	392	660	341	251	65	20	26
16	27	65	57	689	307	349	699	310	266	64	19	25
17	26	70	53	707	644	360	788	314	284	60	19	23
18	27	69	59	609	1020	350	901	296	246	58	19	25
19	33	47	59	543	906	343	982	262	208	55	19	27
20	46	37	58	539	945	342	1020	229	183	51	19	27
21	41	38	50	499	756	342	1030	204	163	49	19	26
22	36	42	42	375	622	337	992	180	142	45	18	25
23	35	49	42	327	504	347	972	165	137	30	18	24
24	38	54	50	294	357	348	1000	155	133	33	18	24
25	39	61	65	285	333	349	986	165	139	33	17	24
26	44	58	47	258	422	349	910	184	136	32	17	24
27	47	42	36	245	527	343	851	216	142	31	17	24
28	43	37	38	209	510	326	799	245	136	30	16	23
29	43	37	38	170	525	334	757	261	130	32	16	23
30	42	42	38	145	---	325	702	262	109	33	17	22
31	42	---	50	145	---	319	---	257	---	32	17	---
TOTAL	960	1442	1514	9009	10568	11944	19420	10738	5990	2127	668	653
MEAN	31.0	48.1	48.8	291	364	385	647	346	200	68.6	21.5	21.8
MAX	47	70	65	931	1020	499	1030	636	284	123	31	29
MIN	21	37	36	37	105	319	304	155	109	30	16	16
AC-FT	1900	2860	3000	17870	20960	23690	38520	21300	11880	4220	1320	1300
CAL YR 1979	TOTAL	82890	MEAN 227	MAX 1440	MIN 11	AC-FT 164400						
WTR YR 1980	TOTAL	75033	MEAN 205	MAX 1030	MIN 16	AC-FT 148800						

SILVIES RIVER BASIN

COMBINED MONTHLY DISCHARGE OF EAST FORK SILVIES RIVER, WEST FORK SILVIES RIVER AND FLOOD BYPASS NEAR LAWEN, OR

The combined flow of the East Fork Silvie River, West Fork Silvie River, and Flood bypass provide an estimate of the total flow entering Malheur Lake from the Silvie River Basin.

10395000 EAST FORK SILVIES RIVER NEAR LAWEN, OR.--Lat 43°25'35", long 118°48'05", in SW¼ sec.5, T.25 S., R.32 E., Harney County, Hydrologic Unit 17120002, on left bank downstream side of road bridge, 1.6 mi (2.6 km) south of Lawen, and 15.2 mi (24.5 km) southeast of Burns. Records available March to June 1916, March 1972 to September 1976. October 1976 to current year (monthly estimated discharge only).

10395500 WEST FORK SILVIES RIVER NEAR LAWEN, OR.--Lat 43°23'00", long 118°50'00", in SE¼SW¼ sec.24, T.25 S., R.32 E., Harney County, Hydrologic Unit 17120002, near right bank on upstream side of bridge on county road, 4.9 mi (7.9 km) southwest of Lawen. Records available March to July 1916, April to July 1917, April to June 1919, April to June 1922, March 1972 to September 1976. October 1976 to current year (monthly estimated discharge only).

10395600 FLOOD BYPASS.--During heavy runoff periods flood water bypasses the East Fork Silvie River and West Fork Silvie River crossing the county road at several bridges and culverts between the East Fork and West Fork. Monthly estimated discharge record available March 1972 to current year.

REMARKS.--Records poor. East Fork and West Fork Silvie River are distributaries that originate at bifurcation of Silvie River 20 mi (32 km) upstream. Diversion by flooding for irrigation of many thousand acres above measuring points. Flows are estimated on the basis of periodic flow measurements, observations of no flow, and hydrographic comparison with upstream station.

Runoff in acre-feet

	(10395000) East Fork Silvie River	(10395500) West Fork Silvie River	(10395600) Flood Bypass	Combined flow of East Fork Silvie West Fork Silvie and Flood Bypass
October 1979.....	100	30	0	100
November.....	200	200	0	400
December.....	200	300	0	500
CAL YR 1979.....	6,000	18,000	28,000	52,000
January 1980.....	200	200	0	400
February.....	400	2,000	0	2,000
March.....	600	6,000	0	7,000
April.....	800	6,000	2,000	9,000
May.....	500	3,000	4,000	8,000
June.....	500	700	1,000	2,000
July.....	0	100	0	100
August.....	0	200	0	200
September.....	0	0	0	0
WTR YR 1980.....	3,000	19,000	7,000	29,000

MALHEUR AND HARNEY LAKES BASIN

10396000 DONNER UND BLITZEN RIVER NEAR FRENCHGLEN, OR
(National stream-quality accounting network station)

43

LOCATION.--Lat 42°47'28", long 118°52'00", in NW¼NW¼ sec.20, T.32 S., R.32 E., Harney County, Hydrologic Unit 17120003, Bureau of Land Management land, on left bank 1.5 mi (2.4 km) upstream from upper diversions for Malheur Migratory Waterfowl Refuge, 2.0 mi (3.2 km) downstream from Fish Creek, and 3.5 mi (5.6 km) southeast of Frenchglen.

DRAINAGE AREA.--200 mi² (518 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1911 to September 1913, March 1914 to September 1916, April 1917 to September 1921, August to November 1929, April to September 1930, December 1937 to current year. Monthly discharge only for some periods, published in WSP 1314. Published as "near Diamond" 1911-21. Records of discharge for January 1909 to September 1910 (published in WSP 270, 290, and 370, for a nonequivalent site as "near Diamond") have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 330: Drainage area (former site). WSP 860: Drainage area (present site). WSP 1564: 1938-39(M), 1942-43(M), 1948(M), 1951(P), 1952-53. WSP 1714: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,254 ft (1,297 m) National Geodetic Vertical Datum of 1929 (levels by Fish and Wildlife Service). Prior to December 1937, nonrecording gage at several sites within 2 mi (3 km) downstream at different datums. Dec. 6, 1937, to Feb. 14, 1938, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--50 years (water years 1912-13, 1915-16, 1918-21, 1939-80), 122 ft³/s (3.455 m³/s), 88,390 acre-ft/yr (109 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,270 ft³/s (121 m³/s) Apr. 26, 1978, gage height, 7.15 ft (2.179 m) from floodmarks, from rating curve extended above 1,900 ft³/s (53.8 m³/s) on basis of slope-area measurement of peak flow; minimum, 4.2 ft³/s (0.12 m³/s) Dec. 9, 1972, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 650 ft³/s (18.4 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s)	Discharge (m ³ /s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft ³ /s)	Discharge (m ³ /s)	Gage height (ft)	Gage height (m)
Feb. 3	1830	800	22.7	4.00	1.219	May 4	2200	740	21.0	3.85	1.173
Feb. 16	0900	892	25.3	4.15	1.265	May 14	0300	*1,230	34.8	*4.58	1.396
Apr. 27	2400	773	21.9	3.94	1.201	May 26	2100	1,140	32.3	4.48	1.366

Minimum discharge, 20 ft³/s (0.57 m³/s) Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	62	66	54	100	102	82	510	436	223	94	54
2	43	62	82	50	66	122	94	598	465	237	80	53
3	43	66	113	50	288	140	123	616	394	233	75	54
4	43	100	102	50	135	230	193	627	368	203	71	53
5	43	143	78	75	80	203	199	645	339	177	69	51
6	43	82	67	88	133	125	133	627	323	167	67	51
7	43	67	69	47	75	96	92	587	304	162	66	53
8	43	62	71	61	59	86	113	537	296	159	64	53
9	43	64	71	53	51	78	118	559	323	154	62	54
10	44	59	69	46	48	76	107	485	368	148	62	54
11	44	61	34	43	54	84	90	627	377	140	59	62
12	44	59	53	92	54	75	113	431	368	143	59	56
13	44	61	59	140	61	84	146	394	335	135	59	82
14	44	59	59	254	88	165	187	701	296	130	59	66
15	57	62	57	206	100	138	213	450	262	125	61	57
16	51	61	56	135	470	80	230	394	258	123	59	54
17	47	64	54	254	190	82	296	373	300	123	57	53
18	50	62	53	104	154	102	356	368	373	113	56	53
19	90	54	53	48	113	133	422	390	394	107	57	51
20	66	44	51	66	113	151	480	445	377	107	56	51
21	61	61	53	73	92	90	460	505	360	104	56	56
22	61	69	50	71	111	92	381	532	327	104	56	53
23	59	67	38	61	130	130	465	455	284	100	56	51
24	64	67	61	61	210	116	604	399	237	96	54	50
25	64	64	56	53	162	133	537	373	233	90	54	50
26	86	62	47	47	135	138	537	616	244	86	54	47
27	67	54	37	50	133	100	587	800	203	84	53	47
28	71	50	46	29	102	92	639	510	193	82	54	46
29	67	57	57	42	92	210	581	450	220	88	54	46
30	62	64	59	44	---	187	526	441	244	90	54	46
31	66	---	62	66	---	102	---	431	---	84	54	---
TOTAL	1697	1969	1883	2513	3599	3742	9104	15876	9501	4117	1891	1607
MEAN	54.7	65.6	60.7	81.1	124	121	303	512	317	133	61.0	53.6
MAX	90	143	113	254	470	230	639	800	465	237	94	82
MIN	43	44	34	29	48	75	82	368	193	82	53	46
AC-FT	3370	3910	3730	4980	7140	7420	18060	31490	18850	8170	3750	3190
CAL YR 1979 TOTAL	60699			MEAN 166	MAX 873	MIN 19	AC-FT 120400					
WTR YR 1980 TOTAL	57499			MEAN 157	MAX 800	MIN 29	AC-FT 114000					

10396000 DONNER UND BLITZEN RIVER NEAR FRENCHGLEN, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

SPECIFIC CONDUCTANCE: October 1975 to current year.

WATER TEMPERATURES: October 1975 to current year.

INSTRUMENTATION.--Water-quality monitor since September 1980.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 219 micromhos July 23, 1976; minimum daily, 24 micromhos May 31, 1977.

WATER TEMPERATURES: Maximum, 28.5°C July 31, 1977; minimum, 0.0°C many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 105 micromhos Nov. 7, 8; minimum daily, 41 micromhos June 19-21.

WATER TEMPERATURES: Maximum, 24.0°C July 22-24, 27; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	OXYGEN, DIS- SOLVED (MG/L)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	SILICA, DIS- SOLVED (MG/L AS SiO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT												
03...	1045	43	8.6	8.2	9.9	96	K4	K4	25	7.7	2.9	6.1
NOV												
07...	0955	65	3.0	7.7	10.8	85	K3	K14	27	7.8	3.0	5.1
DEC												
05...	1030	68	.5	7.4	12.0	75	K17	96	24	6.2	2.5	4.2
JAN												
09...	0955	50	2.0	8.6	12.0	85	K2	K5	29	8.1	3.3	5.5
FEB												
06...	1040	132	2.2	7.6	11.2	61	--	76	23	6.1	2.8	4.1
APR												
02...	1125	80	3.0	7.8	10.9	75	<1	K2	28	7.6	3.3	5.1
MAY												
07...	1300	566	6.5	7.6	9.7	47	--	K5	19	5.0	1.9	3.1
JUN												
25...	1205	240	12.0	7.9	8.6	53	--	K9	19	5.1	2.0	2.9
JUL												
09...	1145	165	14.4	7.9	8.6	47	--	K16	18	5.4	1.9	3.1
AUG												
06...	1120	70	14.8	8.7	9.1	81	--	K3	25	7.2	2.9	4.2
SEP												
04...	1030	52	12.5	8.3	11.6	88	--	K4	17	8.2	3.4	5.0
DATE		POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUC- RIDE, DIS- SOLVED (MG/L AS F)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
OCT												
03...	1.5	41	9.7	.8	.1	.53	.20	1.1	.010	.24	1.3	.020
NOV												
07...	1.3	34	2.6	.8	.1	.47	.17	.63	.020	.26	.91	.020
DEC												
05...	1.1	34	4.9	.9	.1	.44	.23	.67	.050	.34	1.1	.020
JAN												
09...	1.4	37	3.8	1.1	.1	.78	.38	.79	.050	.38	1.2	.020
FEB												
06...	1.4	30	3.1	.8	.1	.72	.36	.66	.050	.36	1.1	.070
APR												
02...	1.3	35	5.6	6.1	.1	.39	.13	.52	.000	.12	.64	.040
MAY												
07...	.9	18	.7	.9	.0	.33	.14	.74	.000	.11	.85	.020
JUN												
25...	.7	27	2.9	.3	.1	.51	.00	.68	.040	.09	.81	.000
JUL												
09...	.8	16	1.2	.2	.1	.45	.00	.50	.000	.09	.59	.040
AUG												
06...	1.2	26	4.7	2.7	.2	.42	.08	.46	.010	.06	.53	.020
SEP												
04...	1.4	41	.9	8.1	.1	.26	.00	.61	.010	.15	.77	.020

10396000 DONNER UND BLITZEN RIVER NEAR FRENCHGLEN, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED (MG/L AS C)	CARBON, ORGANIC TOTAL (MG/L AS C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	TUR- BID- ITY (NTU)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 03...	.010	2.0	.7	--	31	0	69	79	2.2	4	.46	77
NOV 07...	.050	--	--	3.0	32	0	--	69	4.7	6	1.1	92
DEC 05...	.080	--	--	4.5	26	0	--	65	31	16	2.9	96
JAN 09...	.040	2.4	1.0	--	34	0	80	76	4.7	5	.67	91
FEB 06...	.140	--	--	7.7	27	0	78	61	78	32	11	90
APR 02...	.050	2.5	--	--	33	0	78	79	18	14	3.0	29
MAY 07...	.180	--	--	6.1	20	2	50	43	22	167	255	40
JUN 25...	.030	--	--	3.2	21	0	42	49	2.3	17	11	26
JUL 09...	.010	1.6	--	--	21	5	45	40	15	15	6.7	75
AUG 06...	.040	--	--	2.5	30	4	71	64	1.9	4	.76	65
SEP 04...	.050	--	--	1.7	34	0	68	69	3.4	12	1.7	72

DATE	IRON, DIS- SOLVED (UG/L AS FE)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	ARSENIC DIS- SOLVED (UG/L AS AS)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)
OCT 03...	30	220	3	10	2	2	<10	0	<1	0
JAN 09...	120	460	3	<10	1	1	30	100	<1	0
APR 02...	350	1300	3	20	0	0	10	0	<1	1
JUL 09...	40	610	1	20	2	0	20	0	<1	0

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	SILVER, DIS- SOLVED (UG/L AS AG)
OCT 03...	10	10	<3	0	1	4	2	9	0
JAN 09...	0	0	<3	3	0	1	2	6	0
APR 02...	0	10	<3	1	4	7	0	4	0
JUL 09...	10	10	<3	1	1	1	0	0	0

DATE	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SELE- NIUM, TOTAL (UG/L AS SE)	MERCURY DIS- SOLVED (UG/L AS HG)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
OCT 03...	0	<3	0	0	0	.0	.0	--	--
JAN 09...	0	<3	0	0	0	.0	.1	0	0
APR 02...	0	3	10	0	0	.0	--	2	6
JUL 09...	0	5	10	0	0	.0	--	3	1

MALHEUR AND HARNEY LAKES BASIN

10396000 DONNER UND BLITZEN RIVER NEAR FRENCHGLEN, OR--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	NOV 7,79 0955	APR 2,80 1125	MAY 7,80 1300	JUN 25,80 1205	JUL 9,80 1145	AUG 6,80 1120
TOTAL CELLS/ML	410	90	120	180	580	170
DIVERSITY: DIVISION	0.8	0.0	0.0	1.0	0.0	0.0
..CLASS	0.8	0.0	0.0	1.0	0.0	0.0
..ORDER	0.8	0.9	0.8	1.0	0.0	0.0
...FAMILY	0.9	1.8	2.0	1.4	2.0	2.3
....GENUS	0.9	1.8	2.3	1.4	2.7	2.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHRYSOPHYTA												
..BACILLARIOPHYCEAE												
...CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	26#	29	14	13	--	-	--	-	--	-
....MELOSIRA	--	-	--	-	14	13	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	13	3	13	14	--	-	--	-	69	12	--	-
....COCONEIS	--	-	--	-	--	-	--	-	--	-	13	8
....RHOICOSPHENIA	--	-	--	-	29#	25	--	-	28	5	--	-
...CYMBELLACEAE												
....AMPHORA	--	-	--	-	--	-	--	-	14	2	--	-
....CYMBELLA	--	-	--	-	--	-	--	-	69	12	13	8
...FRAGILARIACEAE												
....HANNAEA	--	-	--	-	--	-	--	-	83	14	--	-
....SYNEDRA	--	-	--	-	--	-	--	-	210#	36	26#	15
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	13	14	--	-	--	-	14	2	26#	15
...NAVICULACEAE												
....NAVICULA	--	-	--	-	29#	25	39#	21	28	5	26#	15
...NITZSCHIACEAE												
....NITZSCHIA	52	13	39#	43	29#	25	39#	21	69	12	65#	38
CRYPTOPHYTA (CRYPTOMONADS)												
..CRYPTOPHYCEAE												
...CRYPTOMONADALES												
....CRYPTOMONADACEAE												
.....CRYPTOMONAS	13	3	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
..CYANOPHYCEAE												
...HORMOGONALES												
....OSCILLATORIACEAE												
.....OSCILLATORIA	340#	81	--	-	--	-	100#	57	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

MALHEUR AND HARNEY LAKES BASIN

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10396000 DONNER UND BLITZEN RIVER NEAR FRENCHGLEN, OR--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	99	65	71	70	79	78	59	62	52	78	93
2	96	90	62	71	80	82	78	53	62	52	80	91
3	96	92	69	69	---	80	72	51	64	52	82	92
4	95	87	77	71	---	74	61	50	66	52	81	93
5	95	75	80	73	64	67	60	47	67	53	89	88
6	94	95	85	84	62	74	69	47	66	53	86	86
7	92	103	85	84	70	80	79	49	68	54	84	83
8	92	104	82	86	80	82	76	52	66	54	85	80
9	93	103	80	89	85	83	77	53	62	54	86	79
10	90	101	76	89	88	84	79	57	56	61	87	78
11	87	100	83	92	88	81	84	59	53	63	89	78
12	86	98	87	---	87	81	81	63	53	62	90	72
13	84	95	82	---	85	83	76	63	57	65	90	63
14	83	94	80	64	85	73	73	58	60	67	89	58
15	78	92	80	58	83	71	73	64	62	66	89	87
16	77	89	80	60	72	81	75	65	63	68	88	---
17	78	86	81	55	68	82	69	66	57	70	90	94
18	76	83	80	65	49	79	62	65	49	74	92	---
19	75	84	78	90	63	75	57	61	45	72	90	---
20	70	87	78	85	67	64	55	56	45	69	88	89
21	83	89	77	80	76	75	55	51	45	71	89	87
22	90	83	77	80	76	78	61	47	46	67	89	87
23	90	75	78	85	79	77	58	49	50	69	87	---
24	87	71	76	85	76	78	54	54	56	72	90	---
25	86	68	72	90	66	76	57	57	56	73	92	---
26	79	69	73	90	60	73	57	58	50	74	88	---
27	88	70	78	90	65	78	55	53	53	79	90	---
28	87	75	81	95	71	81	52	63	52	84	89	---
29	91	73	77	95	75	68	54	65	50	80	89	---
30	96	68	73	90	---	59	56	64	50	81	91	---
31	95	---	72	80	---	70	---	63	---	79	94	---
MEAN	87	87	78	80	74	76	66	57	56	66	88	83

MALHEUR AND HARNEY LAKES BASIN

10396000 DONNER UND BLITZEN RIVER NEAR FRENCHGLEN, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH		
1	18.5	10.0	8.0	4.0	.0	.0	4.5	1.5	.5	.5	7.0	3.5
2	18.0	10.0	6.0	3.0	1.0	.0	4.5	1.0	.5	.5	8.0	5.0
3	17.0	8.5	6.0	5.0	3.0	.5	5.0	3.0	1.0	.5	7.0	5.0
4	17.0	8.5	6.0	5.0	4.0	2.0	4.5	2.5	4.5	.5	7.0	4.0
5	18.0	9.5	6.0	4.0	3.0	.0	5.5	2.5	4.0	1.0	7.0	4.5
6	16.0	11.0	7.5	4.0	3.0	.0	3.0	.0	3.0	2.0	7.5	3.5
7	16.5	11.0	7.5	3.0	4.0	1.5	.5	.0	5.0	1.0	6.5	2.5
8	17.0	10.5	5.5	1.5	4.0	1.0	3.0	.5	5.5	.5	8.0	3.0
9	16.5	9.0	6.0	1.5	4.5	.5	3.5	2.0	4.5	.0	9.5	3.0
10	16.5	8.5	5.5	.5	3.5	.0	2.5	.5	5.0	.5	10.5	3.0
11	16.0	8.0	5.0	.0	.0	.0	1.0	.5	5.5	.5	6.0	2.5
12	16.5	9.5	4.5	.0	.0	.0	5.0	1.0	5.5	.5	6.5	.5
13	14.5	10.0	4.5	.0	.5	.0	4.0	2.5	5.5	1.0	6.0	2.5
14	14.0	10.0	4.5	.0	1.0	.0	4.0	2.5	5.5	1.5	6.0	3.0
15	13.5	9.5	4.5	.0	3.5	.0	4.0	3.0	7.5	3.5	4.5	1.5
16	14.0	8.0	4.5	2.0	2.0	.0	4.0	2.5	6.5	4.0	7.5	1.0
17	13.0	8.0	5.5	3.0	4.0	.0	3.0	1.5	6.0	3.5	6.0	1.5
18	9.0	8.0	5.0	.0	4.0	1.0	1.5	.5	4.0	3.0	6.0	2.5
19	10.5	7.0	2.5	.0	4.0	2.5	.5	.5	6.0	3.5	7.0	3.0
20	9.0	5.0	.5	.0	5.5	2.0	.5	.5	5.0	2.5	5.0	1.5
21	9.0	5.0	.0	.0	4.0	2.5	1.0	.5	5.0	1.5	2.5	1.0
22	6.0	5.0	.0	.0	3.0	.0	2.0	.5	4.5	2.5	10.0	1.5
23	9.0	6.0	.5	.0	.0	.0	3.0	.5	6.0	2.0	6.5	2.5
24	9.0	6.5	3.5	.5	1.5	.0	4.0	.5	6.0	3.0	8.5	2.0
25	8.5	7.0	2.0	.0	3.0	.5	2.0	.5	7.5	4.0	9.5	1.0
26	9.5	5.0	1.5	.0	1.5	.0	.5	.5	8.5	5.0	5.0	2.0
27	8.5	5.0	.0	.0	1.0	.0	.5	.5	7.5	6.0	5.5	1.5
28	6.5	4.5	.0	.0	.0	.0	.5	.5	7.0	5.0	10.0	1.0
29	6.0	3.5	.0	.0	.5	.0	.5	.5	8.0	3.5	8.5	2.5
30	8.5	3.0	.0	.0	.5	.0	.5	.5	---	---	5.0	1.0
31	7.0	5.0	---	---	3.5	.5	.5	.5	---	---	4.5	1.0
MONTH	18.5	3.0	8.0	.0	5.5	.0	5.5	.0	8.5	.0	10.5	.5

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		
1	7.5	1.0	11.5	6.5	11.5	8.5	16.0	12.0	23.5	14.5	18.5	10.0
2	8.0	2.0	11.5	8.0	8.5	6.0	14.5	12.5	23.5	14.5	20.0	9.5
3	8.0	3.5	12.0	6.0	7.5	5.5	15.5	11.0	22.0	14.0	21.0	10.5
4	9.5	4.5	11.0	7.0	8.5	5.5	15.5	12.0	22.0	12.5	22.0	12.5
5	7.5	5.0	10.5	6.5	11.0	7.5	16.5	12.0	22.5	13.0	20.5	12.5
6	6.5	3.5	10.5	6.0	10.5	8.5	18.0	12.0	22.5	13.5	21.0	13.0
7	10.0	2.0	11.0	6.0	12.5	8.5	16.5	13.5	22.5	12.5	21.5	12.5
8	9.0	3.5	10.0	6.5	14.5	9.5	17.5	13.0	23.5	13.5	21.5	15.0
9	8.0	5.0	8.5	5.5	15.0	10.5	17.0	12.5	23.0	13.5	---	---
10	8.0	4.5	8.0	4.5	14.0	10.0	18.5	11.5	23.5	13.0	---	---
11	12.5	3.0	7.0	5.0	13.5	9.5	19.0	10.5	23.5	13.0	---	---
12	13.5	5.5	10.0	6.0	12.5	9.0	17.0	11.5	23.5	14.0	---	---
13	13.0	5.0	10.5	7.5	9.5	6.5	19.5	10.5	23.5	13.5	---	---
14	12.5	8.0	10.0	7.0	9.5	8.0	17.5	13.5	19.0	13.0	---	---
15	11.0	6.0	10.5	7.5	13.5	7.5	20.5	11.5	21.0	12.5	---	---
16	11.5	6.0	10.5	7.0	15.5	10.0	21.0	13.5	22.0	13.0	---	---
17	10.5	6.5	12.0	7.5	16.5	11.5	21.0	14.5	22.5	13.5	19.5	---
18	11.0	6.0	12.5	8.5	15.5	11.0	19.5	12.5	20.0	11.0	17.5	13.0
19	11.0	5.5	14.0	9.5	15.0	10.0	21.0	12.5	21.0	10.5	17.5	10.5
20	9.5	5.5	14.5	9.0	15.5	10.5	22.5	14.5	22.0	12.0	14.0	10.0
21	7.5	4.5	13.5	9.0	15.0	10.0	23.5	15.5	22.0	13.0	16.0	8.5
22	7.5	5.0	12.0	8.5	14.5	10.5	24.0	16.5	21.5	12.5	16.0	7.0
23	10.5	5.5	8.5	5.0	11.5	8.0	24.0	16.5	22.5	12.0	17.0	8.0
24	10.0	4.5	5.5	2.5	12.5	8.0	24.0	16.0	22.5	12.5	17.5	8.5
25	10.5	4.0	5.5	3.5	15.5	11.5	23.5	15.5	21.5	12.0	17.0	8.5
26	11.5	5.5	7.0	5.0	12.5	9.0	23.5	15.0	22.0	13.0	18.0	10.0
27	12.0	6.0	9.5	5.0	15.0	7.5	24.0	15.5	21.0	11.5	18.0	9.0
28	10.5	6.0	10.0	6.5	17.5	11.0	21.0	16.0	18.5	10.0	17.0	9.5
29	9.5	5.5	12.0	8.0	16.5	12.5	21.5	15.0	18.5	10.5	17.5	8.5
30	9.0	4.5	12.0	9.5	16.5	12.5	22.5	15.0	20.0	11.0	18.0	9.5
31	---	---	12.5	8.0	---	---	21.0	16.0	20.5	10.5	---	---
MONTH	13.5	1.0	14.5	2.5	17.5	5.5	24.0	10.5	23.5	10.0	22.0	7.0

MALHEUR AND HARNEY LAKES BASIN

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10401800 MALHEUR LAKE NEAR VOLTAGE, OR

LOCATION.—Lat 43°17'30", long 118°49'05", in NE¼NE¼ sec.25, T.26 S., R.31 E., Harney County, Hydrologic Unit 17120001, in Malheur National Wildlife Refuge, 2.0 mi (3.2 km) north of Voltage.

DRAINAGE AREA.—2,150 mi² (5,570 km²), approximately.

PERIOD OF RECORD.—October 1975 to current year.

GAGE.—Water-stage recorder. Datum of gage is 4,088.52 ft (1,246.181 m) National Geodetic Vertical Datum of 1929; gage readings have been reduced to elevations NGVD.

REMARKS.—Many diversions on inflow streams for irrigation of many thousands of acres above station.

EXTREMES FOR PERIOD OF RECORD.—Maximum elevation, 4,095.18 ft (1,248.211 m) June 16, 1980; minimum recorded, 4,090.60 ft (1,246.815 m) Oct. 2, 3, 16, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.—Maximum elevation observed since 1938, 4,095.39 ft (1,248.275 m), occurred in 1952, from records of Malheur National Wildlife Refuge for staff gage in channel of Donner und Blitzen River; entire bed of lake dry September 1934.

EXTREMES FOR CURRENT YEAR.—Maximum elevation, 4,095.18 ft (1,248.211 m) June 16; minimum, 4,093.24 ft (1,247.620 m) Oct. 19.

DAY	ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4093.40	4093.45	4093.68	4093.89	4094.10	---	4094.55	4094.52	4095.03	4094.99	4094.52	4093.98
2	4093.39	4093.46	4093.70	4093.90	4094.12	---	4094.55	4094.54	4095.03	4094.97	4094.49	4093.96
3	4093.39	4093.47	4093.70	4093.90	4094.15	---	4094.55	4094.54	4095.06	4094.99	4094.46	4093.96
4	4093.38	4093.45	4093.70	4093.91	4094.17	---	4094.55	4094.55	4095.09	4094.99	4094.46	4093.95
5	4093.37	4093.50	4093.72	4093.92	4094.18	4094.36	4094.49	4094.56	4095.09	4094.97	4094.43	4093.94
6	4093.36	4093.52	4093.73	4093.93	4094.19	4094.40	4094.47	4094.56	4095.10	4094.97	4094.41	4093.92
7	4093.35	4093.51	4093.73	4093.94	4094.20	4094.41	4094.53	4094.57	4095.14	4094.95	4094.40	4093.92
8	4093.35	4093.50	4093.74	4093.95	4094.20	4094.41	4094.56	4094.56	4095.12	4094.94	4094.39	4093.91
9	4093.34	4093.50	4093.74	4093.95	4094.20	4094.41	4094.51	4094.59	4095.13	4094.91	4094.37	4093.90
10	4093.33	4093.50	4093.75	4093.95	4094.21	4094.42	4094.54	4094.67	4095.12	4094.89	4094.36	4093.88
11	4093.33	4093.51	4093.75	4093.96	4094.21	4094.40	4094.57	4094.72	4095.13	4094.88	4094.34	4093.85
12	4093.32	4093.52	4093.76	4093.97	4094.22	4094.39	4094.58	4094.70	4095.11	4094.86	4094.30	4093.85
13	4093.32	4093.53	4093.76	4093.98	4094.22	4094.32	4094.58	4094.75	4095.14	4094.85	4094.30	4093.86
14	4093.31	4093.54	4093.77	4093.99	4094.22	4094.36	4094.50	4094.78	4095.13	4094.83	4094.27	4093.87
15	4093.32	4093.54	4093.77	4094.00	4094.22	4094.40	4094.50	4094.80	4095.17	4094.81	4094.24	4093.86
16	4093.33	4093.54	4093.78	4094.02	4094.23	4094.45	4094.54	4094.79	4095.17	4094.78	4094.23	4093.85
17	4093.34	4093.54	4093.79	4094.05	4094.24	4094.50	4094.49	4094.83	4095.15	4094.77	4094.21	4093.85
18	4093.35	4093.52	4093.79	4094.07	4094.21	4094.49	4094.49	4094.84	4095.14	4094.75	4094.19	4093.81
19	4093.35	4093.56	4093.79	4094.08	4094.25	4094.50	4094.49	4094.85	4095.14	4094.72	4094.17	4093.80
20	4093.33	4093.57	4093.80	4094.09	4094.29	4094.52	4094.45	4094.86	4095.12	4094.69	4094.17	4093.80
21	4093.35	4093.57	4093.80	4094.09	4094.32	4094.53	4094.46	4094.85	4095.10	4094.68	4094.15	4093.81
22	4093.39	4093.58	4093.81	4094.10	4094.31	4094.54	4094.48	4094.84	4095.08	4094.66	4094.14	4093.80
23	4093.40	4093.60	4093.82	4094.10	4094.32	4094.52	4094.49	4094.84	4095.07	4094.63	4094.12	4093.79
24	4093.38	4093.62	4093.85	4094.10	4094.33	4094.54	4094.48	4094.85	4095.08	4094.61	4094.10	4093.80
25	4093.40	4093.64	4093.85	4094.11	4094.33	4094.55	4094.51	4094.84	4095.07	4094.60	4094.08	4093.80
26	4093.41	4093.65	4093.85	4094.12	---	4094.55	4094.52	4094.89	4095.04	4094.57	4094.07	4093.77
27	4093.41	4093.66	4093.85	4094.12	---	4094.52	4094.52	4094.96	4095.07	4094.55	4094.04	4093.75
28	4093.40	4093.66	4093.85	4094.12	---	4094.54	4094.50	4094.97	4095.07	4094.54	4094.02	4093.75
29	4093.40	4093.67	4093.86	4094.12	---	4094.54	4094.49	4094.98	4095.03	4094.54	4094.01	4093.74
30	4093.42	4093.67	4093.87	4094.12	---	4094.52	4094.50	4095.02	4095.02	4094.53	4093.99	4093.74
31	4093.45	---	4093.88	4094.12	---	4094.52	---	4095.03	---	4094.54	4093.98	---
MEAN	4093.37	4093.55	4093.78	4094.02	---	---	4094.51	4094.76	4095.10	4094.77	4094.24	4093.85
MAX	4093.45	4093.67	4093.88	4094.12	---	---	4094.58	4095.03	4095.17	4094.99	4094.52	4093.98
MIN	4093.31	4093.45	4093.68	4093.89	---	---	4094.45	4094.52	4095.02	4094.53	4093.98	4093.74

MALHEUR AND HARNEY LAKES BASIN

10402000 MALHEUR LAKE OUTLET AT NARROWS, OR

LOCATION.--Lat 43°16'55", long 118°57'50", in SE¼ sec.26, T.26 S., R.30 E., Harney County, Hydrologic Unit 17120001, on highway bridge at The Narrows.

DRAINAGE AREA.--2,150 mi² (5,570 km²), approximately.

PERIOD OF RECORD.--May 1903 to July 1906, September 1909, March to September 1911, April to June 1912, April to August 1913, June 1914, gage heights only. March to July 1916, March 1972 to September 1976, October 1976 to current year (monthly estimated discharge only).

REMARKS.--Records poor. Natural storage in Malheur Lake. Diversions for irrigation of thousands of acres above station. Outflow from Malheur Lake flows into Mud Lake, and Mud Lake when full spills over a sand reef, or is drained, into Harney Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 242 ft³/s (6.85 m³/s) Apr. 23, 1972; no flow for long periods most years. A discharge of 213 ft³/s (6.03 m³/s) was measured on June 5, 1980; the maximum daily discharge shown above may have been exceeded in May or June 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage observed, 6.4 ft (1.95 m) May 12-16, 1904 (datum then in use, discharge not determined). A discharge of 841 ft³/s (23.8 m³/s) was measured May 5, 1943, gage height, 6.16 ft (1.878 m).

Runoff in acre-feet	
October 1979.....	300
November.....	500
December.....	800
CAL YR 1979.....	33,500
January 1980.....	1,500
February.....	4,000
March.....	8,000
April.....	8,500
May.....	11,000
June.....	11,000
July.....	8,500
August.....	5,000
September.....	2,500
WTR YR 1980.....	61,600

10403000 SILVER CREEK NEAR RILEY, OR

LOCATION.--Lat 43°41'30", long 119°39'30", in E½ sec.1, T.22 S., R.25 E., Harney County, Hydrologic Unit 17120004, on right bank 0.4 mi (0.6 km) downstream from Rough Creek, 1.4 mi (2.3 km) upstream from Nicoll Creek, and 14 mi (23 km) northwest of Riley.

DRAINAGE AREA.--228 mi² (591 km²).

PERIOD OF RECORD.--June 1951 to September 1980 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 4,449.70 ft (1,356.268 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--29 years, 42.8 ft³/s (1.212 m³/s), 31,010 acre-ft/yr (38.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,810 ft³/s (51.3 m³/s) Dec. 22, 1964, gage height, 7.49 ft (2.283 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 350 ft³/s (9.91 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s)	Discharge (m ³ /s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft ³ /s)	Discharge (m ³ /s)	Gage height (ft)	Gage height (m)
Jan. 12	1300	*792	22.4	5.23	1.594	Feb. 18	0100	675	19.1	4.86	1.481
Feb. 3	1400	(a)	-	*6.01	1.832	Apr. 17	0600	493	14.0	4.32	1.317

Minimum, 1.8 ft³/s (0.051 m³/s) Sept. 30.

a Result of Ice jam.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	5.4	7.0	10	20	209	66	118	27	16	5.6	2.2
2	3.1	5.4	8.0	9.4	25	195	60	105	28	16	5.0	2.6
3	3.0	6.1	11	8.5	31	193	57	94	29	21	4.6	2.6
4	3.0	6.8	8.5	7.6	28	197	60	82	29	18	4.4	2.7
5	3.0	7.1	9.4	10	24	201	76	74	30	16	4.4	2.4
6	2.8	7.1	8.2	8.0	22	181	97	72	32	15	4.2	2.4
7	3.0	6.3	7.1	6.7	26	168	90	65	30	14	4.0	2.1
8	2.8	5.6	6.6	9.1	26	148	95	58	26	13	4.2	2.1
9	2.8	5.4	6.1	7.6	23	132	117	62	23	12	3.8	2.2
10	2.8	5.2	4.8	7.3	20	129	148	62	22	12	3.0	2.3
11	3.0	5.2	4.3	7.9	23	138	146	61	22	11	3.1	2.3
12	3.0	5.9	5.0	307	19	123	183	51	30	11	3.1	2.4
13	3.1	5.6	5.2	168	19	121	260	48	42	10	3.1	3.8
14	3.3	6.6	5.9	91	18	118	369	51	37	10	2.8	4.8
15	3.8	6.8	5.4	61	21	111	394	48	36	9.4	3.0	3.5
16	4.2	6.3	6.6	49	98	91	391	43	32	9.1	3.0	3.1
17	3.8	8.8	5.6	42	362	97	437	40	28	8.5	3.0	2.6
18	4.2	8.2	5.9	36	304	88	442	35	25	8.2	2.6	2.8
19	7.6	10	5.9	32	222	79	445	33	24	8.2	3.0	3.6
20	8.2	9.7	7.3	29	195	82	426	30	23	7.9	2.8	3.5
21	6.8	7.3	6.6	31	121	75	369	28	21	7.6	3.0	3.0
22	5.9	8.2	8.2	29	99	70	316	27	21	7.1	2.7	3.0
23	5.4	8.8	8.8	28	84	78	300	27	23	6.8	2.7	2.8
24	5.2	9.4	8.5	26	99	74	285	27	22	6.3	2.6	2.8
25	5.9	8.2	7.9	30	108	72	237	30	21	6.1	2.4	2.4
26	7.1	5.6	7.1	26	214	82	209	33	22	6.1	2.4	2.4
27	6.1	5.2	6.2	16	199	78	184	41	28	5.9	2.6	2.3
28	5.4	4.8	6.4	12	220	69	167	36	22	5.6	2.4	2.4
29	5.4	5.2	7.0	14	218	74	158	30	19	5.9	2.7	2.3
30	5.2	6.2	6.6	13	---	69	134	29	17	5.6	2.6	2.3
31	5.4	---	10	16	---	66	---	29	---	5.0	2.6	---
TOTAL	137.4	202.4	217.1	1148.1	2888	3608	6718	1569	791	314.3	101.4	81.7
MEAN	4.43	6.75	7.00	37.0	99.6	116	224	50.6	26.4	10.1	3.27	2.72
MAX	8.2	10	11	307	362	209	445	118	42	21	5.6	4.8
MIN	2.8	4.8	4.3	6.7	18	66	57	27	17	5.0	2.4	2.1
AC-FT	273	401	431	2280	5730	7160	13330	3110	1570	623	201	162
CAL YR 1979	TOTAL	22178.4	MEAN	60.8	MAX	485	MIN	1.3	AC-FT	43990		
WTR YR 1980	TOTAL	17776.4	MEAN	48.6	MAX	445	MIN	2.1	AC-FT	35260		

10406500 TROUT CREEK NEAR DENIO, NV

LOCATION.--Lat 42°09'20", long 118°27'30", in SW¼ sec.26, T.39 S., R.36 E., Harney County, Hydrologic Unit 17120009, on right bank 0.4 mi (0.6 km) upstream from bridge at mouth of canyon, 5 mi (8 km) east of Trout Creek Ranch, and 14 mi (23 km) northeast of Denio.

DRAINAGE AREA.--88 mi² (228 km²), approximately.

PERIOD OF RECORD.--March 1911 to March 1912, April 1922 to November 1923, March 1925 to September 1931 (irrigation seasons only), April 1932 to current year. Prior to Oct. 1, 1961, published as "near Denio, Oreg."

REVISED RECORDS.--WSP 1564: 1932, 1933-34(M), 1938(M). WSP 1714: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,351.52 ft (1,326.343 m) National Geodetic Vertical Datum of 1929. Mar. 25, 1911, to Mar. 31, 1912, nonrecording gage at bridge 0.4 mi (0.6 km) downstream at different datum. Apr. 28, 1922, to June 14, 1932, water-stage recorder at site 10 ft (3 m) upstream at datum 0.50 ft (0.152 m) higher.

REMARKS.--Records good except those for August, which are fair. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--49 years (water years 1923, 1933-80), 15.6 ft³/s (0.442 m³/s), 11,300 acre-ft/yr (13.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 470 ft³/s (13.3 m³/s) Aug. 1, 1933, gage height, 5.26 ft (1.603 m), from rating curve extended above 230 ft³/s (6.51 m³/s); minimum observed, 0.10 ft³/s (0.030 m³/s) Aug. 4, 1930, Aug. 1, Sept. 12, 28, 1934. Probably no flow at times Sept. 1-19, 1931.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 6.0 ft (1.83 m), caused by cloudburst, probably occurred in 1924 or 1925.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)		Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)	
Jan. 19	1430	63	1.78	2.88	0.878	May 6	0430	*138	3.91	*3.50	1.067
Jan. 22	1330	55	1.56	2.81	0.856	May 22	0530	100	2.83	3.18	0.969

Minimum, 2.6 ft³/s (0.074 m³/s) Dec. 11, but may have been less during period of ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	6.0	5.2	5.8	4.0	15	20	114	58	16	9.2	5.9
2	4.3	6.0	6.5	6.5	5.0	15	19	116	60	16	8.7	5.7
3	4.3	6.2	7.5	7.3	7.0	16	18	126	59	18	8.1	5.8
4	4.4	6.4	8.1	7.8	8.0	19	17	117	56	18	7.8	5.7
5	4.3	6.6	6.1	7.8	7.5	18	20	126	52	17	7.5	5.4
6	4.4	6.1	5.9	6.5	7.0	17	21	127	46	16	7.0	5.2
7	4.1	6.1	5.9	5.0	7.0	16	20	116	42	17	6.5	5.5
8	4.1	6.0	6.1	5.5	7.0	15	20	112	41	16	6.3	5.9
9	4.0	6.1	6.1	6.0	7.3	15	21	119	41	16	6.1	7.1
10	4.3	5.6	6.1	4.0	7.5	15	21	107	41	15	5.9	7.9
11	4.2	5.7	5.2	3.3	7.8	17	20	103	40	15	5.7	8.8
12	4.2	6.2	4.6	13	7.8	15	19	91	40	14	5.7	7.7
13	4.3	6.4	4.6	19	8.1	15	23	84	42	14	5.5	12
14	4.5	6.9	5.2	21	8.1	15	31	84	40	14	5.5	7.9
15	6.2	8.1	5.6	17	8.9	16	40	87	37	14	5.3	6.7
16	5.6	6.1	6.0	16	9.1	15	42	82	35	13	5.3	6.3
17	5.3	6.3	6.4	21	11	16	48	80	33	12	5.3	6.0
18	5.5	6.8	6.5	17	21	18	58	79	31	11	5.3	5.9
19	7.7	11	6.7	30	16	18	67	76	30	9.5	5.5	6.0
20	8.6	13	6.7	35	16	20	80	80	28	9.2	5.5	6.2
21	7.2	8.7	7.0	24	15	21	93	84	26	10	5.9	6.6
22	6.6	15	7.8	25	15	21	87	93	25	14	6.5	6.5
23	6.6	15	6.7	16	14	23	88	94	26	15	6.6	6.4
24	7.3	12	5.8	12	14	23	103	83	27	14	6.2	6.3
25	6.8	8.0	5.2	10	13	22	101	73	25	13	6.0	6.3
26	7.1	6.4	5.2	7.0	13	23	97	68	23	12	5.8	6.2
27	6.0	5.4	5.2	4.5	15	22	102	61	22	11	5.7	5.8
28	6.2	5.2	5.2	3.5	16	20	114	59	21	10	5.6	5.5
29	5.8	5.0	5.2	2.8	16	21	114	52	19	9.9	5.6	5.4
30	5.9	5.0	5.2	2.8	---	21	116	56	17	9.9	5.8	5.2
31	6.2	---	5.2	3.0	---	19	---	63	---	9.5	6.0	---
TOTAL	170.4	223.3	184.7	365.1	312.1	562	1640	2812	1083	419.0	193.4	193.8
MEAN	5.50	7.44	5.96	11.8	10.8	18.1	54.7	90.7	36.1	13.5	6.24	6.46
MAX	8.6	15	8.1	35	21	23	116	127	60	18	9.2	12
MIN	4.0	5.0	4.6	2.8	4.0	15	17	52	17	9.2	5.3	5.2
AC-FT	338	443	366	724	619	1110	3250	5580	2150	831	384	384

CAL YR 1979 TOTAL 5307.8 MEAN 14.5 MAX 94 MIN 3.2 AC-FT 10530
WTR YR 1980 TOTAL 8158.8 MEAN 22.3 MAX 127 MIN 2.8 AC-FT 16180

GOOSE LAKE BASIN

11339500 DREWS CREEK NEAR LAKEVIEW, OR

LOCATION.--Lat 42°07'10", long 120°34'45", in NW¼NE¼ sec.10, T.40 S., R.18 E., Lake county, Hydrologic Unit 18020001, on left bank. 10 ft (3 m) upstream from bridge, 2.0 mi (3.2 km) downstream from Willow Creek, 2.7 mi (4.3 km) downstream from Drews Dam, and 13 mi (21 km) southwest of Lakeview.

DRAINAGE AREA.--212 mi² (549 km²).

PERIOD OF RECORD.--January 1909 to September 1930 (yearly estimate only for water year 1920), March 1931 to September 1936 (irrigation seasons only), April 1937 to September 1938, March 1939 to October 1941, February 1942, April 1942 to September 1952, February 1953 to current year. Monthly discharge only October 1921 to September 1925, published in WSP 1315-A. Published as Drew Creek near Lakeview October 1918 to September 1959.

REVISED RECORDS.--WSP 1565: 1909-10, 1913, 1918(M). WRD Oreg. 1974: 1972(M). WSP 1735: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,827.0 ft (1,471.27 m) National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service). See WSP 1931 for history of changes prior to July 4, 1953.

REMARKS.--Records good. Record herein, except average discharge, not adjusted for diversion by North Drews Canal. Since 1912, flow regulated by Drews Reservoir, capacity, 62,550 acre-ft (77.1 hm³). Diversion for irrigation above station, and since March 1914, North Drews Canal has diverted above station for irrigation of lands west of Lakeview.

AVERAGE DISCHARGE.--49 years (water years 1913-30, 1938, 1940-41, 1947, 1954-80), 70.9 ft³/s (2.008 m³/s), 51,370 acre-ft/yr (63.3 hm³/yr), including diversion by North Drews Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 3,000 ft³/s (85.0 m³/s) Mar. 1, 2, 1910, from rating curve extended above 1,200 ft³/s (34.0 m³/s); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 292 ft³/s (8.27 m³/s) Apr. 23, 24, gage height, 3.02 ft (0.920 m); minimum, 0.16 ft³/s (0.005 m³/s) Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.52	.70	3.8	2.5	13	9.3	187	53	42	60	45
2	.64	.58	12	3.8	2.5	14	9.3	163	53	42	61	43
3	.46	.70	7.4	2.5	9.8	14	9.8	147	50	42	63	42
4	.46	.83	3.3	2.0	4.1	13	9.8	131	47	42	63	42
5	.46	1.1	3.3	9.0	3.6	13	12	123	42	43	69	47
6	.40	.70	2.8	7.2	4.6	12	11	117	40	45	73	47
7	.34	.70	2.0	3.8	3.0	11	11	105	40	45	62	47
8	.34	.64	1.9	1.9	3.3	10	11	108	41	45	70	47
9	.34	.64	1.7	4.7	3.3	9.8	12	114	44	46	70	48
10	.34	.58	1.7	5.3	3.6	9.8	12	117	44	50	70	50
11	.40	.58	1.5	9.8	3.3	10	11	109	43	52	70	48
12	.34	.58	1.1	173	3.3	9.3	11	127	44	52	72	42
13	.34	.58	.83	74	3.0	8.8	13	123	43	54	72	41
14	.34	.46	.83	48	3.3	11	13	121	47	58	72	41
15	.70	.46	.83	22	4.6	10	12	121	47	59	68	41
16	.46	.58	.83	27	8.2	9.3	12	115	49	61	63	38
17	.40	1.1	.64	31	17	9.8	13	111	49	61	62	37
18	.46	.70	.64	11	74	9.8	41	111	52	60	57	38
19	.96	.58	.64	8.3	50	9.8	88	115	50	62	54	34
20	.58	.58	.64	6.5	25	9.8	143	115	49	62	52	29
21	.58	.52	.70	5.3	19	10	203	115	48	66	53	29
22	.46	.52	.70	4.6	16	10	255	115	48	56	53	29
23	.52	.58	.70	4.1	13	9.8	283	109	49	44	52	28
24	.46	1.1	.83	3.8	14	10	285	108	48	69	53	24
25	1.4	.80	.83	3.8	16	9.8	278	106	48	68	49	26
26	.70	.70	.83	3.6	19	9.8	275	106	47	69	44	28
27	.52	.70	.70	3.0	20	9.3	248	59	45	69	43	29
28	.58	.70	.70	2.0	19	9.3	228	70	44	69	43	28
29	.52	.70	.70	2.0	14	9.8	230	57	43	67	44	2.0
30	.46	.83	.70	2.0	---	9.3	218	55	43	62	46	1.5
31	.52	---	1.0	2.2	---	9.8	---	54	---	60	46	---
TOTAL	16.58	20.34	53.67	491.0	382.0	324.1	2967.2	3434	1390	1722	1829	1071.5
MEAN	.53	.68	1.73	15.8	13.2	10.5	98.9	111	46.3	55.5	59.0	35.7
MAX	1.4	1.1	12	173	74	14	285	187	53	69	73	50
MIN	.34	.46	.64	1.9	2.5	8.8	9.3	54	40	42	43	1.5
AC-FT	33	40	106	974	758	643	5890	6810	2760	3420	3630	2130
(†)	0	0	0	0	.6	6.1	181	3200	4350	4550	4210	1090
(‡)	a12200	a13480	a15100	a33050	a48590	57860	a64570	a59880	a52500	a42350	a32840	a28650

CAL YR 1979 TOTAL 8378.20 MEAN 23.0 MAX 84 MIN .34 AC-FT 16620
WTR YR 1980 TOTAL 13701.39 MEAN 37.4 MAX 285 MIN .34 AC-FT 27180

† Diversion, in acre-ft, North Drews Canal.

‡ Month-end contents, in acre-feet, of Drews Reservoir.

a Contents interpolated.

11340500 COTTONWOOD CREEK NEAR LAKEVIEW, OR

LOCATION (REVISED).—Lat 42°14'14"N, long 120°30'16"W, in SE¼SW¼ sec.29, T.38 S., R.19 E., Lake County, Hydrologic Unit 18020001, on right bank 0.5 mi (0.8 km) downstream from Cottonwood Dam and 9 mi (14 km) northwest of Lakeview.

DRAINAGE AREA.—32.9 mi² (85.2 km²).

PERIOD OF RECORD.—November 1908 to September 1919, May 1924 to November 1935, March to December 1936, April to December 1937, April 1938 to November 1942, March to November 1943, March to October 1944, February to November 1945, March 1946 to current year. Monthly discharge only May 1924 to September 1925, published in WSP 1315-A.

REVISED RECORDS.—WSP 1565: 1910-11, 1919, 1929, 1937(M). WSP 1931: Drainage area (former site).

GAGE.—Water-stage recorder. Datum of gage is 4,949.37 ft (1,508.568 m) National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service). Prior to June 1, 1919, and May 1, 1924, to June 3, 1932, nonrecording gage at several sites within 0.6 mi (1.0 km) upstream at different datums. June 1 to Sept. 30, 1919, and June 4, 1932, to Sept. 14, 1961, water-stage recorder at site 0.6 mi (1.0 km) upstream at different datums.

REMARKS.—Records good. Flow regulated since 1923 by Cottonwood Reservoir, capacity, 7,540 acre-ft (9.30 hm³). Since October 1961, 240 acre-ft (295,900 m³) unregulated storage in Cottonwood Meadows, 9 mi (14 km) upstream. Diversions for irrigation above station.

AVERAGE DISCHARGE.—59 years (water years 1910-19, 1925-35, 1939-42, 1947-80), 21.2 ft³/s (0.600 m³/s), 15,360 acre-ft/yr (18.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, between 500 and 1,000 ft³/s (14.2 and 28.3 m³/s) during period Apr. 26 to May 1, 1927, when natural flow, estimated as 170 ft³/s (4.81 m³/s), was augmented by water escaping from reservoir through break in outlet conduit near control gates; no flow at times.

EXTREMES FOR CURRENT YEAR.—Maximum discharge, 122 ft³/s (3.46 m³/s) Apr. 29; maximum gage height, 2.02 ft (0.616 m) Apr. 29, May 3; minimum discharge, 0.04 ft³/s (0.001 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.61	.66	.72	1.8	8.4	2.2	86	37	29	54	37
2	.33	.51	1.0	.72	2.0	9.4	2.2	80	37	30	54	43
3	1.7	.56	1.1	.78	3.3	8.9	2.2	98	37	28	54	48
4	1.7	.66	.85	.78	3.1	7.9	2.2	98	37	19	51	48
5	1.7	.51	.78	.85	3.3	7.5	2.4	86	27	11	51	44
6	1.7	.61	.78	.85	4.1	7.5	2.9	80	21	6.4	48	41
7	1.7	.61	.78	.85	3.6	6.7	3.3	77	20	10	48	39
8	1.7	.61	.85	.85	3.6	5.4	3.4	74	18	16	46	41
9	1.7	.61	.85	.93	3.8	4.4	3.4	70	16	16	44	44
10	1.7	.61	.85	.93	3.8	4.1	3.1	77	16	17	43	46
11	1.8	.61	.72	.95	4.4	3.8	2.9	77	18	17	41	43
12	1.8	.61	.72	5.1	4.4	3.6	2.7	74	19	17	39	43
13	2.0	.61	.72	6.4	4.1	3.4	2.5	74	22	17	39	43
14	2.0	.61	.72	6.7	4.8	3.3	2.4	74	22	32	41	41
15	2.2	.61	.72	5.4	6.0	3.3	2.2	70	22	41	43	39
16	2.2	.61	.72	4.1	9.8	3.3	2.2	67	22	41	43	34
17	2.2	.61	.72	5.7	11	2.9	2.0	67	25	41	41	35
18	2.4	.61	.72	3.6	11	2.7	1.8	61	30	41	41	34
19	2.4	.61	.72	3.3	11	2.7	1.5	58	29	41	41	30
20	2.4	.61	.72	3.1	9.8	2.7	1.5	54	29	41	43	29
21	2.4	.61	.72	2.7	8.4	2.5	11	48	29	44	43	29
22	2.4	.61	.72	2.7	7.0	2.5	67	46	34	44	43	28
23	2.4	.61	.72	2.7	6.0	2.5	80	46	39	44	43	27
24	2.4	.61	.72	2.7	6.0	2.5	92	46	37	44	43	25
25	2.5	.61	.72	2.4	8.9	2.4	98	46	37	44	43	22
26	2.4	.61	.72	2.0	10	2.4	98	46	37	44	43	22
27	2.2	.61	.72	1.7	10	2.4	98	44	34	44	43	21
28	2.2	.61	.72	1.7	10	2.4	104	44	28	44	41	21
29	1.3	.61	.72	1.7	10	2.2	116	44	28	44	34	6.7
30	.72	.61	.72	1.7	---	2.2	110	35	28	44	35	.10
31	.66	---	.72	1.7	---	2.2	---	28	---	51	35	---
TOTAL	56.97	18.10	23.62	76.31	185.0	128.1	923.0	1975	835	1002.4	1351	1003.80
MEAN	1.84	.60	.76	2.46	6.38	4.13	30.8	63.7	27.8	32.3	43.6	33.5
MAX	2.5	.66	1.1	6.7	11	9.4	116	98	39	51	54	48
MIN	.06	.51	.66	.72	1.8	2.2	1.5	28	16	6.4	34	.10
AC-FT	113	36	47	151	367	254	1830	3920	1660	1990	2680	1990
(†)	a454	a606	a1060	a3180	a5440	6950	a9210	8740	a8050	a6250	a3520	a1680

CAL YR 1979 TOTAL 5328.50 MEAN 14.6 MAX 86 MIN .05 AC-FT 10570
WTR YR 1980 TOTAL 7578.30 MEAN 20.7 MAX 116 MIN .06 AC-FT 15030

† Month-end contents, in acre-feet, of Cottonwood Reservoir.
a Contents interpolated.

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LOCATION.--Lat 42°54'42", long 121°28'32", in NE¼SW¼ sec.1, T.31 S., R.10 E., Klamath County, Hydrologic Unit 18010201, on left bank at Forest Service bridge, 0.1 mi (0.2 km) downstream from Sheep Creek and 17 mi (27 km) east of Lenz.

PERIOD OF RECORD.--October 1973 to current year. Prior to October 1979, in reports of Oregon Water Resources Department.

REMARKS.--Records good. Diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246 ft³/s (6.97 m³/s) May 9, 10, 1974, gage height, 3.51 ft (1.070 m); minimum, 19 ft³/s (0.54 m³/s) Nov. 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 98 ft³/s (2.78 m³/s) Jan. 12; maximum gage height, 2.21 ft (0.674 m) Jan. 29, backwater from ice; minimum discharge, 39 ft³/s (1.10 m³/s) Nov. 28, result of freezeup.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	62	58	61	56	63	61	73	58	52	42	42
2	48	59	61	62	60	65	61	72	58	52	44	42
3	47	60	69	61	64	66	63	69	60	53	42	42
4	47	62	69	61	64	67	63	68	59	54	42	42
5	47	62	68	62	63	67	64	68	59	53	42	42
6	47	61	67	61	63	67	65	69	60	51	42	42
7	45	59	66	60	62	66	64	69	66	52	44	43
8	43	59	64	60	62	65	65	68	78	51	45	42
9	43	59	63	60	61	64	65	69	72	50	45	42
10	44	59	62	59	61	64	66	72	68	51	45	43
11	46	59	59	58	61	64	66	71	66	51	45	45
12	46	59	58	82	61	63	66	68	67	50	45	44
13	46	58	59	92	60	65	65	71	66	50	45	46
14	47	58	59	84	60	66	65	70	66	51	45	46
15	56	58	59	79	61	67	65	68	65	50	44	44
16	61	61	58	79	61	66	65	65	64	49	44	44
17	57	68	58	79	62	67	66	63	62	50	42	44
18	60	68	59	76	65	67	68	65	61	49	42	46
19	63	66	59	74	65	66	70	66	60	49	45	45
20	62	63	59	68	66	66	74	66	57	49	45	45
21	60	60	59	67	66	65	76	66	53	49	44	44
22	59	60	58	66	65	65	73	67	52	48	45	45
23	59	60	57	65	65	64	74	67	55	48	42	45
24	59	62	57	64	64	64	74	66	54	48	42	45
25	60	63	58	63	64	64	74	65	54	47	42	45
26	60	63	58	61	64	64	74	64	54	47	42	46
27	59	60	57	60	64	63	72	63	54	46	42	49
28	60	58	57	56	64	62	74	62	54	45	42	51
29	59	58	57	54	64	62	74	60	52	44	42	51
30	67	58	58	54	---	62	73	58	52	43	42	51
31	69	---	60	54	---	60	---	58	---	41	42	---
TOTAL	1677	1822	1870	2042	1818	2006	2045	2066	1806	1523	1342	1343
MEAN	54.1	60.7	60.3	65.9	62.7	64.7	68.2	66.6	60.2	49.1	43.3	44.8
MAX	69	68	69	92	66	67	76	73	78	54	45	51
MIN	43	58	57	54	56	60	61	58	52	41	42	42
AC-FT	3330	3610	3710	4050	3610	3980	4060	4100	3580	3020	2660	2660
CAL YR 1979	TOTAL	20498	MEAN	56.2	MAX	93	MIN	38	AC-FT	40660		
WTR YR 1980	TOTAL	21360	MEAN	58.4	MAX	92	MIN	41	AC-FT	42370		

KLAMATH RIVER BASIN

11492200 CRATER LAKE NEAR CRATER LAKE, OR
(Hydrologic bench-mark station)

LOCATION.--Lat 42°58'45", long 122°04'45", (unsurveyed) Crater Lake National Park and Vicinity Quadrangle, Klamath County, Hydrologic Unit 18010201, at boat harbor at end of trail in Cleetwood Cove and 6 mi (10 km) northeast of Crater Lake post office.

DRAINAGE AREA.--26.2 mi² (67.9 km²), of which 20.5 mi² (53.1 km²) is lake area at elevation 6,176 ft (1,882.4 m).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1961 to current year. 1878 to September 1961 (fragmentary records) available in files of Portland district office.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to September 1961, nonrecording gage and various reference points used near old boat landing at abandoned trail (Eagle Cove) directly across Lake.

REMARKS.--Crater Lake occupies the caldera of prehistoric Mount Mazama. It has no visible inlet or outlet. Over a period of years precipitation and runoff from snow melt on the walls of the crater are offset by seepage and evaporation. Records of accumulated annual precipitation, collected at the north rim of Crater Lake as part of the operation of this station, are published annually in reports of the National Weather Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 6,179.34 ft (1,883.463 m) Mar. 25, 1975; minimum observed, 6,163.2 ft (1,878.54 m) Sept. 10, 1942.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 6,180.5 ft (1,883.82 m), average of several observations of line of crustose lichens made between 1916 and 1960; that stage may have occurred near the close of the 19th century. The occurrence of living pine trees slightly higher suggests that the lake has not been materially higher for several centuries.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 6,174.15 ft (1,881.881 m) Apr. 9; minimum, 6,172.20 ft (1,881.286 m) Sept. 30.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6172.82	6173.08	6173.18	6173.18	6173.71	6173.91	6173.95	6173.99	6173.86	6173.73	6173.31	6172.63
2	6172.79	6173.07	6173.32	6173.17	6173.72	6173.91	6173.95	6173.98	6173.86	6173.73	6173.29	6172.61
3	6172.79	6173.07	6173.30	6173.16	6173.77	6173.93	6173.93	6173.97	6173.86	6173.71	6173.27	6172.61
4	6172.77	6173.13	6173.31	6173.18	6173.77	6173.90	6173.96	6173.97	6173.86	6173.70	6173.24	6172.58
5	6172.77	6173.11	6173.30	6173.20	6173.79	6173.95	6174.02	6173.97	6173.88	6173.68	6173.23	6172.57
6	6172.75	6173.09	6173.29	6173.17	6173.77	6173.93	6174.11	6173.95	6173.86	6173.67	6173.20	6172.55
7	6172.73	6173.07	6173.29	6173.15	6173.77	6173.91	6174.09	6173.95	6173.88	6173.66	6173.18	6172.54
8	6172.70	6173.05	6173.27	6173.15	6173.74	6173.89	6174.09	6173.96	6173.86	6173.65	6173.16	6172.49
9	6172.67	6173.04	6173.29	6173.17	6173.73	6173.88	6174.14	6173.99	6173.86	6173.63	6173.14	6172.48
10	6172.74	6173.02	6173.27	6173.16	6173.70	6173.88	6174.13	6174.02	6173.84	6173.63	6173.13	6172.48
11	6172.72	6173.00	6173.24	6173.27	6173.70	6173.90	6174.11	6174.00	6173.86	6173.61	6173.11	6172.46
12	6172.71	6172.99	6173.22	6173.66	6173.68	6173.92	6174.11	6173.99	6173.86	6173.59	6173.08	6172.45
13	6172.70	6172.98	6173.20	6173.88	6173.66	6173.96	6174.08	6173.98	6173.86	6173.58	6173.06	6172.42
14	6172.72	6172.95	6173.18	6173.91	6173.65	6174.07	6174.08	6173.98	6173.86	6173.57	6173.04	6172.40
15	6172.71	6172.95	6173.15	6173.89	6173.64	6174.09	6174.06	6173.96	6173.84	6173.56	6173.02	6172.38
16	6172.68	6173.04	6173.13	6173.97	6173.65	6174.08	6174.05	6173.95	6173.83	6173.54	6172.99	6172.36
17	6172.67	6173.07	6173.11	6173.96	6173.75	6174.11	6174.04	6173.95	6173.83	6173.54	6172.98	6172.36
18	6172.79	6173.11	6173.08	6173.92	6173.81	6174.11	6174.04	6173.95	6173.82	6173.52	6172.95	6172.40
19	6172.90	6173.07	6173.07	6173.90	6173.84	6174.08	6174.04	6173.93	6173.82	6173.50	6172.92	6172.38
20	6172.93	6173.05	6173.09	6173.89	6173.83	6174.11	6174.08	6173.93	6173.80	6173.49	6172.91	6172.36
21	6172.86	6173.04	6173.13	6173.88	6173.82	6174.09	6174.08	6173.93	6173.80	6173.48	6172.88	6172.34
22	6172.91	6173.11	6173.07	6173.88	6173.88	6174.08	6174.06	6173.93	6173.80	6173.47	6172.86	6172.33
23	6172.92	6173.13	6173.20	6173.86	6173.86	6174.06	6174.05	6173.92	6173.80	6173.46	6172.84	6172.32
24	6173.04	6173.24	6173.23	6173.86	6173.86	6174.04	6174.05	6173.92	6173.80	6173.45	6172.83	6172.30
25	6173.15	6173.25	6173.21	6173.83	6173.88	6174.02	6174.04	6173.91	6173.79	6173.43	6172.81	6172.29
26	6173.11	6173.23	6173.20	6173.80	6173.88	6174.05	6174.04	6173.90	6173.77	6173.42	6172.79	6172.29
27	6173.11	6173.21	6173.17	6173.79	6173.91	6174.02	6174.04	6173.89	6173.77	6173.41	6172.77	6172.27
28	6173.09	6173.20	6173.16	6173.77	6173.95	6174.02	6174.02	6173.88	6173.75	6173.40	6172.73	6172.24
29	6173.07	6173.18	6173.13	6173.74	6173.93	6174.00	6174.02	6173.88	6173.75	6173.38	6172.70	6172.22
30	6173.11	6173.17	6173.14	6173.72	---	6173.97	6174.00	6173.88	6173.74	6173.36	6172.67	6172.20
31	6173.11	---	6173.20	6173.71	---	6173.97	---	6173.86	---	6173.34	6172.65	---
MEAN	6172.86	6173.09	6173.20	6173.61	6173.78	6173.99	6174.05	6173.94	6173.83	6173.54	6172.99	6172.41
MAX	6173.15	6173.25	6173.32	6173.97	6173.95	6174.11	6174.14	6174.02	6173.88	6173.73	6173.31	6172.63
MIN	6172.67	6172.95	6173.07	6173.15	6173.64	6173.88	6173.93	6173.86	6173.74	6173.34	6172.65	6172.20
CAL YR 1979	MEAN	6173.76	MAX	6174.63	MIN	6172.67						
WTR YR 1980	MEAN	6173.44	MAX	6174.14	MIN	6172.20						

KLAMATH RIVER BASIN

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11492200 CRATER LAKE NEAR CRATER LAKE, OR--Continued
(Hydrologic bench-mark station)

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1963 to current year.

GAGE.--Stevens thermograph. Elevation of probe is 6,157 ft (1,876.7 m) National Geodetic Vertical Datum of 1929.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 18.5°C Aug. 9, 10, 1978; minimum, 0.5°C on several days in 1969.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 16.5°C July 29-31, Aug. 2, 3; minimum, 2.5°C Jan. 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	SILICA, DIS- SOLVED (MG/L AS SI02)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CAC03)
OCT										
10...	1530	13.2	7.5	120	18	6.8	2.2	10	2.0	23
JUL										
01...	1300	8.6	7.3	108	17	6.7	2.7	10	1.6	28
SEP										
03...	0930	13.8	7.4	109	--	--	--	--	--	35

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	HARD- NESS, (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L CAC03)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT										
10...	8.8	11	.1	.01	.01	.320	26	3	88	73
JUL										
01...	11	9.4	.2	.00	--	.040	28	0	73	75
SEP										
03...	14	3.9	.5	.56	--	.320	--	--	90	--

11492200 CRATER LAKE NEAR CRATER LAKE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	13.5	13.5	8.5	8.5	6.0	6.0	4.5	4.5	3.5	3.0	3.5	3.5
2	13.5	13.5	8.5	8.5	6.0	5.5	4.5	4.5	3.5	3.0	4.0	3.5
3	13.5	13.0	8.5	8.0	5.5	5.5	4.5	4.5	3.5	3.5	3.5	3.5
4	13.5	13.5	8.0	8.0	5.5	5.5	4.5	4.5	3.5	3.0	4.0	3.5
5	13.5	13.0	8.0	8.0	5.5	5.5	4.5	4.5	3.5	3.5	3.5	3.5
6	13.5	13.5	8.0	7.5	6.0	5.5	4.5	4.0	3.5	3.5	4.0	3.5
7	13.5	13.5	8.0	7.5	5.5	5.5	4.5	4.5	3.5	3.0	4.0	3.5
8	13.5	13.5	8.0	7.5	5.5	5.5	4.5	4.0	3.5	3.5	4.0	3.5
9	13.5	13.0	8.0	7.5	5.5	5.5	4.0	4.0	4.0	3.5	4.0	3.5
10	13.0	13.0	7.5	7.5	5.5	5.5	4.0	4.0	4.0	3.5	4.0	3.5
11	13.5	13.0	7.5	7.5	5.5	5.5	4.0	4.0	3.5	3.5	3.5	3.5
12	13.5	13.0	7.5	7.5	5.5	5.5	4.0	4.0	3.5	3.5	3.5	3.5
13	13.5	13.0	7.5	7.5	5.5	5.5	4.0	4.0	3.5	3.5	3.5	3.5
14	13.0	13.0	7.5	7.5	5.5	5.0	4.0	4.0	3.5	3.5	3.5	3.5
15	13.0	13.0	7.5	7.5	5.5	5.0	4.0	4.0	3.5	3.5	3.5	3.5
16	13.0	12.5	7.5	7.5	5.5	5.0	4.0	4.0	3.5	3.5	3.5	3.5
17	13.0	12.5	7.5	7.0	5.0	5.0	4.0	4.0	3.5	3.5	3.5	3.5
18	12.5	12.0	7.0	7.0	5.0	5.0	4.0	3.5	3.5	3.5	4.0	3.5
19	12.0	11.5	7.0	7.0	5.0	5.0	4.0	3.5	3.5	3.5	4.0	3.0
20	11.5	10.5	7.0	7.0	5.0	5.0	4.0	4.0	3.5	3.5	3.5	3.5
21	10.5	10.0	7.0	6.5	5.0	5.0	4.0	3.5	3.5	3.5	3.5	3.0
22	10.0	9.5	6.5	6.5	5.0	4.5	4.0	3.5	3.5	3.5	3.5	3.0
23	9.5	9.5	6.5	6.5	5.0	4.5	4.0	4.0	3.5	3.5	3.5	3.0
24	9.5	9.5	6.5	6.0	4.5	4.5	4.0	4.0	3.5	3.5	4.0	3.0
25	9.5	9.0	6.0	6.0	4.5	4.5	4.0	3.5	3.5	3.5	4.0	3.5
26	9.0	9.0	6.0	6.0	5.0	4.5	4.0	3.5	3.5	3.5	3.5	3.5
27	9.0	9.0	6.0	6.0	4.5	4.5	4.0	3.5	3.5	3.5	3.5	3.0
28	9.0	8.5	6.0	5.5	4.5	4.5	3.5	3.5	3.5	3.5	3.5	3.5
29	9.0	8.5	6.0	6.0	4.5	4.5	3.5	3.0	3.5	3.5	4.0	3.5
30	8.5	8.5	6.0	6.0	4.5	4.5	3.5	2.5	---	---	3.5	3.5
31	8.5	8.5	---	---	4.5	4.5	3.5	3.0	---	---	3.5	3.5
MONTH	13.5	8.5	8.5	5.5	6.0	4.5	4.5	2.5	4.0	3.0	4.0	3.0
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	3.5	3.0	4.5	3.5	5.5	4.5	10.0	8.0	16.0	16.0	14.0	13.5
2	3.5	3.0	4.5	4.0	4.5	4.5	10.5	9.0	16.5	15.5	14.0	13.5
3	3.5	3.0	4.5	4.0	5.5	4.5	11.5	9.0	16.5	15.5	14.0	13.5
4	3.5	3.0	4.5	4.0	5.5	5.0	10.5	10.0	16.0	15.0	14.0	13.5
5	3.5	3.0	4.0	4.0	5.5	5.0	10.5	10.0	16.0	14.5	14.0	14.0
6	3.5	3.0	4.5	4.0	5.5	5.0	10.5	10.0	16.0	15.5	14.0	14.0
7	3.5	3.0	4.5	4.0	5.5	5.5	10.5	10.0	15.5	15.0	14.0	14.0
8	3.5	3.0	4.0	4.0	6.0	5.5	12.0	10.5	15.5	15.0	14.0	13.5
9	3.5	3.0	4.0	4.0	6.0	5.5	12.0	10.5	15.5	15.0	14.0	13.5
10	3.5	3.0	4.0	3.5	6.0	5.5	10.5	9.5	15.5	15.5	14.0	13.5
11	3.5	3.0	4.5	3.5	6.0	5.5	10.5	9.5	16.0	15.0	14.0	13.5
12	3.5	3.0	4.5	4.0	6.5	6.0	11.0	10.0	16.0	14.5	14.0	13.5
13	3.5	3.5	4.5	4.0	6.5	6.0	11.0	10.5	16.0	15.0	13.5	13.5
14	3.5	3.5	4.5	4.0	6.0	6.0	11.5	10.5	15.5	15.0	13.5	13.0
15	4.0	3.5	4.5	4.0	6.5	6.0	12.0	11.5	15.5	14.5	13.0	12.5
16	4.0	3.5	4.5	4.0	7.0	6.5	12.0	11.0	15.5	14.5	13.0	13.0
17	3.5	3.5	5.0	4.0	7.5	6.5	12.0	10.5	15.5	15.0	13.5	13.0
18	4.0	3.5	5.0	4.0	8.0	7.0	12.5	11.5	15.5	15.0	13.5	13.0
19	4.0	3.5	5.0	4.5	7.5	7.0	11.5	11.0	15.0	15.0	13.0	12.5
20	3.5	3.5	5.0	4.5	8.0	7.0	12.5	11.5	15.0	14.5	12.5	12.5
21	3.5	3.5	5.0	4.5	10.0	7.0	13.0	12.5	15.5	15.0	12.5	12.0
22	4.0	3.5	4.5	4.0	10.5	9.0	13.5	12.5	15.0	14.5	12.5	12.0
23	4.0	3.5	4.5	4.0	10.0	9.5	14.5	12.5	15.0	14.5	12.5	12.0
24	4.0	3.5	4.5	4.0	9.5	9.0	15.0	12.0	15.5	14.5	12.5	12.5
25	4.5	3.5	4.5	4.0	9.0	8.0	14.0	12.0	15.0	15.0	12.5	12.5
26	4.5	3.5	4.5	4.0	8.0	7.5	14.5	13.0	15.5	15.0	13.0	12.5
27	4.5	4.0	5.0	4.5	8.0	7.5	14.5	12.5	15.5	15.0	13.0	12.5
28	4.5	4.0	5.0	4.5	8.5	8.0	16.0	14.0	15.0	15.0	13.0	12.5
29	4.5	4.0	5.5	4.5	8.5	8.0	16.5	14.0	15.0	14.5	13.0	12.5
30	4.0	3.5	5.5	5.0	9.0	8.0	16.5	15.0	14.5	14.0	13.0	12.5
31	---	---	5.5	5.0	---	---	16.5	14.5	14.0	13.5	---	---
MONTH	4.5	3.0	5.5	3.5	10.5	4.5	16.5	8.0	16.5	13.5	14.0	12.0

11493500 WILLIAMSON RIVER NEAR KLAMATH AGENCY, OR

LOCATION.--Lat 42°44'25", long 121°50'00", in NW¼SW¼ sec.1, T.33 S., R.7 E., Klamath County, Hydrologic Unit 18010201, on right bank 250 ft (76 m) downstream from highway bridge, 0.6 mi (1.0 km) southwest of railroad station at Kirk, 10 mi (16 km) upstream from Spring Creek, and 10 mi (16 km) northeast of Klamath Agency.

DRAINAGE AREA.--1,290 mi² (3,340 km²), approximately.

PERIOD OF RECORD.--March 1908 to January 1909, April 1909 to June 1910, October 1954 to current year. Monthly discharge only June 1910, published in WSP 1315-B.

REVISED RECORDS.--WSP 1565: 1908-9.

GAGE.--Water-stage recorder. Datum of gage is 4,483.16 ft (1,366.467 m) National Geodetic Vertical Datum of 1929. Mar. 25, 1908, to June 30, 1910, nonrecording gage or water-stage recorder at two sites about 0.5 mi (0.8 km) upstream at different datums. Oct. 1, 1954, to Sept. 30, 1955, water-stage recorder at present site at datum 2.05 ft (0.625 m) higher.

REMARKS.--Records good. Flow affected by natural storage in Klamath Marsh. Small diversions above station for irrigation in vicinity of marsh.

AVERAGE DISCHARGE.--26 years (water years 1955-80), 204 ft³/s (5.777 m³/s), 147,800 acre-ft/yr (182 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 1,590 ft³/s (45.0 m³/s) Mar. 13, 1910, gage height, 3.7 ft (1.13 m), site and datum then in use, from rating curve extended above 800 ft³/s (22.7 m³/s); maximum gage height, 5.57 ft (1.753 m) Mar. 3, 1958; no flow at times during 1960-74, 1977-80.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 358 ft³/s (10.1 m³/s) Jan. 17, gage height, 4.45 ft (1.356 m); no flow Oct. 1 to Nov. 27, July 14 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	3.8	152	252	272	239	103	78	6.2	.00	.00
2	.00	.00	17	152	252	276	233	89	77	5.7	.00	.00
3	.00	.00	38	155	262	272	223	80	75	4.8	.00	.00
4	.00	.00	57	155	269	269	223	69	73	2.3	.00	.00
5	.00	.00	101	155	272	272	217	63	75	1.7	.00	.00
6	.00	.00	116	160	269	280	206	57	73	1.5	.00	.00
7	.00	.00	128	155	272	280	220	51	69	.91	.00	.00
8	.00	.00	136	155	272	280	226	41	64	.37	.00	.00
9	.00	.00	143	152	269	280	214	40	59	.32	.00	.00
10	.00	.00	150	141	269	272	223	47	52	.57	.00	.00
11	.00	.00	148	143	269	262	226	51	46	.17	.00	.00
12	.00	.00	160	211	262	249	223	45	47	.09	.00	.00
13	.00	.00	160	290	259	242	217	41	46	.03	.00	.00
14	.00	.00	160	329	259	262	200	40	45	.00	.00	.00
15	.00	.00	165	337	259	276	209	32	44	.00	.00	.00
16	.00	.00	165	345	259	283	206	32	37	.00	.00	.00
17	.00	.00	167	354	259	283	200	29	34	.00	.00	.00
18	.00	.00	167	325	262	294	197	26	30	.00	.00	.00
19	.00	.00	165	280	269	283	191	51	28	.00	.00	.00
20	.00	.00	165	290	272	276	189	80	25	.00	.00	.00
21	.00	.00	165	305	272	283	197	92	23	.00	.00	.00
22	.00	.00	165	317	269	280	197	101	20	.00	.00	.00
23	.00	.00	162	325	272	280	189	110	18	.00	.00	.00
24	.00	.00	145	325	276	272	180	108	17	.00	.00	.00
25	.00	.00	145	321	276	269	178	106	16	.00	.00	.00
26	.00	.00	148	321	276	255	175	104	13	.00	.00	.00
27	.00	.00	148	294	269	255	178	103	14	.00	.00	.00
28	.00	.01	148	276	269	252	160	99	12	.00	.00	.00
29	.00	.05	145	269	272	245	148	96	9.6	.00	.00	.00
30	.00	.57	145	259	---	239	130	96	8.2	.00	.00	.00
31	.00	---	150	255	---	230	---	89	---	.00	.00	---
TOTAL	.00	.63	4177.8	7703	7738	8323	6014	2171	1227.8	24.66	.00	.00
MEAN	.000	.021	135	248	267	268	200	70.0	40.9	.80	.000	.000
MAX	.00	.57	167	354	276	294	239	110	78	6.2	.00	.00
MIN	.00	.00	3.8	141	252	230	130	26	8.2	.00	.00	.00
AC-FT	.00	1.2	8290	15280	15350	16510	11930	4310	2440	49	.00	.00
CAU YR 1979	TOTAL	38356.95	MEAN 105	MAX 459	MIN .00	AC-FT 76080						
WTR YR 1980	TOTAL	37379.89	MEAN 102	MAX 354	MIN .00	AC-FT 74140						

11497500 SPRAGUE RIVER NEAR BEATTY, OR

LOCATION.--Lat 42°26'50", long 121°14'15", in NW¼SE¼ sec.13, T.36 S., R.12 E., Klamath County, Hydrologic Unit 18010202, on right bank 1.6 mi (2.6 km) east of Beatty, and 4.6 mi (7.4 km) upstream from Sycaan River.

DRAINAGE AREA.--513 mi² (1,329 km²).

PERIOD OF RECORD.--April to September 1912 and November 1912 to September 1913 (fragmentary), October 1913 to September 1915, February to November 1916, March 1917 to June 1918, May 1919 to October 1920, February 1921 to September 1926 (irrigation seasons only), October 1953 to current year. Monthly discharge only October 1913, published in WSP 1315-B. Prior to October 1917, published as "near Yainax."

REVISED RECORDS.--WSP 1315-B: 1917(M).

GAGE.--Water-stage recorder. Datum of gage is 4,305.35 ft (1,312.271 m) National Geodetic Vertical Datum of 1929. Apr. 19, 1912, to Feb. 19, 1914, nonrecording gage, Feb. 20, 1914, to Sept. 11, 1917, water-stage recorder, and Sept. 12, 1917, to Sept. 30, 1926, nonrecording gage, at site 2 mi (3 km) upstream at different datum.

REMARKS.--Records good except those for July to September, which are fair. No regulation. Diversions for irrigation above station in the vicinity of Bly.

AVERAGE DISCHARGE.--30 years (water years 1914-15, 1920, 1954-80), 307 ft³/s (8.694 m³/s), 222,400 acre-ft/yr (274 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,980 ft³/s (198 m³/s) Dec. 23, 1964, gage height, 12.19 ft (3.716 m); minimum, 56 ft³/s (1.59 m³/s) Aug. 11, 17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,060 ft³/s (58.3 m³/s) Jan. 13, gage height, 8.22 ft (2.505 m); minimum, 89 ft³/s (2.52 m³/s) Dec. 28, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	153	169	307	207	496	281	1030	281	210	134	126
2	115	147	198	326	215	470	274	955	287	203	130	123
3	113	151	842	271	303	462	263	901	302	256	134	123
4	108	177	536	246	542	513	264	880	308	265	138	125
5	107	192	338	284	334	471	285	885	302	247	143	119
6	106	188	269	408	429	465	313	871	308	237	141	117
7	115	163	220	285	344	417	304	839	295	218	151	107
8	113	152	207	225	275	383	312	785	274	193	151	103
9	109	149	197	208	250	359	309	754	247	186	149	110
10	105	139	193	281	250	349	310	788	220	174	145	117
11	112	134	158	206	237	359	293	765	223	170	141	126
12	113	133	149	677	229	354	297	699	266	174	141	132
13	114	134	164	1900	226	332	327	629	278	164	141	136
14	111	138	160	1890	225	348	380	635	303	153	138	145
15	159	136	157	1670	221	440	416	623	321	155	147	138
16	168	144	153	1040	231	345	447	574	285	157	145	128
17	136	226	157	974	283	351	507	543	268	203	149	128
18	131	285	158	738	542	346	582	525	268	184	141	126
19	160	220	156	407	1180	342	677	506	256	173	143	126
20	176	177	155	341	1570	342	789	487	252	134	138	128
21	191	146	157	338	1140	327	915	485	252	161	132	128
22	164	152	151	306	731	302	892	491	249	159	128	134
23	148	151	124	281	646	298	845	453	244	141	123	128
24	149	175	147	269	521	294	927	449	248	134	123	125
25	175	268	158	254	447	285	961	425	239	138	125	128
26	223	239	149	223	446	286	962	414	243	136	126	125
27	180	189	135	201	493	280	993	392	255	136	121	125
28	177	167	113	164	534	263	1030	359	235	130	125	121
29	169	155	159	150	566	268	1080	333	222	134	128	123
30	157	160	164	161	---	274	1100	315	214	138	125	119
31	155	---	195	186	---	269	---	298	---	136	121	---
TOTAL	4366	5140	6388	15217	13617	11090	17335	19088	7945	5399	4217	3739
MEAN	141	171	206	491	470	358	578	616	265	174	136	125
MAX	223	285	842	1900	1570	513	1100	1030	321	265	151	145
MIN	105	133	113	150	207	263	263	298	214	130	121	103
AC-FT	8660	10200	12670	30180	27010	22000	34380	37860	15760	10710	8360	7420
CAL YR 1979 TOTAL	75623			207	930	65	AC-FT	150000				
WTR YR 1980 TOTAL	113541			310	1900	103	AC-FT	225200				

KLAMATH RIVER BASIN

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11499100 SYCAN RIVER BELOW SNAKE CREEK, NEAR BEATTY, OR

LOCATION.--Lat 42°29'10", long 121°16'40", in SW¼SE¼ sec.34, T.35 S., R.12 E., Klamath County, Hydrologic Unit 18010202, on left bank 200 ft (61 m) downstream from Snake Creek and 3.1 mi (5.0 km) north of Beatty.

DRAINAGE AREA.--568 mi² (1,471 km²).

PERIOD OF RECORD.--October 1973 to current year. Prior to October 1979, in reports of Oregon Water Resources Department.

GAGE.--Water-stage recorder. Altitude of gage is 4,310 ft (1,314 m), from topographic map.

REMARKS.--Records good except those for Jan. 15 to Mar. 25 and July 16 to Sept. 30, which are fair. Diversions for irrigation above station.

AVERAGE DISCHARGE.--7 years, 154 ft³/s (4.361 m³/s), 111,600 acre-ft/yr (138 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,990 ft³/s (113 m³/s) Jan. 16 or 17, 1974, gage height, 11.01 ft (3.356 m), from floodmarks; minimum, 3.0 ft³/s (0.085 m³/s) Nov. 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,490 ft³/s (42.2 m³/s) Jan. 14, gage height, 8.55 ft (2.606 m); minimum, 6.8 ft³/s (0.19 m³/s) Dec. 23, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	31	34	36	59	260	139	687	127	42	17	15
2	19	32	71	31	60	246	141	619	115	45	16	15
3	20	43	192	32	116	241	140	580	106	63	17	15
4	17	58	219	37	131	275	139	558	99	54	16	15
5	15	51	197	55	136	260	154	537	92	49	17	15
6	17	43	143	56	151	266	199	536	89	48	15	15
7	19	37	119	51	141	298	189	570	88	46	13	15
8	19	30	95	57	129	267	199	543	85	44	17	15
9	15	29	81	58	118	226	219	524	79	43	14	17
10	17	29	77	48	124	205	209	538	75	40	14	19
11	17	27	42	38	117	196	181	553	71	44	15	21
12	15	25	44	255	110	181	164	519	74	38	20	23
13	18	25	54	1060	105	172	158	480	75	37	18	24
14	19	25	39	1430	98	198	160	467	75	35	23	24
15	35	25	33	1090	96	208	160	447	69	31	21	24
16	27	46	31	788	102	179	161	398	65	29	18	24
17	21	111	33	731	123	201	167	367	61	26	16	24
18	23	80	36	437	259	213	177	337	57	21	14	24
19	31	59	34	239	470	230	190	305	54	21	16	23
20	43	45	35	230	627	270	214	281	53	23	18	23
21	33	38	36	209	469	276	283	261	50	22	22	22
22	29	55	30	176	354	248	395	243	48	20	23	21
23	25	40	21	162	271	226	441	222	57	17	21	20
24	25	66	21	156	246	221	420	204	56	15	16	19
25	57	66	32	143	249	202	454	191	53	14	17	20
26	50	53	30	125	272	185	521	183	61	12	11	17
27	48	47	23	93	295	171	541	180	57	12	16	15
28	40	43	13	59	300	158	589	163	51	15	17	16
29	35	42	23	51	290	150	636	157	49	24	19	14
30	38	40	28	51	---	143	695	157	46	19	18	12
31	38	---	36	51	---	136	---	145	---	16	15	---
TOTAL	843	1341	1902	8035	6018	6708	8435	11952	2137	965	530	566
MEAN	27.2	44.7	61.4	259	208	216	281	386	71.2	31.1	17.1	18.9
MAX	57	111	219	1430	627	298	695	687	127	63	23	24
MIN	15	25	13	31	59	136	139	145	46	12	11	12
AC-FT	1670	2660	3770	15940	11940	13310	16730	23710	4240	1910	1050	1120
CAL YR 1979	TOTAL	26411.2	MEAN	72.4	MAX	445	MIN	6.0	AC-FT	52390		
WTR YR 1980	TOTAL	49432.0	MEAN	135	MAX	1430	MIN	11	AC-FT	98050		

KLAMATH RIVER BASIN

11501000 SPRAGUE RIVER NEAR CHILOQUIN, OR

LOCATION.--Lat 42°35'05", long 121°50'55", in NE¼NW¼ sec.35, T.34 S., R.7 E., Klamath County, Hydrologic Unit 18010202, on right bank 1.0 mi (1.6 km) northeast of Chiloquin, 4.6 mi (7.4 km) upstream from Modoc Point Canal intake, and at mile 5.4 (8.7 km).

DRAINAGE AREA.--1,580 mi² (4,090 km²), approximately.

PERIOD OF RECORD.--July to October 1920, March 1921 to current year. Monthly discharge only July 1920, published in WSP 1315-B. Prior to October 1931, published as "at McCready Ranch, near Chiloquin."

REVISED RECORDS.--WSP 591: 1922(M). WSP 1011: 1943 (M). WSP 1565: 1921-22.

GAGE.--Water-stage recorder. Datum of gage is 4,202.43 ft (1,280.901 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1931, nonrecording gage at site 12 mi (19 km) upstream at different datum.

REMARKS.--Records good. Minor regulation from irrigation diversions above station.

AVERAGE DISCHARGE.--59 years (water years 1922-80), 571 ft³/s (16.17 m³/s), 413,700 acre-ft/yr (510 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,900 ft³/s (422 m³/s) Dec. 26, 1964, gage height, 10.37 ft (3.161 m); minimum daily, 50 ft³/s (1.42 m³/s) May 26, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,760 ft³/s (106 m³/s) Jan. 17, gage height, 5.52 ft (1.682 m); minimum, 103 ft³/s (2.92 m³/s) Aug. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218	339	373	348	450	1090	539	1490	521	358	141	186
2	226	329	423	373	470	1110	533	1570	481	343	141	186
3	226	329	433	449	504	1060	539	1610	459	343	138	189
4	226	329	476	481	545	1000	539	1630	459	353	131	201
5	234	329	720	454	649	975	533	1580	465	348	127	205
6	238	348	911	433	814	1000	545	1500	470	368	131	201
7	234	363	800	481	740	990	580	1440	454	363	127	201
8	226	363	617	562	746	968	655	1410	444	334	120	189
9	226	343	510	510	720	946	668	1430	428	315	115	193
10	230	325	449	438	617	889	661	1440	402	300	117	193
11	218	310	413	387	574	820	674	1410	368	288	124	197
12	218	306	382	593	562	766	661	1360	348	272	120	201
13	222	301	358	918	545	753	617	1360	358	262	124	209
14	230	296	310	1390	533	773	593	1350	387	254	124	213
15	243	296	343	1940	521	766	593	1280	402	252	117	226
16	251	310	363	2690	515	773	630	1210	402	256	120	238
17	278	329	325	3500	521	841	655	1150	428	247	120	251
18	310	348	325	3560	593	780	668	1090	423	238	131	260
19	315	413	334	2810	733	740	707	1020	397	243	131	251
20	301	454	343	2090	1040	746	773	946	392	256	138	247
21	301	428	329	1670	1460	740	841	882	402	251	148	260
22	325	373	325	1120	1900	760	932	834	392	226	145	260
23	334	339	329	896	2220	766	1050	793	387	218	152	251
24	339	353	329	800	2100	713	1170	766	392	209	163	251
25	343	368	306	726	1640	674	1250	733	418	197	159	251
26	348	397	306	674	1290	655	1290	720	418	182	159	247
27	368	433	320	623	1090	623	1320	687	413	167	159	238
28	402	387	306	460	1030	605	1360	668	423	156	170	243
29	392	358	278	420	1060	580	1400	636	433	156	178	230
30	368	363	292	400	---	551	1440	599	407	152	178	234
31	358	---	334	390	---	539	---	568	---	145	182	---
TOTAL	8748	10559	12662	32586	26182	24992	24416	35162	12573	8052	4330	6702
MEAN	282	352	408	1051	903	806	814	1134	419	260	140	223
MAX	402	454	911	3560	2220	1110	1440	1630	521	368	182	260
MIN	218	296	278	348	450	539	533	568	348	145	115	186
AC-FT	17350	20940	25120	64630	51930	49570	48430	69740	24940	15970	8590	13290
CAL YR 1979 TOTAL	138254			379	1030	117	274200					
WTR YR 1980 TOTAL	206964			565	3560	115	410500					

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LOCATION.--Lat 42°34'15", long 121°52'35", in NE¼NE¼ sec.4, T.35 S., R.7 E., Klamath County, Hydrologic Unit 18010202, or right bank 0.2 mi (0.3 km) downstream from Sprague River and 0.8 mi (1.3 km) southwest of Chiloquin.

DRAINAGE AREA.--3,000 mi² (7,770 km²), approximately.

PERIOD OF RECORD.--June 1917 to current year.

REVISED RECORDS.--WSP 981: 1938(M). WSP 1565: 1920(M), 1927(M), 1938.

GAGE.--Water-stage recorder. Datum of gage is 4,155.55 ft (1,266.612 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1923, at different datum.

REMARKS.--Records good. Some regulation by diversion dams and logpond operations of Sprague River. Diversions for irrigation above station.

AVERAGE DISCHARGE.--63 years, 1,036 ft³/s (29.34 m³/s), 750,600 acre-ft/yr (925 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,100 ft³/s (456 m³/s) Dec. 26, 1964, gage height, 10.56 ft (3.219 m); minimum, 320 ft³/s (9.06 m³/s) Oct. 14, 1920.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,100 ft³/s (116 m³/s) Jan. 17, gage height, 5.40 ft (1.646 m); minimum, 439 ft³/s (12.4 m³/s) Aug. 17, 18.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	488	652	758	787	1020	1660	1090	1920	935	630	477	466
2	494	644	824	809	1030	1680	1080	1960	878	608	477	466
3	488	652	832	878	1060	1650	1080	2000	863	608	477	466
4	494	652	878	927	1090	1580	1080	2010	855	615	471	477
5	500	644	1110	910	1190	1560	1070	1940	863	615	466	477
6	506	659	1330	878	1370	1590	1070	1840	870	637	466	477
7	500	675	1260	919	1300	1580	1100	1770	863	644	466	477
8	494	675	1090	1000	1300	1560	1200	1740	839	630	466	471
9	494	659	994	960	1280	1540	1220	1760	824	608	455	466
10	500	644	927	878	1180	1470	1200	1780	794	608	455	471
11	494	630	886	817	1120	1390	1220	1740	751	601	449	471
12	488	622	863	1050	1100	1330	1200	1710	737	587	449	477
13	494	622	847	1400	1080	1310	1160	1680	730	573	449	482
14	506	615	787	1900	1060	1360	1110	1670	744	567	449	488
15	517	615	794	2290	1060	1360	1100	1610	758	561	444	506
16	523	644	824	3220	1060	1370	1140	1530	751	561	444	523
17	548	659	794	3900	1060	1460	1170	1470	758	561	444	536
18	587	675	794	4000	1140	1410	1170	1420	744	561	449	554
19	622	737	794	3400	1280	1360	1200	1350	706	561	449	542
20	615	765	794	2660	1580	1360	1270	1290	690	573	444	536
21	601	758	794	2290	2010	1350	1340	1260	675	573	455	542
22	630	714	787	1760	2450	1360	1440	1210	659	554	455	542
23	637	675	794	1500	2810	1370	1550	1170	644	536	449	536
24	644	714	780	1410	2720	1310	1660	1160	652	536	460	536
25	667	730	765	1330	2250	1270	1740	1140	667	530	460	536
26	652	758	758	1280	1880	1240	1770	1110	667	511	455	536
27	675	787	765	1200	1670	1190	1820	1100	659	494	455	523
28	706	744	751	952	1610	1160	1840	1080	667	482	455	523
29	698	706	744	855	1630	1140	1870	1050	690	482	460	511
30	682	737	744	863	---	1100	1890	1020	667	482	460	511
31	667	---	780	994	---	1080	---	985	---	477	466	---
TOTAL	17611	20463	26642	48017	42390	43150	39850	46475	22600	17566	14176	15125
MEAN	568	682	859	1549	1462	1392	1328	1499	753	567	457	504
MAX	706	787	1330	4000	2810	1680	1890	2010	935	644	477	554
MIN	488	615	744	787	1020	1080	1070	985	644	477	444	466
AC-FT	34930	40590	52840	95240	84080	85590	79040	92180	44830	34840	2812	

11503000 ANNIE SPRING NEAR CRATER LAKE, OR

LOCATION.--Lat 42°52'20", long 122°10'00", unsurveyed, Klamath County, Hydrologic Unit 18010203, in Crater Lake National Park, at highway bridge 0.1 mi (0.2 km) downstream from source.

DRAINAGE AREA.--Indeterminate, normal flow is entirely from Annie Spring.

PERIOD OF RECORD.--June 1977 to current year. Discharge measurement and fragmentary gage-height record August to October 1913. Discharge measurements only Oct. 11, 1967, June 26, Sept. 13, 1968.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 5,982.65 ft (1,823.512 m) National Geodetic Vertical Datum of 1929 (National Park Service bench mark).

REMARKS.--Records good. Slight regulation by pumps 0.1 mi (0.2 km) upstream. Diversion for domestic use by National Park Service 0.1 mi (0.2 km) upstream.

COOPERATION.--Records of diversion by pumping furnished by National Park Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9.0 ft³/s (0.25 m³/s) June 12, 1978, gage height, 1.41 ft (0.430 m); minimum, 0.33 ft³/s (0.009 m³/s) Nov. 20, 22, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6.8 ft³/s (0.19 m³/s) July 2, 5; maximum gage height, 1.37 ft (0.418 m) July 22-25 (backwater from board on weir); minimum discharge, 0.92 ft³/s (0.026 m³/s) Apr. 11, 13, 15-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.5	1.4	1.3	1.8	1.3	1.1	3.3	5.1	6.2	3.9	2.4
2	1.6	1.5	1.5	1.3	1.7	1.4	1.0	3.3	5.1	6.5	3.9	2.4
3	1.5	1.4	1.4	1.3	1.7	1.4	1.1	3.5	5.1	6.5	3.9	2.4
4	1.5	1.5	1.5	1.3	1.6	1.4	1.1	3.7	5.1	6.5	3.9	2.3
5	1.5	1.5	1.5	1.2	1.6	1.4	1.0	3.8	5.1	6.5	3.8	2.3
6	1.5	1.4	1.4	1.2	1.6	1.3	1.1	4.1	4.9	6.5	3.8	2.2
7	1.5	1.4	1.5	1.2	1.6	1.3	1.1	4.1	4.9	6.5	3.7	2.2
8	1.5	1.4	1.5	1.2	1.6	1.4	1.0	4.3	4.8	6.5	3.7	2.3
9	1.5	1.4	1.5	1.2	1.5	1.4	1.0	4.4	4.8	6.2	3.7	2.2
10	1.4	1.4	1.5	1.2	1.5	1.3	1.1	4.4	4.8	6.2	3.7	2.1
11	1.4	1.4	1.5	1.2	1.5	1.3	1.0	4.4	4.9	6.2	3.6	2.2
12	1.4	1.4	1.5	1.4	1.5	1.3	1.0	4.5	4.8	5.9	3.4	2.1
13	1.5	1.4	1.6	1.5	1.4	1.3	1.0	4.5	4.9	5.9	3.3	2.1
14	1.4	1.3	1.6	1.9	1.5	1.3	1.0	4.5	4.9	5.9	3.3	2.1
15	1.5	1.4	1.5	2.0	1.5	1.3	1.0	4.4	5.1	5.6	3.3	2.1
16	1.4	1.4	1.5	2.1	1.4	1.3	1.0	4.6	5.1	5.4	3.3	2.0
17	1.4	1.3	1.5	2.1	1.5	1.2	1.0	4.8	5.1	5.1	3.3	2.1
18	1.4	1.4	1.5	2.1	1.4	1.2	1.0	4.6	5.1	5.1	3.2	2.1
19	1.5	1.4	1.5	2.1	1.5	1.3	1.1	4.5	5.1	4.9	3.0	2.1
20	1.4	1.4	1.5	2.1	1.5	1.2	1.2	4.6	5.6	4.9	3.0	2.1
21	1.5	1.3	1.5	2.3	1.4	1.2	1.2	4.8	5.9	4.9	2.9	2.0
22	1.4	1.3	1.4	2.0	1.4	1.2	1.3	5.1	6.2	4.8	2.8	2.0
23	1.5	1.4	1.5	1.9	1.4	1.2	1.4	5.6	6.5	4.9	2.8	2.0
24	1.5	1.4	1.5	1.9	1.4	1.2	1.7	5.9	6.2	4.9	2.7	2.0
25	1.4	1.4	1.4	1.8	1.3	1.2	1.8	5.9	6.5	4.8	2.7	1.9
26	1.5	1.4	1.4	1.8	1.3	1.1	1.9	5.9	6.5	4.7	2.6	2.0
27	1.5	1.4	1.4	1.8	1.3	1.2	2.0	5.9	6.8	4.6	2.6	2.0
28	1.5	1.5	1.3	1.8	1.3	1.1	2.3	5.9	6.8	4.5	2.6	2.0
29	1.5	1.4	1.4	1.8	1.3	1.2	2.6	5.6	6.5	4.6	2.6	2.0
30	1.5	1.4	1.3	1.8	---	1.1	3.0	5.6	6.2	4.3	2.5	1.9
31	1.4	---	1.3	1.7	---	1.1	---	5.1	---	4.0	2.4	---
TOTAL	45.5	42.1	45.3	51.5	43.0	39.1	40.1	145.6	164.4	170.0	99.9	63.6
MEAN	1.47	1.40	1.46	1.66	1.48	1.26	1.34	4.70	5.48	5.48	3.22	2.12
MAX	1.6	1.5	1.6	2.3	1.8	1.4	3.0	5.9	6.8	6.5	3.9	2.4
MIN	1.4	1.3	1.3	1.2	1.3	1.1	1.0	3.3	4.8	4.0	2.4	1.9
AC-FT	90	84	90	102	85	78	80	289	326	337	198	126
MEAN†	1.49	1.43	1.49	1.69	1.51	1.29	1.38	4.75	5.58	5.63	3.38	2.20
AC-FT†	91.4	85.3	91.4	104	86.7	79.4	82.0	292	332	346	208	131

CAL YR 1979 TOTAL 815.72 MEAN 2.23 MAX 7.1 MIN .82 AC-FT 1620 MEAN† 2.30 AC-FT† 1665
WTR YR 1980 TOTAL 950.10 MEAN 2.60 MAX 6.8 MIN 1.0 AC-FT 1880 MEAN† 2.65 AC-FT† 1923

† Adjusted for diversion by pumping.

11507001 UPPER KLAMATH LAKE NEAR KLAMATH FALLS, OR

LOCATION.--Lat 42°15'00", long 121°48'55", in NW¼SW¼ sec.19, T.38 S., R.9 E., Klamath County, Hydrologic Unit 18010203, at southeast end of lake, 1.4 mi (2.3 km) upstream from outlet and 2.5 mi (4.0 km) northwest of Main Street Bridge at Klamath Falls.

DRAINAGE AREA.--3,810 mi² (9,870 km²), approximately, including 26.2 mi² (67.9 km²) in closed basin of Crater Lake.

PERIOD OF RECORD.--May 1904 to September 1923 (gage heights only), October 1923 to current year. Monthend contents only October 1923 to September 1927, published in WSP 1315-B.

GAGE.--Water-stage recorder. Datum of gage is 4,098.22 ft (1,249.137 m) National Geodetic Vertical Datum of 1929, or 4,100.00 ft (1,249.680 m) Water and Power Resources Service datum. Gage readings have been reduced to elevations Water and Power Resources Service datum. See WSP 1735 for history of changes prior to Nov. 10, 1923. Since Oct. 1, 1974, supplementary water-stage recorders at sites 7 mi (11 km) north and 21 mi (34 km) northwest at same datum (water-surface transfer by Pacific Power and Light Co.).

REMARKS.--Reservoir is formed by concrete dam at outlet of natural lake, completed in 1921, replacing a temporary dam built in 1919; controlled storage began Apr. 15, 1919. Capacity, 523,700 acre-ft (646 hm³) between elevations 4,136.0 ft (1,260.65 m) and 4,143.3 ft (1,262.88 m). Dead storage below elevation 4,136.0 ft (1,260.65 m) is 211,300 acre-ft (261 hm³). Stored water may be diverted through "A" Canal for irrigation on land under Klamath project of Water and Power Resources Service, or released to Link River through dam or powerplants at Klamath Falls. Contents given herein represent those above elevation 4,136.0 ft (1,260.65 m). Prior to Oct. 1, 1973, contents given represented those above elevation 4,135.0 ft (1,260.35 m). Prior to Sept. 30, 1974, contents at end of month obtained by averaging elevations for last 3 days of month and first 3 days of following month to compensate for wind effect. Since Oct. 1, 1974, daily elevations are weighted mean of elevations at base and supplementary gages; contents at end of month are obtained from weighted midnight elevations of base and supplementary gages.

COOPERATION.--Capacity table furnished by Water and Power Resources Service, Klamath Project.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 4,144.98 ft (1,263.390 m) about Apr. 20, 1904, from high-water marks; minimum recorded, 4,135.55 ft (1,260.516 m) Oct. 30, 1944.

EXTREMES FOR CURRENT YEAR.--Maximum daily elevation, 4,143.16 ft (1,262.835 m) May 14, 15; minimum daily, 4,137.87 ft (1,261.223 m) Oct. 18.

CAPACITY TABLE (ELEVATION, IN FEET, AND CONTENTS, IN ACRE-FEET)

4,136	0	4,139	193,700	4,142	414,400
4,137	61,300	4,140	262,600	4,143	498,300
4,138	127,000	4,141	335,400	4,143.3	523,700

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4138.20	4138.41	4139.45	4140.58	4141.72	4142.19	4142.60	4143.07	4143.01	4142.50	4141.45	4140.02
2	4138.16	4138.41	4139.50	4140.62	4141.72	4142.18	4142.58	4143.06	4142.98	4142.48	4141.40	4139.95
3	4138.15	4138.46	4139.57	4140.65	4141.76	4142.18	4142.55	4143.06	4142.93	4142.45	4141.35	4139.93
4	4138.12	4138.49	4139.63	4140.68	4141.78	4142.14	4142.53	4143.06	4142.94	4142.48	4141.31	4139.86
5	4138.10	4138.51	4139.72	4140.71	4141.79	4142.17	4142.59	4143.05	4142.98	4142.47	4141.25	4139.82
6	4138.07	4138.56	4139.77	4140.78	4141.82	4142.22	4142.66	4143.08	4142.92	4142.44	4141.19	4139.78
7	4138.04	4138.63	4139.82	4140.80	4141.84	4142.22	4142.69	4143.06	4142.90	4142.41	4141.14	4139.78
8	4138.05	4138.62	4139.86	4140.82	4141.83	4142.25	4142.72	4143.04	4142.93	4142.36	4141.10	4139.76
9	4138.07	4138.62	4139.90	4140.86	4141.83	4142.26	4142.77	4143.04	4142.94	4142.31	4141.06	4139.70
10	4137.98	4138.64	4139.97	4140.91	4141.82	4142.29	4142.82	4143.13	4142.95	4142.29	4141.00	4139.63
11	4137.95	4138.64	4139.96	4140.91	4141.82	4142.33	4142.84	4143.13	4142.94	4142.29	4140.96	4139.62
12	4137.92	4138.66	4139.99	4141.02	4141.81	4142.27	4142.86	4143.12	4142.95	4142.26	4140.94	4139.62
13	4137.92	4138.67	4140.02	4141.23	4141.83	4142.26	4142.84	4143.15	4142.91	4142.23	4140.90	4139.56
14	4137.89	4138.68	4140.04	4141.38	4141.85	4142.34	4142.85	4143.16	4142.90	4142.19	4140.86	4139.53
15	4137.90	4138.69	4140.06	4141.50	4141.86	4142.40	4142.89	4143.16	4142.90	4142.15	4140.80	4139.53
16	4137.92	4138.76	4140.10	4141.60	4141.87	4142.40	4142.90	4143.15	4142.93	4142.12	4140.72	4139.49
17	4137.94	4138.81	4140.12	4141.70	4141.87	4142.41	4142.90	4143.14	4142.89	4142.08	4140.70	4139.48
18	4137.87	4138.86	4140.11	4141.78	4141.98	4142.45	4142.91	4143.13	4142.84	4142.06	4140.67	4139.48
19	4137.96	4138.92	4140.14	4141.81	4142.06	4142.42	4142.92	4143.13	4142.82	4142.00	4140.62	4139.48
20	4137.90	4138.94	4140.16	4141.78	4142.14	4142.44	4142.92	4143.12	4142.80	4141.96	4140.56	4139.50
21	4138.00	4138.96	4140.22	4141.78	4142.20	4142.48	4142.98	4143.10	4142.75	4141.91	4140.51	4139.48
22	4137.90	4138.94	4140.27	4141.78	4142.18	4142.46	4142.98	4143.14	4142.73	4141.87	4140.49	4139.47
23	4138.02	4139.00	4140.18	4141.78	4142.24	4142.44	4142.96	4143.08	4142.70	4141.84	4140.44	4139.46
24	4137.93	4139.09	4140.32	4141.77	4142.24	4142.43	4142.96	4143.08	4142.63	4141.80	4140.40	4139.47
25	4138.12	4139.20	4140.37	4141.77	4142.22	4142.44	4142.98	4143.04	4142.67	4141.74	4140.37	4139.46
26	4138.18	4139.26	4140.42	4141.78	4142.20	4142.47	4143.00	4143.05	4142.66	4141.70	4140.31	4139.44
27	4138.24	4139.33	4140.44	4141.78	4142.13	4142.48	4143.05	4143.04	4142.60	4141.66	4140.26	4139.43
28	4138.30	4139.38	4140.46	4141.77	4142.20	4142.49	4143.08	4143.03	4142.58	4141.58	4140.21	4139.41
29	4138.30	4139.40	4140.49	4141.76	4142.21	4142.53	4143.12	4143.02	4142.55	4141.56	4140.15	4139.41
30	4138.30	4139.42	4140.46	4141.74	---	4142.56	4143.09	4142.97	4142.53	4141.52	4140.10	4139.40
31	4138.38	---	4140.54	4141.72	---	4142.56	---	4142.97	---	4141.49	4140.06	---
MEAN	4138.06	4138.83	4140.07	4141.34	4141.96	4142.36	4142.85	4143.08	4142.83	4142.07	4140.75	4139.60
MAX	4138.38	4139.42	4140.54	4141.81	4142.24	4142.56	4143.12	4143.16	4143.01	4142.50	4141.45	4140.02
MIN	4137.87	4138.41	4139.45	4140.58	4141.72	4142.14	4142.53	4142.97	4142.53	4141.49	4140.06	4139.40
(+)	153600	223700	302100	391800	431800	464400	510100	499900	461900	372500	266200	225000
(+)	+8700	+70100	+78400	+89700	+40000	+32600	+45700	-10200	-38000	-89400	-106300	-41200

CAL YR 1979 MEAN 4140.64 MAX 4143.10 MIN 4137.87 AC-FT# -5800
WTR YR 1980 MEAN 4141.15 MAX 4143.16 MIN 4137.87 AC-FT# -80100

† Contents in acre-feet at end of month.

‡ Change in contents, in acre-feet.

KLAMATH RIVER BASIN

11507200 "A" CANAL AT KLAMATH FALLS, OR

LOCATION.--Lat 42°12'20", long 121°48'05", in NE¼ sec.30, T.38 S., R.9 E., Klamath County, Hydrologic Unit 18010204, on left bank 300 ft (91 m) downstream from headgates of canal and 1.0 mi (1.6 km) northwest of Klamath Falls.

PERIOD OF RECORD.--October 1910 to current year. Published as "Klamath Main Canal" 1911-12.

GAGE.--Water-stage recorder. Datum of gage is 4,126.22 ft (1,257.672 m) National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service). Prior to May 1, 1923, water-stage recorder at site 0.2 mi (0.3 km) downstream at head of tunnel and at different datum. May 1, 1923, to Apr. 20, 1924, water-stage recorder at site 1.0 mi (1.6 km) downstream, just below tunnel, at different datum. Apr. 21, 1924, to Apr. 14, 1925, nonrecording gage at present site and datum.

REMARKS.--Canal diverts water from Upper Klamath Lake in NE¼ sec.30, T.38 S., R.9 E., for irrigation of lands east of Klamath River on both sides of Lost River. Most of return water reaches Lost River.

COOPERATION.--Gage-height record, and records of daily discharge furnished by Klamath Irrigation District.

AVERAGE DISCHARGE.--70 years, 271 ft³/s (7.675 m³/s), 196,300 acre-ft/yr (242 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,180 ft³/s (33.4 m³/s) June 24, 1961; no flow for several months in each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	445	.00	.00	.00	.00	.00	75	636	897	807	905	790
2	449	.00	.00	.00	.00	.00	75	694	903	839	886	804
3	466	.00	.00	.00	.00	.00	91	729	894	818	873	810
4	463	.00	.00	.00	.00	.00	100	755	830	761	882	833
5	484	.00	.00	.00	.00	.00	88	841	770	751	909	811
6	516	.00	.00	.00	.00	.00	65	807	754	747	886	805
7	529	.00	.00	.00	.00	.00	87	791	769	797	856	792
8	542	.00	.00	.00	.00	.00	113	810	745	896	853	778
9	551	.00	.00	.00	.00	.00	158	818	737	909	855	788
10	511	.00	.00	.00	.00	.00	185	746	780	926	827	785
11	484	.00	.00	.00	.00	.00	189	637	810	930	821	773
12	465	.00	.00	.00	.00	.00	190	615	784	955	831	738
13	431	.00	.00	.00	.00	.00	189	625	735	964	845	688
14	428	.00	.00	.00	.00	.00	241	625	684	960	879	649
15	376	.00	.00	.00	.00	.00	253	576	659	979	862	633
16	347	.00	.00	.00	.00	.00	257	564	615	1010	850	613
17	303	.00	.00	.00	.00	.00	280	564	612	1040	863	624
18	247	.00	.00	.00	.00	.00	300	576	656	1030	850	628
19	178	.00	.00	.00	.00	.00	325	581	709	1040	843	581
20	170	.00	.00	.00	.00	.00	390	737	772	1030	861	513
21	165	.00	.00	.00	.00	.00	394	839	820	1020	886	477
22	156	.00	.00	.00	.00	.00	381	880	829	1040	861	479
23	.00	.00	.00	.00	.00	.00	375	905	844	1030	847	485
24	.00	.00	.00	.00	.00	.00	395	895	849	1050	850	487
25	.00	.00	.00	.00	.00	.00	414	869	832	1060	863	496
26	.00	.00	.00	.00	.00	.00	418	825	772	1050	870	512
27	.00	.00	.00	.00	.00	.00	424	865	771	994	872	529
28	.00	.00	.00	.00	.00	.00	486	894	755	970	844	542
29	.00	.00	.00	.00	.00	.00	556	896	752	965	822	570
30	.00	.00	.00	.00	---	.00	589	900	755	916	815	560
31	.00	---	.00	.00	---	.00	---	912	---	908	800	---
TOTAL	8706.00	.00	.00	.00	.00	.00	8083	23407	23094	29192	26567	19573
MEAN	281	.000	.000	.000	.000	.000	269	755	770	942	857	652
MAX	551	.00	.00	.00	.00	.00	589	912	903	1060	909	833
MIN	.00	.00	.00	.00	.00	.00	65	564	612	747	800	477
AC-FT	17270	.00	.00	.00	.00	.00	16030	46430	45810	57900	52700	38820
CAL YR 1979	TOTAL	140267.00	MEAN	384	MAX	1050	MIN	.00	AC-FT	278200		
WTR YR 1980	TOTAL	138622.00	MEAN	379	MAX	1060	MIN	.00	AC-FT	275000		

KLAMATH RIVER BASIN

67

11507501 LINK RIVER AT KLAMATH FALLS, OR

LOCATION.--Lat 42°13'25", long 121°47'35", in SW¼NW¼ sec.32, T.38 S., R.9 E., Klamath County, Hydrologic Unit 18010204, on right bank 600 ft (183 m) upstream from outlet of Keno Canal and 0.4 mi (0.6 km) upstream from Main Street Bridge at Klamath Falls.

DRAINAGE AREA.--3,810 mi² (9,870 km²), approximately, including 26.2 mi² (67.9 km²) in closed basin of Crater Lake.

PERIOD OF RECORD.--May 1904 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,083.71 ft (1,244.715 m) National Geodetic Vertical Datum of 1929, or 4,085.50 ft (1,245.260 m) above mean sea level, datum of Water and Power Resources Service. Prior to Sept. 14, 1912, water-stage recorder or nonrecording gages at several sites within 0.5 mi (0.8 km) of present site at various datums. Sept. 14, 1912, to Nov. 23, 1923, at site 600 ft (183 m) downstream at datum 5.42 ft (1.652 m) lower. Nov. 24, 1923, to Nov. 15, 1961, at site on left bank at present datum.

REMARKS.--Records good. Flow regulated since 1919 by Upper Klamath Lake (see station 11507001). Large diurnal fluctuation caused by powerplant above station. Water diverted above station by main or "A" Canal of Klamath project (see station 11507200). Many other diversions above lake. All records presented herein include flow in Keno Canal which, since September 1908, has diverted from Upper Klamath Lake at Link River Dam for power generation, and returns flow to Link River below station.

AVERAGE DISCHARGE.--76 years, 1,586 ft³/s (44.92 m³/s), 1,149,000 acre-ft/yr (1.42 km³/yr), not adjusted for "A" Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,400 ft³/s (266 m³/s) May 12, 1904, gage height at Main Street Bridge, 7.30 ft (2.225 m), datum then in use, from floodmarks; minimum daily, 17 ft³/s (0.48 m³/s) Dec. 13, 1937.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 3,910 ft³/s (111 m³/s) Feb. 23; minimum daily, 108 ft³/s (3.06 m³/s) Jan. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980												
DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1000	620	597	445	2380	3220	956	1670	648	707	1020	1150
2	993	729	538	389	2380	3210	777	1590	606	833	949	1160
3	981	809	411	238	2220	3050	789	1700	728	678	933	1140
4	1040	674	249	305	2170	2850	507	1770	728	447	906	1130
5	1140	699	255	404	2110	2580	710	1950	614	280	1050	1130
6	1110	716	396	396	1890	2050	719	1800	606	389	1110	1050
7	1040	743	396	411	2130	1720	683	1220	389	478	1060	1060
8	1050	781	396	504	2200	1780	563	1050	272	665	1080	1060
9	1030	779	555	798	2240	1850	461	995	381	827	1070	1050
10	1060	845	555	954	2270	1840	555	981	606	631	977	917
11	1050	857	404	1030	2360	1910	827	977	701	614	932	874
12	918	819	512	421	1340	1910	1030	647	640	692	951	781
13	879	963	538	139	707	1990	1030	1120	773	665	1020	778
14	915	1150	478	108	756	2000	1030	1330	640	614	1030	866
15	807	679	436	798	969	1980	1040	1720	436	623	1030	869
16	765	614	436	2220	965	1980	1090	1660	367	773	1020	860
17	706	404	396	3200	961	2200	1060	1240	374	855	909	745
18	876	623	381	3060	768	2510	662	1250	692	800	850	665
19	850	675	563	3170	637	2190	688	1180	1120	791	1040	669
20	862	687	589	3600	1080	2060	1750	1310	1310	836	1160	674
21	977	652	546	3520	2240	1980	2340	1340	1090	773	1130	719
22	1140	694	529	3190	2920	2120	1880	968	1010	885	879	554
23	1100	633	529	2950	3500	2020	1690	754	998	1050	875	389
24	674	564	538	2820	3620	1990	1340	440	920	1080	819	411
25	315	305	495	2420	3770	1640	942	411	871	969	922	617
26	346	311	396	2170	3770	1180	536	404	936	969	1070	984
27	457	190	470	2170	3760	1040	530	305	857	937	988	1040
28	586	144	546	2180	3460	716	637	692	928	855	997	953
29	593	436	461	2350	3220	905	1520	800	699	771	1090	861
30	714	495	453	2240	---	971	2070	955	765	682	1160	849
31	604	---	359	2210	---	965	---	827	---	932	1150	---
TOTAL	26578	19290	14403	50810	62793	60407	30412	35056	21705	23101	31177	26005
MEAN	857	643	465	1639	2165	1949	1014	1131	724	745	1006	867
MAX	1140	1150	597	3600	3770	3220	2340	1950	1310	1080	1160	1160
MIN	315	144	249	108	637	716	461	305	272	280	819	389
AC-FT	52720	38260	28570	100800	124500	119800	60320	69530	43050	45820	61840	51580
CAL YR 1979	TOTAL	356069	MEAN	976	MAX	2620	MIN	144	AC-FT	706300		
WTR YR 1980	TOTAL	401737	MEAN	1098	MAX	3770	MIN	108	AC-FT	796800		

KLAMATH RIVER BASIN

11509500 KLAMATH RIVER AT KENO, OR

LOCATION.--Lat 42°08'00", long 121°57'40", in NW¼SE¼ sec.35, T.39 S., R.7 E., Klamath County, Hydrologic Unit 18010206, on left bank 1.7 mi (2.7 km) northwest of Keno and 4.5 mi (7.2 km) upstream from Spencer Creek.

DRAINAGE AREA.--3,920 mi² (10,200 km²), approximately (not including Lost River or Lower Klamath Lake basins).

PERIOD OF RECORD.--June 1904 to December 1913, October 1929 to current year. Monthly discharge only October to December 1929, published in WSP 1315-B.

GAGE.--Water-stage recorder. Datum of gage is 3,961 ft (1,207.3 m) National Geodetic Vertical Datum of 1929 (from river-profile survey). See WSP 1735 for history of changes prior to Nov. 6, 1954.

REMARKS.--Records good. Flow regulated since 1919 by Upper Klamath Lake (see station 11507001). Diversions for irrigation above station.

AVERAGE DISCHARGE.--60 years, 1,672 ft³/s (47.35 m³/s), 1,211,000 acre-ft/yr (1.49 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,100 ft³/s (286 m³/s) Mar. 5, 1972, gage height, 12.73 ft (3.880 m); minimum, 26 ft³/s (0.74 m³/s) Sept. 23, 1956; minimum daily, 60 ft³/s (1.70 m³/s) May 19, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 15.3 ft (4.66 m), from floodmark (original datum), about May 10, 1904, discharge, 9,250 ft³/s (262 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,290 ft³/s (150 m³/s) Feb. 24, gage height, 9.81 ft (2.990 m) from peak stage indicator; minimum, 246 ft³/s (6.97 m³/s) July 7-9, 11, 13-21; minimum daily, 247 ft³/s (6.99 m³/s) July 16, 18-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	981	825	928	2640	3980	1060	1780	455	451	699	907
2	1040	1010	825	810	2640	3980	870	1640	379	376	742	954
3	1040	1040	825	718	2620	3750	870	1640	379	330	742	1010
4	1040	1040	944	776	2610	3510	830	1640	382	330	737	1010
5	1030	1000	1120	771	2620	3090	776	1600	379	330	728	1010
6	998	928	981	771	2630	2640	776	1330	373	291	732	1010
7	998	922	922	776	2630	2560	732	959	376	249	732	1010
8	992	922	928	1050	2610	2520	676	820	373	249	732	1010
9	987	922	928	1290	2610	2520	676	776	373	249	732	1010
10	981	922	881	1290	2610	2510	676	718	373	249	728	1010
11	981	922	800	1290	2460	2550	835	718	366	249	704	1020
12	976	922	865	981	1720	2570	1050	850	363	249	713	1010
13	976	1120	922	1200	1050	2570	1050	1130	363	249	713	1010
14	976	1350	875	2630	1150	2570	1050	1560	373	249	709	1010
15	976	608	820	3280	1270	2580	1100	1850	370	249	709	1010
16	1000	875	820	4250	1270	2580	1160	1610	360	247	709	1010
17	1030	875	820	4400	1280	2790	1150	1270	409	249	713	1010
18	1030	870	865	4300	1150	3010	2000	1270	448	247	800	1010
19	1030	928	922	4420	1680	2790	1870	1270	448	247	1010	1010
20	1030	981	928	4140	3090	2570	825	1260	455	247	1010	1010
21	1030	1020	928	3950	4300	2570	981	1040	455	336	907	1010
22	1040	1040	928	3750	4650	2570	1880	649	455	462	662	886
23	1040	1040	928	3450	4640	2580	1630	520	451	504	662	709
24	1010	1040	928	3100	4650	2570	1290	481	451	508	667	825
25	752	825	928	2670	4590	2150	1010	626	485	508	704	1000
26	723	825	928	2610	4470	1610	732	626	532	504	756	1000
27	732	825	928	2610	4470	1410	732	544	532	508	756	1000
28	742	870	928	2590	4200	1180	917	504	532	508	805	1010
29	800	870	928	2590	3970	1210	1480	504	532	504	881	1010
30	886	825	928	2590	---	1220	1880	504	500	553	907	992
31	928	---	928	2610	---	1220	---	508	---	671	907	---
TOTAL	29814	28318	28024	72591	82280	77930	32564	32197	12722	11152	23708	29493
MEAN	962	944	904	2342	2837	2514	1085	1039	424	360	765	983
MAX	1040	1350	1120	4420	4650	3980	2000	1850	532	671	1010	1020
MIN	723	608	800	718	1050	1180	676	481	360	247	662	709
AC-FT	59140	56170	55590	144000	163200	154600	64590	63860	25230	22120	47020	58500
CAL YR 1979 TOTAL	362423			993	2770	259	AC-FT	718900				
WTR YR 1980 TOTAL	460793			1259	4650	247	AC-FT	914000				

KLAMATH RIVER BASIN

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11510700 KLAMATH RIVER BELOW JOHN C. BOYLE POWERPLANT, NEAR KENO, OR

LOCATION.--Lat 42°05'05", long 122°04'20", in SE¼SE¼ sec.14, T.40 S., R.6 E., Klamath County, Hydrologic Unit 18010206, on right bank 0.7 mi (1.1 km) downstream from John C. Boyle powerplant, 8 mi (13 km) downstream from Spencer Creek, and 8.5 mi (13.7 km) southwest of Keno.

DRAINAGE AREA.--4,080 mi² (10,570 km²), approximately (not including Lost River or Lower Klamath Lake basins).

PERIOD OF RECORD.-- January 1959 to current year. Prior to Oct. 1, 1961, published as "below Big Bend powerplant."

GAGE.--Water-stage recorder. Datum of gage is 3,274.82 ft (998.165 m) National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.).

REMARKS.--Records excellent. Flow regulated by Upper Klamath Lake (see station 11507001). Large diurnal fluctuation caused by John C. Boyle powerplant and 2 powerplants below Upper Klamath Lake. Diversions for irrigation above station.

AVERAGE DISCHARGE.--21 years, 1,833 ft³/s (51.91 m³/s), 1,328,000 acre-ft/yr (1.64 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,000 ft³/s (312 m³/s) Mar. 5, 1972, gage height, 9.33 ft (2.844 m); minimum, 283 ft³/s (8.01 m³/s) Feb. 17, 1968; minimum daily, 317 ft³/s (8.98 m³/s) July 25, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,880 ft³/s (138 m³/s) Jan. 16, gage height, 7.00 ft (2.134 m); minimum, 333 ft³/s (9.43 m³/s) Nov. 15, June 23, July 7-11, 21; minimum daily, 333 ft³/s (9.43 m³/s) July 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	1160	1050	1150	2780	3930	1220	2080	645	718	997	1160
2	1220	1150	1000	1000	2780	3970	1090	1870	678	678	885	1120
3	1210	1210	906	962	2780	3850	1090	1810	630	605	934	1160
4	1200	1200	1200	1010	2780	3580	1060	1810	630	522	927	1160
5	1230	1210	1190	1000	2780	3350	1020	1810	625	565	892	1160
6	1210	1200	1220	1020	2770	2780	1000	1840	630	610	885	1210
7	1230	1210	1280	1000	2770	2780	1010	1160	625	495	934	1200
8	1200	1190	1390	1200	2770	2770	962	1120	630	336	976	1210
9	1220	1210	1200	1460	2770	2770	969	1030	625	333	934	1200
10	1200	1140	1150	1510	2770	2770	955	1030	630	336	1110	1220
11	1220	1190	1060	1490	2740	2770	1160	1020	625	371	1120	1160
12	1220	1190	927	1480	2160	2770	1130	1150	630	504	518	1160
13	1200	1270	962	1590	1340	2770	1160	1190	625	473	1100	1200
14	1230	1500	969	2990	1190	2770	1420	1750	630	455	1030	1210
15	1200	778	955	3630	1470	2770	1410	1960	625	468	1020	1200
16	1220	1150	948	4170	1470	2770	1440	1870	630	443	976	1210
17	1200	1140	1200	4440	1470	2890	1440	1240	625	477	969	1200
18	1230	1160	1110	4140	1430	3140	1970	1480	724	500	983	1200
19	1200	1140	1110	4280	2050	3020	2210	1480	718	531	1240	1480
20	1230	1210	1160	4120	3050	2770	1080	1480	678	522	1230	1200
21	1200	1200	1140	3870	4170	2770	1100	1300	718	570	1000	1160
22	1220	1160	1160	3810	4500	2770	2210	839	724	796	839	1150
23	1200	1140	1200	3400	4460	2770	1990	927	672	802	839	784
24	1230	1170	1150	3260	4480	2770	1480	730	678	802	839	1100
25	1020	1060	1130	2800	4460	2220	1480	760	672	766	839	1160
26	1030	1200	1150	2780	4320	1900	1130	1160	678	760	1020	1150
27	1010	1130	1180	2780	4370	1790	1020	678	814	760	1020	1160
28	1070	1130	1120	2780	4230	1410	1030	672	820	760	1110	1150
29	1000	1060	1060	2780	3970	1410	1520	678	814	443	1110	1160
30	1120	1090	1060	2780	---	1410	1920	872	724	683	1160	1180
31	1160	---	1140	2780	---	1420	---	724	---	1120	1160	---
TOTAL	36540	34948	34477	77462	85080	83630	39676	39520	20172	18204	30596	35174
MEAN	1179	1165	1112	2499	2934	2698	1323	1275	672	587	987	1172
MAX	1230	1500	1390	4440	4500	3970	2210	2080	820	1120	1240	1480
MIN	1000	778	906	962	1190	1410	955	672	625	333	518	784
AC-FT	72480	69320	68390	153600	168800	165900	78700	78390	40010	36110	60690	69770
CAL YR 1979	TOTAL	441122	MEAN	1209	MAX	2810	MIN	344	AC-FT	875000		
WTR YR 1980	TOTAL	535479	MEAN	1463	MAX	4500	MIN	333	AC-FT	1062000		

KLAMATH RIVER BASIN

11516530 KLAMATH RIVER BELOW IRON GATE DAM, CA

LOCATION.--Lat 41°55'41", long 122°26'35", in SE¼NE¼ sec.17, T.47 N., R.5 W., Siskiyou County, Hydrologic Unit 18010206, on left bank 0.1 mi (0.2 km) downstream from Bogus Creek, 0.6 mi (1.0 km) downstream from Iron Gate Dam, and 5.9 mi (9.5 km) northeast of Hornbrook.

DRAINAGE AREA.--4,630 mi² (11,990 km²), approximately (not including Lost River and Lower Klamath Lake basins).

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,162.44 ft (659.112 m) National Geodetic Vertical Datum of 1929 (levels by Pacific Power and Light Co.).

REMARKS.--Records excellent. Flow regulated by Upper Klamath Lake (see station 11507001), other smaller reservoirs, and diversions above station. Iron Gate Dam 0.6 mi (1.0 km) upstream is a re-regulating reservoir. Records of chemical analyses and water temperatures for the current year are published in the California district report.

AVERAGE DISCHARGE.--20 years, 2,194 ft³/s (62.13 m³/s), 1,590,000 acre-ft/yr (1.96 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft³/s (833 m³/s) Dec. 22, 1964, gage height, 13.63 ft (4.154 m) from rating curve extended above 15,000 ft³/s (425 m³/s), on basis of slope-area measurement of maximum flow; minimum daily, 647 ft³/s (18.3 m³/s) Oct. 30, Nov. 6, 1960, Sept. 24, Oct. 1, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,580 ft³/s (243 m³/s) Jan. 13, gage height, 8.12 ft (2.475 m); minimum daily, 725 ft³/s (20.5 m³/s) July 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1300	1330	1310	1440	3260	4750	1810	2380	760	731	1050	1340
2	1290	1330	1580	1500	3280	4720	1810	2380	749	755	1050	1340
3	1310	1320	1820	1340	3600	4560	1680	2370	745	733	1050	1350
4	1290	1310	1800	1340	3420	4230	1520	2350	737	729	1050	1360
5	1290	1310	1800	1350	3330	3900	1520	2360	744	741	1050	1350
6	1290	1320	1790	1350	3150	3350	1520	2200	741	743	1050	1350
7	1290	1320	1650	1460	3150	3220	1500	1740	737	743	1050	1360
8	1290	1320	1530	1810	3240	3210	1500	1520	734	738	1050	1350
9	1300	1330	1530	1810	3240	3190	1500	1530	732	755	1050	1350
10	1310	1340	1440	1820	3230	3180	1500	1530	732	736	1050	1360
11	1310	1340	1350	1810	3130	3170	1650	1520	732	784	1050	1360
12	1310	1330	1350	3030	2380	3170	1800	1520	747	748	1050	1360
13	1310	1330	1340	6200	1810	3180	1800	1610	740	726	1050	1360
14	1310	1330	1340	7120	1810	3400	1800	1780	738	725	1050	1360
15	1320	1330	1340	5260	1810	3280	1800	1960	738	727	1050	1350
16	1310	1360	1340	5970	1810	3170	1810	2220	737	745	1050	1340
17	1310	1380	1340	6530	1820	3470	1810	1820	735	745	1050	1340
18	1310	1350	1340	5620	1920	4130	1800	1820	749	747	1050	1350
19	1320	1340	1340	5260	2200	3650	1810	1820	744	748	1050	1340
20	1320	1330	1340	5000	5560	3370	1830	1810	745	747	1050	1340
21	1320	1330	1340	4650	5710	3360	1830	1690	738	747	1050	1340
22	1310	1340	1340	4400	5790	3340	1990	1200	820	749	1050	1340
23	1310	1340	1340	4020	5430	3330	2220	1030	931	749	1050	1350
24	1310	1450	1350	3230	5370	3230	1820	1040	743	750	1050	1340
25	1340	1360	1350	3000	5300	2900	1660	1040	733	750	1050	1340
26	1320	1350	1350	3120	5070	2220	1410	1040	733	749	1050	1340
27	1310	1330	1350	3120	5100	2070	1410	1030	736	750	1050	1350
28	1310	1330	1340	3100	5150	1810	1620	1030	739	766	1050	1350
29	1310	1310	1340	3080	4850	1810	1810	1030	731	746	1050	1340
30	1320	1310	1350	3230	---	1810	2150	1020	733	748	1050	1340
31	1310	---	1360	3270	---	1810	---	1020	---	770	1070	---
TOTAL	40560	40100	44480	105240	104920	99990	51690	50410	22453	23120	32570	40440
MEAN	1308	1337	1435	3395	3618	3225	1723	1626	748	746	1051	1348
MAX	1340	1450	1820	7120	5790	4750	2220	2380	931	784	1070	1360
MIN	1290	1310	1310	1340	1810	1810	1410	1020	731	725	1050	1340
AC-FT	80450	79540	88230	208700	208100	198300	102500	99990	44540	45860	64600	80210
CAL YR 1979 TOTAL	520483			1426	3300	696		1032000				
WTR YR 1980 TOTAL	655973			1792	7120	725		1301000				

LOCATION.--Lat 46°37'44", long 119°51'49", in SE¼NW¼ sec.7, T.13 N., R.24 E., Grant County, Hydrologic Unit 17020016, on left bank 2.6 mi (4.2 km) downstream from Priest Rapids Dam, 14.7 mi (23.7 km) south of Beverly, and at mile 394.5 (634.8 km).

PERIOD OF RECORD.—January 1917 to current year. January 1917 to September 1930, at site 3.4 mi (5.5 km) downstream, published as "at Vernita." October 1930 to July 27, 1959, at site 46.5 mi (74.8 km) upstream, published as "at Trinidad."

GAGE.—Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1930, nonrecording gages at site 3.4 mi (5.5 km) downstream at datum 388.7 ft (118.48 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1930, to July 27, 1959, water-stage recorder at site 46.5 mi (74.8 km) upstream at datum 499.3 ft (152.19 m) National Geodetic Vertical Datum of 1929 (river-profile survey).

AVERAGE DISCHARGE.—63 years, 119,700 ft³/s (3,390 m³/s), 86,720,000 acre-ft/yr (106,900 hm³/yr).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft³/s (21,000 m³/s), based on information obtained at other points.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 275,000 ft³/s (7,790 m³/s) June 19, elevation, 415.90 ft (126.766 m); minimum, 35,600 ft³/s (1,010 m³/s) Nov. 18, elevation, 396.26 ft (120.780 m).

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83500	91000	105000	77300	106000	54400	93500	140000	186000	118000	93300	70600
2	90200	96000	73500	102000	95500	59200	92800	122000	164000	137000	100000	83500
3	89400	79900	85400	117000	75200	90800	82500	128000	160000	141000	84700	85600
4	76100	70900	106000	145000	97300	99100	89500	110000	151000	139000	97100	94000
5	72100	87300	110000	98900	107000	94300	72600	130000	161000	128000	101000	82600
6	59900	89500	89300	124000	115000	107000	86900	136000	167000	123000	86200	73900
7	53900	105000	85400	132000	113000	84700	100000	156000	163000	124000	88500	53100
8	74900	106000	80500	150000	97200	71700	94100	151000	154000	110000	93600	79900
9	80300	118000	78000	110000	105000	69500	84800	147000	180000	120000	90400	76600
10	85900	91000	115000	105000	84300	93700	80100	131000	165000	122000	66500	75400
11	88400	99400	134000	109000	115000	112000	73400	109000	172000	121000	105000	72600
12	104000	106000	134000	80100	127000	103000	60000	135000	175000	114000	105000	68300
13	84900	119000	110000	93600	123000	104000	57300	152000	169000	102000	103000	53900
14	58500	101000	94000	105000	139000	112000	82200	154000	156000	118000	113000	42900
15	77300	104000	86900	90100	134000	101000	82600	146000	161000	117000	110000	78100
16	80800	153000	106000	82100	111000	88700	75100	139000	179000	113000	95100	88900
17	108000	79000	108000	91600	101000	98200	80000	111000	201000	119000	78200	80600
18	115000	100000	94700	118000	92700	95100	69800	98500	208000	109000	90700	81900
19	104000	96800	93400	111000	94300	91700	59700	132000	199000	125000	84100	82000
20	83200	115000	80900	93800	97500	79000	56900	132000	191000	114000	91200	61200
21	63000	134000	102000	100000	91600	67000	70100	126000	187000	119000	89000	49000
22	83800	89900	103000	103000	81000	55000	60500	152000	173000	110000	91600	68300
23	80900	101000	104000	82300	79900	64400	57700	153000	178000	104000	81200	64000
24	76800	91800	86300	114000	71500	75400	72500	129000	178000	110000	66700	76100
25	84100	75500	62400	115000	97500	75700	93200	125000	181000	108000	110000	79500
26	72100	95200	77000	113000	90600	96300	60300	124000	169000	89500	122000	69300
27	59300	122000	103000	121000	80500	87500	64600	109000	164000	77700	96600	61900
28	55700	110000	121000	128000	81800	81000	120000	150000	145000	109000	87400	45600
29	65400	114000	112000	133000	73300	69200	124000	147000	146000	98500	97100	73200
30	106000	105000	93800	129000	---	70100	115000	149000	146000	104000	91500	62900
31	106000	---	92400	144000	---	97500	---	160000	---	103000	68700	---
TOTAL	2523400	3046200	3026900	3417800	2877700	2648200	2411700	4183500	5129000	3546700	2878400	2135400
MEAN	81400	101500	97640	110300	99230	85430	80390	135000	171000	114400	92850	71180
MAX	115000	153000	134000	150000	139000	112000	124000	160000	208000	141000	122000	94000
MIN	53900	70900	62400	77300	71500	54400	56900	98500	145000	77700	66500	42900
AC-FT	5005000	6042000	6004000	6779000	5708000	5253000	4784000	8298000	10170000	7035000	5709000	4236000
CAL YR 1979	TOTAL	36606500	MEAN	100300	MAX	153000	MIN	50500	AC-FT	72610000		
WTR YR 1980	TOTAL	37824900	MEAN	103300	MAX	208000	MIN	42900	AC-FT	75030000		

13181000 OWYHEE RIVER NEAR ROME, OR

LOCATION.--Lat 42°52'02", long 117°38'52", in SE¼NE¼ sec.14, T.31 S., R.41 E., Malheur County, Hydrologic Unit 17050107, on right bank 0.5 mi (0.8 km) downstream from Jordan Creek, 2.6 mi (4.2 km) north of Rome, and at mile 122.4 (186.9 km).

DRAINAGE AREA.--About 8,000 mi² (20,700 km²).

PERIOD OF RECORD.--October 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,344.20 ft (1,019.312 m) National Geodetic Vertical Datum of 1929. Prior to Feb 10, 1960, at datum 0.24 ft (0.073 m) lower.

REMARKS.--Records good. Flow regulated by Antelope Reservoir, capacity, 70,000 acre-ft (86.3 hm³), increased in 1970, and Wild Horse Reservoir, capacity, 32,690 acre-ft (40.3 hm³), and numerous small reservoirs. Diversions above station for irrigation.

AVERAGE DISCHARGE.--31 years, 913 ft³/s (25.86 m³/s), 661,500 acre-ft/yr (816 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft³/s (949 m³/s) Dec. 24, 1964, gage height, 16.7 ft (5.09 m), from floodmark; minimum, 42 ft³/s (1.19 m³/s) Aug. 12, 1954, July 28, Aug. 5, 1961, July 31, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,400 ft³/s (153 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Jan. 14	(a)	*11,700 331	*10.70b 3.261	Feb. 19	0530	8,680 246	9.29 2.832

Minimum, 105 ft³/s (2.97 m³/s) Oct. 2.

(a) About 1800.

(b) From high-water mark in well.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	177	170	172	351	1850	801	2270	2410	506	232	164
2	109	177	193	175	473	1570	761	2070	2370	508	232	160
3	111	173	223	191	558	1430	731	1790	2750	495	232	167
4	113	173	238	192	543	1540	742	1740	3260	499	232	163
5	110	175	245	195	506	1680	805	1620	3260	507	232	162
6	111	178	228	180	501	1700	962	1530	3020	491	229	156
7	111	186	228	160	671	1470	937	1480	2910	457	228	156
8	111	187	245	160	702	1280	909	1440	2680	427	226	162
9	113	185	248	170	650	1150	925	1480	2390	402	224	163
10	114	177	244	208	558	1050	1020	1670	2130	376	219	174
11	113	182	245	197	480	1000	1090	1920	1970	358	213	172
12	114	182	189	162	439	1040	1110	1940	1810	337	213	166
13	111	176	189	288	412	1050	1160	1990	1660	307	214	234
14	111	173	185	9000	407	993	1360	2090	1580	303	207	219
15	131	169	195	6000	426	1080	1740	1990	1470	278	204	219
16	133	171	184	4000	497	1210	2190	1980	1430	262	198	241
17	137	170	194	2590	1230	1110	2090	2520	1360	256	193	234
18	139	172	198	2060	2470	1070	2250	1980	1300	245	210	222
19	149	170	190	1660	7300	1120	2470	1660	1170	245	195	218
20	149	173	184	1070	3780	1280	2610	1430	1110	242	190	214
21	151	165	186	823	3000	1310	2760	1270	1040	242	192	204
22	156	133	206	668	2160	1220	2860	1140	928	240	194	202
23	165	164	207	611	1790	1540	2990	1040	837	238	228	199
24	178	187	168	636	1430	1360	3150	1050	768	232	197	200
25	218	212	206	566	1440	1220	3240	1310	716	218	181	201
26	215	217	217	498	1420	985	3410	1490	665	206	172	203
27	194	211	193	350	2130	870	3100	2500	633	214	167	200
28	183	196	175	250	2550	801	2770	2810	581	210	163	192
29	174	160	166	320	2030	775	2560	2220	543	214	159	188
30	170	160	164	270	---	794	2440	1910	515	218	156	186
31	178	---	164	292	---	787	---	1880	---	225	161	---
TOTAL	4382	5331	6267	34114	40904	37335	55943	55210	49266	9958	6293	5741
MEAN	141	178	202	1100	1410	1204	1865	1781	1642	321	203	191
MAX	218	217	248	9000	7300	1850	3410	2810	3260	508	232	241
MIN	109	133	164	160	351	775	731	1040	515	206	156	156
AC-FT	8690	10570	12430	67670	81130	74050	111000	109500	97720	19750	12480	11390

CAL YR 1979 TOTAL 352002 MEAN 964 MAX 7450 MIN 105 AC-FT 698200
WTR YR 1980 TOTAL 310744 MEAN 849 MAX 9000 MIN 109 AC-FT 616400

NOTE.--No gage-height record Jan. 14-16.

13182500 LAKE OWYHEE NEAR NYSSA, OR

LOCATION.--Lat 43°38'30", long 117°14'30", in NW¼SE¼ sec.20, T.22 S., R.45 E., Malheur County, Hydrologic Unit 17050110, near left abutment on Owyhee Dam on Owyhee River, 21 mi (33.8 km) southwest of Nyssa, and at mile 28.5 (45.9 km).

DRAINAGE AREA.--11,160 mi² (28,900 km²), approximately.

PERIOD OF RECORD.--October 1932 to current year (month-end contents and change in contents only prior to October 1979). Prior to October 1958, published as Owyhee Reservoir at Owyhee Dam, near Nyssa.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service). Prior to Oct. 1, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete arch-gravity dam, completed in September 1932; storage began Oct. 16, 1932. Capacity, 1,122,000 acre-ft (1,380 hm³) between elevations 2,367.50 ft (721.614 m) bottom of sluice gates and 2,670.00 ft (813.816 m) top of spillway gate, 715,000 acre-ft (882 hm³) between elevations 2,590.20 ft (789.493 m) diversion tunnel and 2,670.00 ft (813.816 m). Dead storage below elevation 2,367.50 ft (721.614 m) negligible. Figures given herein are contents above elevation 2,367.50 ft (721.614 m). Reservoir generally will not be drawn below elevation 2,590.2 ft (789.493 m), contents, 406,800 acre-ft (502 hm³), which project considers dead storage. Water is released through diversion tunnel to South Canal for irrigation of lands west of Snake River in vicinity of Homedale, Idaho, and to North Canal for irrigation of lands north and west of Owyhee River and through sluice gates to river for Owyhee Canal, which diverts about 18 mi (29 km) downstream.

COOPERATION.--Capacity tables furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 1,140,000 acre-ft (1,410 hm³) Apr. 15, 1952, elevation, 2,671.50 ft (814.273 m); minimum observed since full capacity was attained on May 7, 1936, 437,000 acre-ft (539 hm³) Oct. 1, 1961, elevation, 2,595.35 ft (791.063 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 1,126,000 acre-ft (1,390 hm³) June 1; maximum elevation, 2,670.42 ft (813.944 m) June 13, affected by wind; minimum contents, 823,600 acre-ft (1,020 hm³) Oct. 19, elevation, 2,643.71 ft (805.803 m).

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2646.10	2644.26	2645.92	2647.84	2655.44	2663.34	2668.74	2668.94	2670.30	2668.19	2661.16	2653.67
2	2645.98	2644.31	2646.00	2647.92	2655.56	2663.60	2668.75	2669.07	2670.26	2667.99	2660.91	2653.43
3	2645.87	2644.34	2646.10	2647.95	2655.64	2663.92	2668.77	2669.08	2670.26	2667.74	2660.65	2653.21
4	2645.78	2644.46	2646.16	2648.06	2655.77	2664.14	2668.79	2669.13	2670.27	2667.57	2660.43	2652.97
5	2645.67	2644.49	2646.18	2648.14	2655.93	2664.48	2668.81	2669.12	2670.26	2667.38	2660.22	2652.77
6	2645.48	2644.57	2646.26	2648.20	2656.01	2664.73	2668.83	2669.09	2670.23	2667.20	2659.97	2652.53
7	2645.33	2644.60	2646.31	2648.24	2656.14	2664.98	2668.83	2669.09	2670.17	2667.00	2659.71	2652.33
8	2645.15	2644.67	2646.37	2648.31	2656.25	2665.21	2668.83	2669.07	2670.21	2666.77	2659.47	2652.09
9	2645.02	2644.71	2646.51	2648.42	2656.41	2665.42	2668.83	2669.02	2670.22	2666.58	2659.27	2651.87
10	2644.86	2644.78	2646.55	2648.50	2656.54	2665.62	2668.82	2668.99	2670.15	2666.36	2659.05	2651.81
11	2644.71	2644.83	2646.58	2648.57	2656.65	2665.81	2668.82	2669.04	2670.16	2666.10	2658.77	2651.61
12	2644.57	2644.87	2646.72	2648.87	2656.75	2665.96	2668.82	2669.06	2670.20	2665.86	2658.53	2651.39
13	2644.42	2644.90	2646.73	2649.08	2656.85	2666.18	2668.84	2669.12	2670.24	2665.68	2658.28	2651.29
14	2644.27	2644.96	2646.78	2649.59	2656.94	2666.37	2668.90	2669.20	2670.13	2665.43	2658.06	2651.19
15	2644.15	2645.03	2646.84	2651.21	2657.02	2666.48	2668.89	2669.30	2670.11	2665.21	2657.82	2651.09
16	2644.02	2645.11	2646.89	2652.46	2657.13	2666.61	2668.91	2669.36	2670.10	2664.99	2657.56	2650.98
17	2643.90	2645.16	2646.95	2653.12	2657.29	2666.88	2668.90	2669.47	2670.08	2664.74	2657.35	2650.88
18	2643.81	2645.23	2647.01	2653.54	2657.71	2667.06	2668.83	2669.55	2670.04	2664.50	2657.06	2650.83
19	2643.74	2645.25	2647.08	2653.93	2658.71	2667.20	2668.81	2669.64	2670.02	2664.27	2656.83	2650.73
20	2643.73	2645.27	2647.13	2654.17	2659.63	2667.44	2668.87	2669.66	2669.87	2664.05	2656.58	2650.64
21	2643.75	2645.32	2647.22	2654.39	2660.23	2667.68	2668.87	2669.66	2669.76	2663.81	2656.31	2650.58
22	2643.77	2645.44	2647.24	2654.55	2660.73	2667.86	2668.93	2669.59	2669.58	2663.50	2656.08	2650.47
23	2643.80	2645.49	2647.36	2654.64	2661.02	2668.08	2668.93	2669.46	2669.51	2663.33	2655.90	2650.42
24	2643.92	2645.58	2647.44	2654.79	2661.33	2668.32	2668.91	2669.47	2669.37	2663.09	2655.62	2650.37
25	2643.97	2645.58	2647.51	2654.88	2661.60	2668.49	2668.88	2669.46	2669.27	2662.85	2655.40	2650.29
26	2644.02	2645.67	2647.54	2654.98	2661.88	2668.69	2668.84	2669.47	2669.07	2662.62	2655.18	2650.22
27	2644.12	2645.70	2647.57	2655.08	2662.22	2668.70	2668.81	2669.49	2668.92	2662.38	2654.93	2650.14
28	2644.17	2645.72	2647.62	2655.20	2662.63	2668.71	2668.76	2669.74	2668.74	2662.11	2654.68	2650.09
29	2644.17	2645.82	2647.66	2655.27	2663.00	2668.76	2668.81	2669.95	2668.52	2661.87	2654.43	2650.01
30	2644.17	2645.85	2647.76	2655.29	---	2668.70	2668.89	2670.10	2668.32	2661.64	2654.16	2649.92
31	2644.20	---	2647.82	2655.40	---	2668.73	---	2670.20	---	2661.39	2653.93	---
MEAN	2644.54	2645.07	2646.90	2651.63	2658.24	2666.59	2668.84	2669.37	2669.81	2664.91	2657.56	2651.33
MAX	2646.10	2645.85	2647.82	2655.40	2663.00	2668.76	2668.93	2670.20	2670.30	2668.19	2661.16	2653.67
MIN	2643.73	2644.26	2645.92	2647.84	2655.44	2663.34	2668.74	2668.94	2668.32	2661.39	2653.93	2649.92
(†)	828500	845200	865500	947200	1035000	1106000	1108000	1124000	1101000	1016000	930900	887500
(‡)	-21300	+16700	+20300	+81700	+87800	+71000	+2000	+16000	-23000	-85000	-85100	-43400
CAL YR 1979	MEAN	---	MAX	---	MIN	---	AC-FT‡	+7000				
WTR YR 1980	MEAN	2657.89	MAX	2670.30	MIN	2643.73	AC-FT‡	+37700				

† Contents, in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

OWYHEE RIVER BASIN

13183000 OWYHEE RIVER BELOW OWYHEE DAM, OR

LOCATION.--Lat 43°39'17", long 117°15'16", in SE¼ sec.18, T.22 S., R.45 E., Malheur County, Hydrologic Unit 17050110, on left bank 0.8 mi (1.3 km) downstream from Owyhee Dam, 20 mi (32 km) southwest of Nyssa, and at mile 27.3 (43.9 km).

DRAINAGE AREA.--11,160 mi² (28,900 km²), approximately.

PERIOD OF RECORD.--February 1929 to current year.

REVISED RECORDS.--WSP 983: 1941-42. WSP 1397: 1930, 1933, 1946.

GAGE.--Water-stage recorder. Datum of gage is 2,343.67 ft (714.351 m) National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

REMARKS.--Records good. Flow regulated since October 1932 by Lake Owyhee (see station 13182500), and by many smaller reservoirs. Diversion of 467,800 acre-ft (577 hm³) from Lake Owyhee during the year for irrigation of lands below station and outside the basin. Many smaller diversions above Lake Owyhee for irrigation above station.

COOPERATION.--Water-stage recorder inspected by irrigation district employees.

AVERAGE DISCHARGE.--48 years (water years 1933-80), 352 ft³/s (9.969 m³/s), 255,000 acre-ft/yr (314 hm³/yr), not adjusted for storage or diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,900 ft³/s (649 m³/s) Apr. 15, 1952, gage height, 15.70 ft (4.785 m); no flow for part of Aug. 8, 9, 1932, when temporary diversion tunnel at Owyhee Dam was closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,970 ft³/s (84.1 m³/s) June 6, gage height, 6.38 ft (1.945 m); minimum, 3.6 ft³/s (0.10 m³/s) Oct. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	157	5.1	4.7	4.0	4.8	13	755	199	607	193	182	192
2	156	5.1	4.7	4.0	4.8	13	717	214	1570	193	180	191
3	156	5.1	4.7	4.2	5.2	13	674	217	1700	193	178	190
4	155	5.2	4.7	4.2	5.0	13	694	217	1980	193	177	190
5	155	5.2	4.7	4.2	5.0	13	729	220	2580	193	177	190
6	155	5.2	4.7	4.2	5.0	13	787	217	2800	192	172	190
7	155	5.3	4.7	4.2	4.8	13	956	211	2490	191	171	190
8	154	5.3	4.7	4.2	4.8	13	830	214	1540	190	169	190
9	155	5.3	4.5	4.2	4.8	13	770	214	1910	190	167	190
10	155	5.3	4.4	4.2	5.2	13	731	214	1670	190	167	190
11	155	5.3	4.4	4.2	5.8	13	722	214	815	190	166	195
12	133	5.3	4.4	4.5	6.6	13	635	214	580	189	189	198
13	110	5.2	4.4	4.5	7.0	12	544	214	667	187	191	199
14	110	5.2	4.4	4.4	7.0	12	800	217	700	187	182	144
15	110	5.2	4.4	4.5	7.3	12	1050	214	307	187	184	173
16	110	5.2	4.4	4.4	7.3	12	1450	217	229	186	186	172
17	110	5.5	4.2	4.7	7.5	12	1960	217	209	186	184	149
18	110	5.5	4.2	4.5	8.3	13	1760	220	207	187	178	148
19	87	5.4	4.2	4.5	8.3	14	1520	220	197	185	178	150
20	45	5.4	4.2	4.5	9.5	14	1350	220	193	185	178	150
21	45	5.4	4.2	4.5	9.3	15	1390	220	195	185	178	151
22	45	5.5	4.2	4.5	9.5	15	1450	220	196	184	176	152
23	31	5.8	4.2	4.5	9.8	15	1740	214	198	184	176	152
24	4.4	5.8	4.4	4.5	9.5	14	2250	208	199	181	176	152
25	4.2	5.8	4.4	4.7	9.5	13	2490	208	201	179	176	152
26	4.0	5.8	4.2	4.7	10	354	2440	211	194	180	176	132
27	4.0	5.6	4.0	4.7	10	858	2370	211	184	178	185	126
28	4.0	5.6	4.0	4.5	11	948	1610	211	192	177	190	126
29	4.2	5.4	4.0	4.5	12	774	770	220	193	173	188	126
30	5.1	4.7	4.0	4.5	---	727	388	254	193	178	191	126
31	5.2	---	4.0	4.5	---	749	---	286	---	183	193	---
TOTAL	2789.1	160.7	135.3	136.4	214.6	4739	36332	6767	24896	5769	5561	4976
MEAN	90.0	5.36	4.36	4.40	7.40	153	1211	218	830	186	179	166
MAX	157	5.8	4.7	4.7	12	948	2490	286	2800	193	193	199
MIN	4.0	4.7	4.0	4.0	4.8	12	388	199	184	173	166	126
AC-FT	5530	319	268	271	426	9400	72060	13420	49380	11440	11030	9870
MEAN†	256	286	335	1334	1534	1308	1887	1823	1768	365	253	292
AC-FT†	15,740	17,020	20,570	82,000	88230	80400	112300	112100	105200	22420	15550	17380
CAL YR 1979 TOTAL	144040.9											
WTR YR 1980 TOTAL	92476.1											
MEAN 395												
MAX 4000												
MIN 3.4												
AC-FT 285700												
MIN 4.0												
AC-FT 183400												

† Adjusted for diversions from Lake Owyhee and change in lake contents

OWYHEE RIVER BASIN

75

13184000 OWYHEE RIVER AT OWYHEE, OR
(National stream-quality accounting network station)

LOCATION.--Lat 43°46'57", long 117°03'30", in SE¼SE¼ sec.35, T.20 S., R.46 E., Malheur County, Hydrologic Unit 17050110, on left bank 0.3 mi (0.5 km) upstream from State Highway 201 bridge, 0.9 mi (1.4 km) southwest of Owyhee, and at mile 3.1 (5.0 km).

DRAINAGE AREA.--11,300 mi² (29,300 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1890 to June 1891, February to June 1892, February to July, October to December 1893, January 1895 to May 1897, August 1903 to September 1916, May 1920 to July 1929, July 1979 to current year. Monthly discharge only for some periods published in WSP 1317. Published as "at Rigsby", 1890-93, "at Nyssa", 1985-96 and as "at Owyhee" in WSP 370. Records for September, October 1903, May to October 1904, March, April 1905, published in WSP 135 in conjunction with records for Owyhee River near Owyhee and in WSP 370, have been found in error and should not be used.

REVISED RECORDS.--WSP 1317: 1890-91, 1904, 1909-11, 1929, drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,190 ft (668 m), from topographic map.

REMARKS.--Water-discharge records excellent. Flow regulated since October 1932 by Lake Owyhee (see station 13182500), and smaller reservoirs. Diversions from Lake Owyhee for irrigation of lands above station and outside the basin. Many smaller diversions above Lake Owyhee for irrigation.

AVERAGE DISCHARGE.--20 years (water years 1896, 1904-16, 1922-27), 1,048 ft³/s (29.7 m³/s), 759,300 acre-ft/yr (936 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft³/s (821 m³/s) Mar. 2, 1910, gage height, 12.9 ft (3.93 m) site and datum then in use, from rating curve extended above 14,000 ft³/s (396 m³/s) by logarithmic plotting; no flow July 7, 19, Aug. 14-16, 1924, July 5, 6, 1926. Maximum discharge recorded since construction of Owyhee Dam in 1932, 2,470 ft³/s (70.0 m³/s) June 6, 1980, gage height, 7.38 ft (2.249 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,470 ft³/s (70.0 m³/s) June 6, gage height, 7.38 ft (2.249 m); minimum, 29 ft³/s (0.82 m³/s) Oct. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	53	52	50	45	52	748	191	168	100	106	96
2	71	52	53	49	45	52	756	165	971	102	104	93
3	71	53	52	49	48	54	679	160	1440	124	104	93
4	73	53	52	49	48	54	688	124	1530	118	106	90
5	73	52	52	49	48	54	711	113	2060	104	104	88
6	71	50	52	49	48	54	748	111	2320	96	100	86
7	71	50	50	48	49	54	848	108	2330	93	93	86
8	71	50	50	48	48	53	910	100	1670	96	93	80
9	70	49	50	48	48	53	774	100	1460	96	90	76
10	71	52	50	53	47	54	765	100	1650	91	86	82
11	71	50	49	50	47	54	756	100	1050	91	88	88
12	73	50	49	100	45	53	739	98	506	86	82	82
13	75	52	49	126	47	54	652	93	577	90	88	93
14	62	52	48	66	47	53	581	96	684	91	100	115
15	60	52	48	56	47	52	935	98	372	91	93	100
16	63	52	48	53	48	50	1060	98	191	91	91	80
17	63	52	48	52	49	50	1640	93	133	88	96	71
18	65	52	48	50	50	52	1670	90	126	90	98	86
19	71	50	48	49	50	52	1390	90	128	100	90	78
20	62	52	48	49	52	52	1230	88	128	104	86	68
21	48	52	49	49	50	59	1130	88	128	102	90	66
22	40	52	48	48	52	59	1240	90	128	98	84	63
23	50	53	48	48	52	57	1360	96	127	91	80	62
24	90	54	50	48	52	54	1680	106	135	91	80	62
25	73	53	53	49	50	54	2080	120	122	91	80	62
26	60	53	52	49	50	54	2050	113	120	93	76	63
27	56	53	50	48	50	581	2010	113	122	96	76	59
28	57	52	49	47	50	920	1770	100	106	100	82	52
29	54	53	49	47	50	848	843	91	108	100	88	52
30	54	52	48	47	---	721	549	91	104	98	88	52
31	53	---	49	45	---	725	---	126	---	100	91	---
TOTAL	2015	1555	1541	1668	1412	5188	32992	3350	20694	3002	2813	2324
MEAN	65.0	51.8	49.7	53.8	48.7	167	1100	108	690	96.8	90.7	77.5
MAX	90	54	53	126	52	920	2080	191	2330	124	106	115
MIN	40	49	48	45	45	50	549	88	104	86	76	52
AC-FT	4000	3080	3060	3310	2800	10290	65440	6640	41050	5950	5580	4610

WTR YR 1980 TOTAL 78554 MEAN 215 MAX 2330 MIN 40 AC-FT 155800

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1979 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March to September 1980.

WATER TEMPERATURES: July 1979 to current year.

INSTRUMENTATION.--Water-quality monitor since September 1980.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 968 micromhos Mar. 25, 1980; minimum recorded, 204 micromhos June 10, 1980.

WATER TEMPERATURES: Maximum, 25.0°C July 19, 1979; minimum, 0.5°C Jan. 28, 30, 1980.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 968 micromhos Mar. 25; minimum recorded, 204 micromhos June 10.

WATER TEMPERATURES: Maximum, 24.0°C July 23, 24; minimum, 0.5°C Jan. 28, 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	OXYGEN, DIS- SOLVED (MG/L)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI KF AGAR (COLS. PER 100 ML)	SILICA, DIS- SOLVED (MG/L AS SiO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT												
01...	1405	75	16.2	8.4	10.9	--	920	1600	31	55	12	88
NOV												
05...	1450	52	11.4	8.2	12.9	1160	K300	920	47	86	22	150
DEC												
03...	1430	52	6.4	8.4	15.8	1140	K240	1030	42	76	20	130
JAN												
07...	1500	47	2.2	8.5	15.4	908	K144	K6600	48	85	23	150
FEB												
04...	1510	48	5.4	8.2	11.9	1140	--	6800	46	89	24	150
MAR												
31...	1630	730	6.0	8.3	11.6	288	--	K267	23	22	5.8	30
MAY												
05...	1600	116	19.6	8.1	9.0	549	--	967	27	43	11	70
JUN												
23...	1700	123	18.1	7.8	8.0	522	--	1680	26	41	11	66
JUL												
08...	1015	101	18.6	7.8	7.4	576	--	7800	32	49	12	76
AUG												
04...	1450	106	19.4	8.1	8.3	581	--	3380	30	43	11	64
SEP												
02...	1630	93	16.2	7.8	7.4	653	--	3300	32	50	12	75
30...	1200	53	16.8	7.8	7.6	850	540	1000	40	70	18	110

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
OCT												
01...	8.2	200	160	26	1.1	1.3	1.3	1.9	.040	1.5	3.4	.120
NOV												
05...	12	290	250	41	1.4	.66	3.4	.61	.050	3.4	4.1	.060
DEC												
03...	16	190	280	42	1.4	.63	3.0	.73	.040	2.9	3.7	.040
JAN												
07...	11	280	260	45	1.5	1.1	3.1	1.3	.080	3.0	4.4	.060
FEB												
04...	11	280	270	50	1.4	.93	3.0	1.0	.180	3.0	4.2	.140
MAR												
31...	3.9	94	33	8.7	.9	.46	.35	.64	.000	.36	1.0	.060
MAY												
05...	6.5	150	100	21	1.0	.46	.84	1.2	.000	.86	2.1	.060
JUN												
23...	6.5	170	91	21	1.2	.60	.91	.93	.070	.89	1.9	.010
JUL												
08...	8.2	190	110	22	1.3	.98	1.1	1.5	.100	1.5	3.1	.120
AUG												
04...	7.5	160	100	20	1.0	1.1	1.2	.96	.040	1.3	2.3	.080
SEP												
02...	8.0	190	120	26	1.1	.71	1.0	.70	.030	1.7	2.4	.080
30...	11	250	190	35	1.1	.53	2.0	.86	.000	2.3	3.2	.120

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED (MG/L AS C)	CARBON, ORGANIC TOTAL (MG/L AS C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	TUR- BID- ITY (NTU)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 01...	.120	3.2	1.0	--	190	0	469	507	27	52	11	99
NOV 05...	.090	--	--	4.1	310	15	821	799	9.1	26	3.6	93
DEC 03...	.080	--	--	4.2	270	82	827	735	4.8	17	2.4	93
JAN 07...	.120	7.8	--	--	310	27	820	806	5.3	12	1.5	86
FEB 04...	.190	--	--	9.3	320	41	792	823	41	43	5.6	98
MAR 31...	.090	6.9	--	--	79	0	189	185	20	84	166	80
MAY 05...	.160	--	--	11	150	3	386	373	33	89	28	98
JUN 23...	.200	--	--	11	150	0	366	370	60	109	36	98
JUL 08...	.110	6.0	1.1	--	170	0	421	430	76	165	45	98
AUG 04...	.200	--	--	6.0	150	0	412	378	23	99	28	98
SEP 02...	.160	--	--	5.7	170	0	443	443	1.4	78	20	92
30...	.190	8.8	.6	--	250	0	624	634	27	61	8.6	93

DATE	IRON, DIS- SOLVED (UG/L AS FE)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	ARSENIC DIS- SOLVED (UG/L AS AS)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)
OCT 01...	20	1400	30	90	31	31	50	100	<1	0
JAN 07...	<10	320	30	80	55	55	60	200	<1	0
MAR 31...	60	2000	10	50	7	6	20	--	<1	1
JUL 08...	80	5200	30	190	26	28	60	100	<1	0
SEP 30...	10	1500	50	120	50	51	--	--	<1	0

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	SILVER, DIS- SOLVED (UG/L AS AG)
OCT 01...	10	0	<3	0	1	4	0	8	0
JAN 07...	0	0	<3	2	0	1	2	6	0
MAR 31...	0	0	<3	2	7	16	0	11	0
JUL 08...	0	20	<3	1	3	3	0	1	0
SEP 30...	20	20	<3	0	2	5	1	3	0

DATE	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SELE- NIUM, TOTAL (UG/L AS SE)	MERCURY DIS- SOLVED (UG/L AS HG)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
OCT 01...	0	<3	10	3	2	.1	.1	--	--
JAN 07...	3	<3	--	1	4	.0	.1	0	3
MAR 31...	0	5	60	0	0	.0	--	3	10
JUL 08...	0	30	40	2	2	.0	--	4	4
SEP 30...	0	<3	20	4	4	--	--	0	4

OWYHEE RIVER BASIN

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued
 PHYTOPLANKTON ANALYSES, NOVEMBER 1979 TO MAY 1981

DATE TIME	NOV 5,79 1450	MAR 31,80 1630	MAY 5,80 1600	JUN 23,80 1700
TOTAL CELLS/ML	1600	780	4600	830
DIVERSITY: DIVISION	0.8	0.0	1.1	1.4
..CLASS	0.8	0.0	1.1	1.4
..ORDER	1.2	0.3	2.0	2.1
...FAMILY	1.3	0.3	2.7	2.9
....GENUS	1.3	0.3	2.8	3.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
....CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	52	6
...MICRACIINIACEAE								
....MICRACINIUM	--	-	--	-	--	-	--	-
...DCCYSTACEAE								
....ANKISTRODES MUS	--	-	--	-	170	4	26	3
....DICTYOSPHAERIUM	--	-	--	-	55	1	--	-
...SCENEDESMAEAE								
....SCENEDESMUS	--	-	--	-	110	2	150#	19
...TETRASPORALES								
...COCCOMYXACEAE								
....ELAKATCTHRIA	--	-	--	-	--	-	--	-
...VOLVOCACEAE								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	--	-	52	6
...PHACOTACEAE								
....PHACOTUS	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...COSCINOIDISCAEAE								
....CYCLOTELLA	1110#	67	51	7	2000#	44	90	11
....MELOSTRA	--	-	--	-	--	-	52	6
...STEPHANOLISCUS	--	-	--	-	28	1	--	-
...PENNALES								
....ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	--	-
...COCCONEIS	--	-	--	-	140	3	--	-
...RHODOSIPHENTIA	--	-	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	55	1	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	55	1	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	730#	93	470	10	--	-
...SYNEORA	--	-	--	-	28	1	13	2
...GOMPHONEMACEAE								
....GOMPHONEMA	13	1	--	-	--	-	--	-
...NAVICULACEAE								
....NAVICULA	52	3	--	-	83	2	100	13
...PINNULARIA	--	-	--	-	--	-	--	-
...NITZSCHIAEAE								
....NITZSCHIA	--	-	--	-	--	-	--	-
....NITZSCHIA	39	2	--	-	330	7	150#	19
...SURIPELLACEAE								
....CYMATOPLEURA	--	-	--	-	--	-	--	-
....SURIPELLA	13	1	--	-	110	2	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	580	13	--	-
....COCCOCHLORIS	--	-	--	-	28	1	--	-
...HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	410#	26	--	-	330	7	130#	16
EUGLENOPHYTA (EUGLENOIDS)								
..EUGLENOPHYCEAE								
...EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 8,80 1015	AUG 4,80 1450
TOTAL CELLS/ML	1200	1800
DIVERSITY: DIVISION	1.0	1.6
..CLASS	1.0	1.6
...ORDER	1.5	2.4
....FAMILY	2.9	2.8
.....GENUS	3.1	2.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)				
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
....CHARACIACEAE				
....SCHROEDERIA	14	1	--	--
....MICRACTINIACEAE	--	--	--	--
....MICRACTINIUM	--	--	--	--
....DOCYSTACEAE				
....ANKISTRICESMUS	72	6	13	1
....DICTYOSPHAERIUM	--	--	--	--
....SCENEDESMACEAE				
....SCENEDESMUS	--	--	260	15
....TETRASPORALES				
....COCCOMYXACEAE				
....ELAKATOTHRIX	--	--	26	1
....VOLVOCALLES				
....CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS	43	4	590*	34
....PHACOTACEAE				
....PHACOTUS	--	--	--	--
CHRYSOPHYTA				
..BACILLARIOPHYCEAE				
...CENTRALES				
...COSCINOIDISCEAE				
....CYCLOTELLA	36	7	26	1
....MELOSIIRA	14	1	39	2
....STEPHANODISCUS	--	--	--	--
...PENNALES				
....ACHNANTHACEAE				
....ACHNANTHES	14	1	--	--
....COCCONEIS	29	2	--	--
....RHODICOSPHENIA	--	--	26	1
....CYNEELLACEAE				
....CYMBELLA	14	1	--	--
....DIATOMACEAE				
....DIATOMA	14	1	--	--
....FRAGILARIACEAE				
....FRAGILARIA	170	14	120	7
....SYNEDRA	29	2	--	--
....GOMPHONEMACEAE				
....GOMPHONEMA	14	1	--	--
....NAVICULACEAE				
....NAVICULA	130	11	65	4
....PINNULARIA	14	1	--	--
....NITZSCHACEAE				
....NANTZSCHIA	--	--	--	--
....NITZSCHIA	400*	33	260	15
....SURIRELLACEAE				
....CYMATOPLEURA	--	--	--	--
....SURIRELLA	--	--	--	--
CRYPTOPHYTA (CRYPTOMONADS)				
..CRYPTOPHYCEAE				
...CRYPTOMONADALES				
....CRYPTOCHRYSIDACEAE				
....CHROMONAS	--	--	--	--
....CRYPTOMONADACEAE				
....CRYPTOMONAS	--	--	--	--
CYANOPHYTA (BLUE-GREEN ALGAE)				
..CYANOPHYCEAE				
...CHROOCOCCALES				
....CHROOCOCCACEAE				
....ANACYSTIS	--	--	52	3
....COCCOCHLORIS	--	--	--	--
...HORMOGONALES				
....OSCILLATORIA				
....OSCILLATORIA	140	12	270*	15
EUGLENOPHYTA (EUGLENOIDS)				
..EUGLENOPHYCEAE				
...EUGLENALES				
....EUGLENACEAE				
....EUGLENA	--	--	26	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

OWYHEE RIVER BASIN

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	295	360	400	600	580	655
2						---	285	400	280	600	576	630
3						---	290	420	270	510	586	700
4						---	290	500	270	520	585	715
5						---	290	562	260	590	572	720
6						---	285	564	250	605	576	729
7						---	285	539	257	594	606	729
8						---	295	588	248	588	636	743
9						---	290	616	254	605	656	753
10						---	290	623	233	611	673	754
11						---	290	622	236	620	684	750
12						---	290	615	266	634	682	738
13						---	295	620	294	649	650	713
14						---	302	615	317	640	600	686
15						---	301	600	343	640	630	664
16						---	295	600	---	640	640	716
17						---	260	620	---	650	620	769
18						---	260	640	---	640	610	729
19						---	270	650	---	600	640	720
20						---	270	650	---	590	650	727
21						---	270	640	---	580	640	786
22						---	270	620	---	610	667	796
23						---	265	590	---	630	690	801
24						---	260	580	500	630	690	800
25						958	257	540	480	630	690	799
26						898	250	550	520	620	710	796
27						429	250	550	525	610	710	795
28						280	260	600	520	600	680	814
29						299	280	630	570	600	659	827
30						300	300	630	602	610	655	822
31						284	---	520	---	600	640	---
MEAN						493	280	576	359	608	641	746

OWYHEE RIVER BASIN

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13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	17.0	14.5	10.5	8.5	5.0	3.5	5.0	4.5	3.0	2.0	10.5	8.0
2	17.0	14.5	9.0	8.0	5.0	4.5	5.0	5.0	4.0	3.0	11.0	9.5
3	16.5	14.0	9.5	8.5	6.5	5.0	6.0	5.0	5.5	4.0	12.5	9.5
4	15.5	13.0	10.5	9.5	6.5	5.5	6.0	6.0	5.5	5.5	12.0	10.0
5	15.5	13.0	11.5	10.5	6.5	5.0	7.5	6.0	6.0	5.0	11.0	9.5
6	16.0	13.5	11.5	9.5	7.0	5.0	6.5	4.5	6.5	5.0	11.5	8.0
7	17.0	14.5	10.5	8.5	7.0	6.5	4.5	3.5	7.5	5.5	11.0	8.5
8	17.0	15.0	9.5	8.0	7.5	6.5	4.0	3.5	7.0	5.0	11.0	8.0
9	16.0	14.0	9.5	7.5	7.0	6.5	4.5	4.0	8.0	5.5	11.5	8.0
10	15.0	13.0	9.0	6.5	7.0	5.5	5.5	4.0	7.5	5.0	12.0	8.5
11	15.0	13.0	9.0	6.5	5.5	3.5	4.0	2.0	6.5	4.5	11.0	8.5
12	15.0	13.0	8.0	6.0	6.0	3.5	6.0	2.0	5.5	5.0	9.5	6.5
13	14.0	12.5	7.0	5.5	5.5	3.5	6.0	2.0	5.5	5.5	8.5	7.5
14	14.5	13.0	6.5	5.0	5.5	4.0	7.5	6.0	6.5	5.5	10.5	8.5
15	16.0	14.5	7.0	4.5	6.0	4.5	8.5	7.0	8.5	6.5	9.5	7.5
16	14.5	13.0	6.5	5.5	6.0	4.5	7.5	7.0	10.0	7.5	9.0	5.5
17	14.5	13.0	7.0	6.5	6.0	4.5	7.5	6.5	10.0	9.0	8.5	6.5
18	13.0	12.0	8.0	7.0	5.5	4.0	6.5	4.0	10.0	9.5	10.5	8.0
19	12.5	12.0	7.5	5.5	5.0	4.0	4.5	2.5	10.0	9.0	11.5	8.0
20	12.5	11.0	7.0	4.5	6.0	5.0	4.5	3.0	9.5	8.0	10.5	8.0
21	13.0	11.0	6.0	4.0	7.0	6.0	6.5	4.0	8.5	7.0	8.5	7.5
22	12.0	10.5	4.5	3.5	7.0	5.5	5.5	4.5	7.0	6.0	11.0	6.0
23	11.5	10.5	6.0	4.0	5.5	2.5	5.5	5.5	9.0	6.5	11.0	8.0
24	12.0	11.0	6.0	4.0	4.5	2.5	5.5	5.5	8.5	7.0	11.0	7.5
25	12.5	12.0	6.0	5.0	6.5	4.5	7.0	5.0	10.0	7.5	11.5	7.5
26	12.5	10.5	6.5	5.0	6.0	5.0	6.0	3.5	11.5	9.0	10.0	7.0
27	12.0	10.0	5.5	3.0	5.0	4.5	3.5	2.0	11.0	9.5	9.0	7.0
28	11.5	10.5	3.5	2.5	5.5	4.5	2.0	.5	10.5	9.5	7.5	6.0
29	11.0	9.0	3.5	2.0	4.5	4.5	2.5	1.0	11.5	8.0	7.5	7.0
30	11.0	8.5	3.0	2.0	4.5	3.5	2.0	.5	---	---	7.0	6.0
31	10.5	10.0	---	---	4.5	3.5	2.0	1.0	---	---	6.5	5.0
MONTH	17.0	8.5	11.5	2.0	7.5	2.5	8.5	.5	11.5	2.0	12.5	5.0
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	8.0	6.0	16.5	13.5	17.5	16.0	20.5	18.5	23.0	20.5	17.0	16.0
2	8.0	6.5	17.0	15.5	16.0	13.5	20.5	18.5	23.0	20.5	17.0	16.0
3	8.5	7.5	19.5	16.5	14.5	14.0	21.0	18.0	23.0	19.5	17.0	15.5
4	9.5	8.0	20.0	18.0	15.0	14.5	21.5	18.0	20.5	18.0	17.5	15.0
5	9.5	9.0	20.0	18.5	15.0	15.0	21.5	18.5	20.0	17.5	18.0	16.0
6	9.0	8.5	18.5	17.0	15.0	14.5	22.0	18.5	20.0	17.5	18.5	17.0
7	8.5	7.5	17.5	14.5	16.5	14.5	21.5	19.0	20.0	17.5	19.0	18.0
8	9.0	8.5	17.5	15.5	17.0	15.5	21.0	18.5	20.0	17.0	19.5	18.5
9	9.5	9.0	16.0	14.5	17.0	17.0	22.0	19.0	20.0	17.5	19.5	19.0
10	9.5	8.5	14.5	12.5	18.5	17.0	22.0	19.5	20.0	17.5	20.0	19.5
11	10.0	8.0	15.0	12.5	18.5	18.0	21.0	18.5	20.0	18.0	20.5	18.5
12	11.0	9.0	16.5	13.5	18.5	17.5	21.5	19.0	21.0	19.0	19.5	16.5
13	12.0	9.5	17.5	14.5	17.5	15.5	20.5	18.0	21.0	19.0	19.0	16.5
14	12.0	10.5	18.0	14.5	17.5	16.5	20.5	17.5	21.0	19.5	17.5	15.5
15	12.0	10.5	17.5	15.0	19.0	16.5	20.5	17.5	20.0	18.5	18.0	14.5
16	11.0	10.5	16.0	13.0	20.0	17.5	21.0	18.5	19.5	18.0	18.5	15.0
17	11.0	10.5	17.0	13.0	---	---	22.0	19.5	19.5	18.0	18.5	14.5
18	11.0	10.0	18.5	15.5	---	---	21.5	18.5	19.5	18.5	17.5	16.0
19	12.5	11.0	20.0	17.0	---	---	20.5	18.0	18.5	16.5	17.0	14.5
20	12.5	12.0	20.5	18.0	---	---	21.5	19.0	18.0	16.5	16.0	14.0
21	14.0	12.5	20.5	18.5	---	---	22.5	19.5	18.5	17.0	16.0	12.5
22	14.0	13.0	20.5	18.5	---	---	23.0	20.5	18.5	17.5	16.0	12.0
23	14.0	13.0	18.5	15.0	18.5	---	24.0	21.0	19.0	17.5	16.5	12.5
24	14.0	12.5	15.0	11.5	19.0	15.5	24.0	20.5	19.0	18.0	17.0	13.5
25	13.5	11.5	11.5	11.0	20.5	17.5	23.0	20.0	19.0	18.0	17.0	13.0
26	13.5	12.5	11.0	10.5	20.0	17.0	22.5	20.0	19.0	17.5	16.0	13.0
27	14.0	12.0	13.0	10.5	19.0	14.0	23.0	20.0	18.5	18.0	17.0	13.0
28	14.5	13.5	14.5	12.5	20.0	15.5	22.5	20.0	18.5	17.0	18.0	14.5
29	16.5	14.5	16.5	14.0	21.0	17.0	22.0	20.0	17.5	16.5	17.5	13.5
30	16.0	14.0	17.0	15.5	21.0	18.5	22.0	20.0	17.0	16.0	17.5	13.5
31	---	---	17.5	15.5	---	---	22.5	20.5	17.0	16.5	---	---
MONTH	16.5	6.0	20.5	10.5	21.0	13.5	24.0	17.5	23.0	16.0	20.5	12.0

13214000 MALHEUR RIVER NEAR DREWSEY, OR

LOCATION.--Lat 43°47'05", long 118°19'50", in NE¼ sec. 31, T.20 S., R.36 E., Harney County, Hydrologic Unit 17050116, on left bank 300 ft (91 m) downstream from bridge on U.S. Highway 20, 0.5 mi (0.8 km) downstream from Cottonwood Creek, 3.0 mi (4.8 km) southeast of Drewsey, and at mile 129.0 (207.6 km).

DRAINAGE AREA.--910 mi² (2,360 km²), approximately.

PERIOD OF RECORD.--June 1920 to September 1921, November, December 1921, March, April 1922, April to September 1923, June 1926 to current year. Monthly discharge only for some periods, published in WSP 1317. March to September 1914 at site 13 mi (21 km) upstream; records not equivalent owing to inflow from several creeks.

REVISED RECORDS.--WSP 1093: 1927. WSP 1287: Drainage area. WSP 1397: 1921, 1927-31, 1937, drainage area (former site). WSP 1517: 1952. WDR OR-78-1: 1976(P).

GAGE.--Water-stage recorder. Datum of gage is 3,479.13 ft (1,060.439 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 27, 1923, water-stage recorder or nonrecording gage at site 0.5 mi (0.8 km) downstream at different datum. Apr. 27, 1923, to June 6, 1939, water-stage recorder at site 7 mi (11 km) downstream at different datum.

REMARKS.--Records good. Slight regulation by small reservoirs above station. Diversions for irrigation above station.

AVERAGE DISCHARGE.--54 years (water years 1927-80), 180 ft³/s (5.098 m³/s), 130,400 acre-ft/yr (161 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) Dec. 23, 1964, gage height, 13.50 ft (4.115 m), from rating curve extended above 4,500 ft³/s (127 m³/s) on basis of contracted-opening measurement at gage height 13.20 ft (4.023 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s (22.7 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Jan. 14	0130	1,710 48.4	7.54 2.298	Feb. 29	0600	896 25.4	6.07 1.850
Feb. 20	0830	*2,790 79.0	*9.31 2.838	Apr. 20	1630	1,260 35.7	6.56 1.999

Minimum recorded, 5.0 ft³/s (0.14 m³/s) Aug. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	66	78	80	93	609	180	588	164	119	21	8.4
2	15	64	86	89	115	620	178	517	160	115	22	8.4
3	15	64	93	86	128	711	172	523	158	138	18	8.4
4	15	69	99	85	202	672	172	495	174	144	17	8.4
5	15	75	101	80	166	658	204	458	168	146	16	8.4
6	15	83	98	70	134	672	282	450	200	128	15	8.4
7	15	83	99	58	136	532	232	489	202	108	14	8.4
8	15	73	119	80	144	442	216	461	174	99	9.3	8.4
9	15	70	121	101	138	386	248	436	152	98	8.5	12
10	15	70	117	96	119	388	330	458	130	89	8.5	14
11	15	67	89	113	115	430	297	470	140	89	8.5	14
12	15	67	91	599	113	358	328	408	168	81	7.2	25
13	35	69	83	1300	106	307	419	338	186	80	9.3	55
14	35	66	83	1250	112	305	571	320	374	64	9.7	50
15	35	63	80	1030	121	355	721	344	433	64	8.0	45
16	35	73	80	588	212	282	813	341	277	60	9.3	40
17	35	81	80	428	718	272	879	310	236	53	14	35
18	35	101	80	287	1640	260	980	280	223	46	17	35
19	35	86	83	210	1520	238	1100	250	212	46	15	35
20	58	61	85	164	2160	243	1190	234	194	46	11	35
21	58	57	86	154	1030	241	1200	227	176	41	9.7	35
22	58	66	83	158	585	221	1160	221	174	38	9.3	35
23	61	67	77	156	458	252	1130	208	180	38	9.7	35
24	69	75	77	146	442	238	1150	210	178	33	8.5	35
25	67	86	77	140	386	225	1050	212	166	29	8.0	35
26	66	83	70	120	486	225	942	223	166	28	8.1	35
27	67	77	60	100	735	221	847	257	192	25	8.8	35
28	63	60	52	90	700	188	767	245	176	23	8.8	35
29	64	60	52	90	725	194	739	210	150	26	8.6	35
30	63	68	60	93	---	196	676	178	128	24	8.4	35
31	64	---	70	93	---	184	---	182	---	20	8.4	---
TOTAL	1183	2150	2609	8134	13739	11125	19173	10543	5811	2138	354.6	812.2
MEAN	38.2	71.7	84.2	262	474	359	639	340	194	69.0	11.4	27.1
MAX	69	101	121	1300	2160	711	1200	588	433	146	22	55
MIN	15	57	52	58	93	184	172	178	128	20	7.2	8.4
AC-FT	2350	4260	5170	16130	27250	22070	38030	20910	11530	4240	703	1610

CAL YR 1979 TOTAL 63027.8 MEAN 173 MAX 1080 MIN 3.8 AC-FT 125000
WTR YR 1980 TOTAL 77771.8 MEAN 212 MAX 2160 MIN 7.2 AC-FT 154300

NOTE.--No gage-height record Aug. 26 to Sept. 30.

13214500 WARMSPRINGS RESERVOIR NEAR RIVERSIDE, OR

LOCATION.--Lat 43°35'05", long 118°12'30", in SW¼ sec.8, T.23 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on Water and Power Resources Service lands, near right end of dam on Malheur River, 3 mi (5 km) northwest of Riverside, 4 mi (6 km) upstream from South Fork, and at mile 114.0 (183.4 km).

DRAINAGE AREA.--1,100 mi² (2,850 km²), approximately.

PERIOD OF RECORD.--January 1920 to October 1929, December 1929 to current year. Prior to Sept. 3, 1980, monthend contents and change in contents only.

GAGE.--Water-stage recorder. Prior to May 29, 1964, nonrecording gage read daily or weekly. Datum of gage is 3,327.0 ft (1,014.07 m) National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service); gage readings have been reduced to elevations NGVD.

REMARKS.--Reservoir is formed by concrete-arch dam. Storage began in 1919. Capacity, 191,000 acre-ft (236 hm³) between elevations 3,327.00 ft (1,014.070 m), bottom of outlet tunnel, and 3,406.00 ft (1,038.149 m), top of flashboards. Dead storage, 1,400 acre-ft (1.73 hm³) below elevation 3,327.00 ft (1,014.070 m) not included in records. Water used to irrigate lands on both sides of river between Namorf and Ontario.

COOPERATION.--Capacity table furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 196,100 acre-ft (242 hm³) Apr. 16, May 13, 1958, elevation, 3,407.10 ft (1,038.484 m); no contents Sept 18 to Nov. 1, 1929, Aug. 26 to sometime in November 1935, Sept. 18 to Oct. 11, 1950, sometime in August to Oct. 3, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 187,200 acre-ft (231 hm³) May 11, elevation, 3,405.16 ft (1,037.893 m); minimum observed, 59,460 acre-ft (73.3 hm³) Oct. 13, elevation, 3,369.57 ft (1,027.045 m).

Capacity table (elevation, in feet, and useable contents, in acre-feet)

3,327	0	3,345	10,150	3,380	90,520
3,330	295	3,350	16,930	3,390	124,600
3,335	1,960	3,360	35,400	3,400	164,400
3,340	5,090	3,370	60,140	3,406	191,000

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1												---
2												---
3												3390.12
4												3389.97
5												3389.86
6												3389.74
7												3389.62
8												3389.51
9												3389.40
10												3389.28
11												3389.15
12												3389.00
13												3388.93
14												3388.87
15												3388.82
16												3388.77
17												3388.72
18												3388.68
19												3388.63
20												3388.59
21												3388.54
22												3388.51
23												3388.49
24												3388.47
25												3388.45
26												3388.42
27												3388.40
28												3388.35
29												3388.30
30												3388.26
31												---
MEAN												---
MAX												---
MIN												---
(†)	61040	65950	72700	94690	131100	158600	180500	183500	179300	151500	127000	118200
(‡)	-4100	+4910	+6750	+21990	+36410	+27500	+21900	+3000	-4200	-27800	-24500	-8800

† Contents, in acre-feet, at 2400 on last day of month.

‡ Change in contents, in acre-feet.

13215000 MALHEUR RIVER BELOW WARMSPRINGS RESERVOIR, NEAR RIVERSIDE, OR

LOCATION.--Lat 43°34'15", long 118°12'05", in SW¼ sec.17, T.23 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on left bank 1.0 mi (1.6 km) downstream from Warsprings Dam, 3.0 mi (4.8 km) upstream from South Fork, 4.0 mi (6.4 km) northwest of Riverside, and at mile 113.0 (181.8 km).

DRAINAGE AREA.--1,100 mi² (2,850 km²), approximately.

PERIOD OF RECORD.--January 1906 to March 1907 and December 1908 (gage heights only), January 1909 to September 1910, December 1914 to July 1917, March 1919 to current year. Monthly discharge only for some periods, published in WSP 1317. Figures of discharge for January 1906 to March 1907, published in WSP 272 and 370, have been found to be unreliable and should not be used. Published as Middle Fork of Malheur River at Riverside 1906-7, as Middle Fork of Malheur River above South Fork, at Riverside 1909-10, as Malheur River above South Fork, at Riverside in WSP 370, 1906-10, and as Malheur River at Warsprings reservoir site, near Riverside 1914-17.

REVISED RECORDS.--WSP 833: 1936. WSP 1063: 1942-45. WSP 1397: 1909-10, 1917. WSP 1447: 1955. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 3,305 ft (1,007 m), by barometer. See WSP 1317 or 1737 for history of changes prior to Sept. 29, 1949.

REMARKS.--Records excellent. Flow completely regulated since November 1919 by Warsprings Reservoir (see station 13214500). Diversions for irrigation above station.

AVERAGE DISCHARGE.--61 years (water years 1920-80), 176 ft³/s (4.984 m³/s), 127,500 acre-ft/yr (157 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 7,200 ft³/s (204 m³/s) Mar. 1, 1910, gage height, 10.7 ft (3.26 m), site and datum then in use, from rating curve extended above 820 ft³/s (23.2 m³/s); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,210 ft³/s (34.3 m³/s) Apr. 21, gage height, 6.28 ft (1.914 m); no flow Nov. 28, 29, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	295	.13	.12	.10	.09	.10	.30	227	66	497	437	263
2	282	.12	.12	.10	.10	.10	.27	78	66	497	425	259
3	271	.15	.17	.10	.10	.06	.32	75	66	495	420	238
4	270	.20	.11	.10	.10	.07	.37	74	68	491	409	228
5	258	.17	.10	.09	.10	.10	.52	73	70	496	402	218
6	248	.15	.10	.09	.10	.10	.55	77	70	497	380	213
7	247	.13	.10	.09	.10	.10	.37	151	72	493	370	208
8	247	.10	.10	.09	.10	.10	.38	241	75	491	370	187
9	247	.10	.10	.10	.10	.10	.35	269	77	498	365	250
10	246	.10	.10	.10	.10	.10	.29	270	135	498	365	293
11	244	.05	.10	.11	.10	.12	.29	468	205	471	365	284
12	243	.05	.10	.12	.10	.10	.32	584	261	453	365	280
13	92	.06	.10	.11	.10	.12	.35	581	280	457	365	214
14	.11	.07	.10	.11	.10	.13	.28	552	285	458	360	165
15	.10	.07	.10	.10	.10	.13	38	504	290	443	361	151
16	.17	.10	.10	.10	.10	.11	68	449	285	435	362	128
17	.10	.12	.10	.10	.10	.16	104	406	285	430	364	120
18	.12	.12	.10	.09	.10	.18	132	388	315	433	362	102
19	.11	.06	.10	.09	.10	.15	163	358	325	451	351	91
20	.13	.01	.10	.09	.10	.17	188	345	325	460	342	91
21	.12	.01	.10	.09	.10	.18	568	371	340	459	344	90
22	.12	.01	.10	.09	.10	.16	1200	381	380	459	321	90
23	.15	.05	.10	.08	.10	.15	1190	380	420	459	309	77
24	.15	.16	.10	.08	.10	.15	1180	378	453	459	310	70
25	.23	.15	.09	.08	.10	.20	1170	380	475	458	305	70
26	.21	.12	.08	.07	.10	.17	1160	340	491	458	306	73
27	.21	.04	.07	.07	.10	.19	955	220	491	458	308	113
28	.24	.00	.07	.06	.10	.22	761	150	486	458	303	135
29	.20	.00	.07	.06	.10	.27	567	91	491	459	300	135
30	.18	.08	.08	.07	---	.27	498	63	491	458	284	161
31	.18	---	.09	.09	---	.21	---	63	---	458	274	---
TOTAL	3192.83	2.68	3.07	2.82	2.89	4.47	9946.96	8987	8139	14487	10904	4997
MEAN	103	.089	.099	.091	.10	.14	332	290	271	467	352	167
MAX	295	.20	.17	.12	.10	.27	1200	584	491	498	437	293
MIN	.10	.00	.07	.06	.09	.06	.27	63	66	430	274	70
AC-FT	6330	5.3	6.1	5.6	5.7	8.9	19730	17830	16140	28730	21630	9910
CAL YR 1979	TOTAL	65648.08	MEAN 180	MAX 586	MIN .00	AC-FT 130200						
WTR YR 1980	TOTAL	60669.72	MEAN 166	MAX 1200	MIN .00	AC-FT 120300						

13216500 NORTH FORK MALHEUR RIVER ABOVE BEULAH RESERVOIR, NEAR BEULAH, OR

LOCATION.--Lat 43°57'01", long 118°10'28", in NW¼ sec.4, T.19 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on left bank 500 ft (152 m) upstream from Beulah Reservoir, 2.5 mi (4.0 km) upstream from Warm Springs Creek, 3.5 mi (5.6 km) northwest of Beulah, and at mile 18.0 (29.0 km).

DRAINAGE AREA.--355 mi² (919 km²).

PERIOD OF RECORD.--January to September 1914 (published as "as Scott's Ranch, near Beulah"), June 1936 to current year. Published as "above Agency Valley Reservoir, near Beulah", June 1936 to September 1968.

REVISED RECORDS.--WSP 1934: 1960(M).

GAGE.--Water-stage recorder. Datum of gage is 3,349.4 ft (1,020.90 m) National Geodetic Vertical Datum of 1929. Jan. 1 to Sept. 30, 1914, nonrecording gage and June 10, 1936, to Oct. 14, 1958, water-stage recorder at site 0.5 mi (0.8 km) upstream at different datums. Oct. 15, 1958, to Oct. 8, 1975, water-stage recorder at present site at datum 1.6 ft (0.49 m) higher.

REMARKS.--Records good. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--44 years (water years 1973-80), 130 ft³/s (3.682 m³/s), 94,180 acre-ft/yr (116 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,970 ft³/s (112 m³/s) Dec. 23, 1964, gage height, 9.90 ft (3.018 m), present datum, from floodmark, from rating curve extended above 1,300 ft³/s (36.8 m³/s), on basis of slope-area measurement of peak flow; maximum gage height, 11.0 ft (3.35 m), present datum, sometime during period Dec. 17-23, 1964 (icejam); minimum discharge, 8.5 ft³/s (0.24 m³/s) Dec. 13, 1967, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Feb. 19	2300	*1,590 45.0	*6.18 1.884	Apr. 24	0300	923 26.1	4.96 1.512

Minimum, 16 ft³/s (0.45 m³/s) Jan. 7, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	61	74	68	70	290	142	480	199	138	56	50
2	44	58	73	63	88	305	137	484	208	138	52	51
3	44	60	75	59	81	340	142	504	203	150	52	51
4	44	64	74	60	74	328	145	464	210	140	53	49
5	45	67	68	62	68	346	188	454	199	133	53	49
6	45	66	63	51	65	290	203	508	228	127	54	49
7	44	62	65	30	64	253	165	472	203	118	55	49
8	41	60	67	55	61	226	168	445	178	114	53	47
9	38	59	64	62	62	212	210	472	168	114	49	44
10	33	55	64	61	60	230	233	439	166	105	54	50
11	41	57	39	48	57	250	212	406	182	97	54	56
12	38	52	54	101	56	205	243	352	214	93	54	58
13	40	55	55	279	55	199	290	322	205	90	52	90
14	39	53	55	340	59	226	361	319	328	83	45	74
15	41	52	59	260	62	228	406	328	295	82	47	62
16	42	63	58	147	72	178	415	300	270	78	49	57
17	42	69	61	115	260	182	464	280	258	76	49	56
18	51	67	64	75	832	172	536	268	253	71	48	55
19	79	50	60	52	729	166	616	255	245	69	51	60
20	70	40	61	51	588	184	672	250	243	67	49	58
21	61	42	62	90	273	168	708	258	238	67	47	56
22	58	46	58	70	210	165	716	280	228	62	50	56
23	66	53	34	62	188	190	850	283	221	59	49	57
24	66	67	49	64	186	168	855	273	217	58	47	56
25	65	65	64	61	210	161	720	265	194	53	51	56
26	73	63	57	63	273	172	640	260	190	50	51	55
27	61	36	34	49	316	165	588	255	201	53	55	54
28	60	36	34	45	313	150	564	238	168	53	54	57
29	61	47	35	45	303	161	592	219	152	55	53	56
30	60	59	53	50	---	150	548	205	145	53	49	51
31	63	---	54	60	---	144	---	201	---	54	46	---
TOTAL	1599	1684	1787	2698	5735	6604	12729	10539	6409	2700	1581	1669
MEAN	51.6	56.1	57.6	87.0	198	213	424	340	214	87.1	51.0	55.6
MAX	79	69	75	340	832	346	855	508	328	150	56	90
MIN	33	36	34	30	55	144	137	201	145	50	45	44
AC-FT	3170	3340	3540	5350	11380	13100	25250	20900	12710	5360	3140	3310
CAL YR 1979	TOTAL	42501	MEAN 116	MAX 585	MIN 26	AC-FT 84300						
WTR YR 1980	TOTAL	55734	MEAN 152	MAX 855	MIN 30	AC-FT 110500						

MALHEUR RIVER BASIN

13217000 BEULAH RESERVOIR AT BEULAH, OR

LOCATION.--Lat 43°54'41", long 118°09'25", in SW¼SE¼ sec.15, T.19 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on top of dam near right end of dam on North Fork Malheur River, 0.2 mi (0.3 km) northwest of Beulah, and at mile 15.0 (24.1 km).

DRAINAGE AREA.--440 mi² (1,140 km²), approximately.

PERIOD OF RECORD.--December 1935 to current year. Prior to October 1968, published as Agency Valley Reservoir at Beulah. Prior to March 1979, monthend contents only.

REVISED RECORDS.--WSP 1397: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 7.49 ft (2.283 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1978, published as at National Geodetic Vertical Datum of 1929, Water and Power Resources Service construction datum. Prior to Mar. 28, 1979, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill, rock-faced dam. Storage began December 1935. Capacity, 59,920 acre-ft (73.9 hm³) between elevations 3,263.21 ft (994.626 m), bottom of outlet tunnel, and 3,540.0 ft (1,018.03 m), top of spillway gates; with gates open the capacity is 32,220 acre-ft (39.7 hm³). No dead storage. Water is used for irrigation of lands below Juntura, on Vale project of Water and Power Resources Service.

COOPERATION.--Prior to Mar. 28, 1979, daily elevations furnished by Vale-Oregon Irrigation District. Capacity table furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 62,770 acre-ft (77.4 hm³) May 3, 1941, elevation, 3,341.50 ft (1,018.489 m); no contents Sept.17 to Oct. 13, 1950, Aug. 28 to Oct. 4, 1955, Aug. 13 to Oct. 1, 1961, Sept. 21 to Oct. 5, 1968, sometime Aug. 1-31 to Oct. 3, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 60,150 acre-ft (74.2 hm³) May 1, elevation, 3,340.12 ft (1,018.068 m); minimum, 3,370 acre-ft (4.16 hm³) Oct. 12, elevation, 3,289.07 ft (1,002.508 m).

Capacity table (elevation, in feet, and total contents, in acre-feet)

3,285	2,020	3,300	8,980	3,320	28,250
3,290	3,750	3,305	12,520	3,330	42,530
3,295	6,090	3,310	16,950	3,341	61,840

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3290.22	3294.39	3300.04	3305.12	3311.85	3324.37	3333.38	3340.04	3338.15	3335.46	3325.44	3306.76
2	3290.06	3294.62	3300.29	3305.29	3312.03	3324.88	3333.55	3339.86	3338.12	3335.19	3324.96	3306.00
3	3289.90	3294.86	3300.51	3305.46	3312.23	3325.44	3333.73	3339.80	3338.11	3334.94	3324.46	3305.24
4	3289.75	3295.11	3300.75	3305.62	3312.42	3325.96	3333.91	3339.63	3338.15	3334.66	3323.97	3304.48
5	3289.59	3295.37	3300.94	3305.77	3312.60	3326.50	3334.13	3339.39	3338.14	3334.38	3323.47	3303.71
6	3289.44	3295.61	3301.14	3305.88	3312.77	3326.95	3334.34	3339.19	3338.23	3334.17	3322.96	3302.92
7	3289.29	3295.82	3301.33	3305.94	3312.92	3327.33	3334.55	3338.99	3338.30	3333.91	3322.48	3302.09
8	3289.18	3296.04	3301.53	3306.12	3313.07	3327.66	3334.76	3338.71	3338.34	3333.63	3321.96	3301.29
9	3289.15	3296.25	3301.71	3306.29	3313.21	3327.98	3334.98	3338.52	3338.32	3333.32	3321.47	3300.61
10	3289.10	3296.46	3301.85	3306.42	3313.34	3328.31	3335.22	3338.32	3338.21	3332.99	3321.02	3299.99
11	3289.09	3296.62	3301.97	3306.56	3313.47	3328.62	3335.48	3338.26	3338.07	3332.70	3320.52	3299.43
12	3289.10	3296.80	3302.12	3306.85	3313.60	3328.93	3335.75	3338.30	3337.95	3332.36	3320.03	3299.04
13	3289.20	3296.98	3302.27	3307.64	3313.72	3329.21	3336.06	3338.35	3337.87	3332.06	3319.52	3298.71
14	3289.42	3297.16	3302.42	3308.57	3313.86	3329.51	3336.40	3338.38	3338.00	3331.74	3318.95	3298.28
15	3289.65	3297.34	3302.58	3309.23	3314.01	3329.76	3336.84	3338.45	3338.01	3331.47	3318.36	3297.80
16	3289.87	3297.57	3302.74	3309.61	3314.23	3330.01	3337.26	3338.56	3338.01	3331.20	3317.75	3297.31
17	3290.08	3297.80	3302.89	3309.90	3314.49	3330.28	3337.73	3338.58	3337.98	3330.89	3317.12	3296.90
18	3290.40	3298.03	3303.06	3310.07	3316.88	3330.49	3338.18	3338.60	3337.93	3330.59	3316.41	3296.67
19	3290.83	3298.18	3303.22	3310.18	3318.43	3330.74	3338.65	3338.62	3337.87	3330.28	3315.80	3296.59
20	3291.17	3298.31	3303.39	3310.31	3319.56	3330.98	3339.15	3338.61	3337.74	3330.01	3315.22	3296.41
21	3291.46	3298.42	3303.56	3310.50	3320.09	3331.20	3339.66	3338.55	3337.60	3329.71	3314.56	3296.16
22	3291.73	3298.59	3303.68	3310.68	3320.50	3331.45	3339.84	3338.45	3337.38	3329.39	3313.89	3295.85
23	3292.03	3298.75	3303.82	3310.83	3320.86	3331.65	3340.03	3338.41	3337.20	3329.04	3313.24	3295.63
24	3292.33	3298.99	3304.03	3310.97	3321.24	3331.88	3339.87	3338.37	3337.06	3328.70	3312.54	3295.48
25	3292.63	3299.21	3304.16	3311.13	3321.65	3332.08	3339.70	3338.37	3336.88	3328.34	3311.86	3295.33
26	3292.92	3299.38	3304.28	3311.25	3322.20	3332.32	3339.53	3338.36	3336.64	3327.93	3311.16	3295.18
27	3293.18	3299.48	3304.35	3311.33	3322.80	3332.49	3339.58	3338.36	3336.54	3327.49	3310.45	3295.02
28	3293.42	3299.54	3304.49	3311.40	3323.35	3332.68	3339.58	3338.32	3336.36	3327.05	3309.74	3294.85
29	3293.66	3299.66	3304.64	3311.48	3323.87	3332.86	3339.69	3338.31	3336.13	3326.63	3309.09	3294.70
30	3293.92	3299.84	3304.79	3311.56	---	3333.04	3339.95	3338.27	3335.73	3326.26	3308.36	3294.52
31	3294.17	---	3304.94	3311.69	---	3333.20	---	3338.23	---	3325.84	3307.63	---
MEAN	3290.84	3297.37	3302.69	3308.70	3316.41	3329.64	3337.05	3338.68	3337.63	3331.04	3317.24	3298.77
MAX	3294.17	3299.84	3304.94	3311.69	3323.87	3333.20	3340.03	3338.34	3338.34	3335.46	3325.44	3306.76
MIN	3289.09	3294.39	3300.04	3305.12	3311.85	3324.37	3333.38	3338.23	3335.73	3325.84	3307.63	3294.52
(†)	5670	8870	12470	18660	33430	47740	59780	56610	52100	36250	14720	5850
(‡)	+1760	+3200	+3600	+6190	+14770	+14310	+12040	-3170	-4510	-15850	-21530	-8870

CAL YR 1979 MEAN - MAX - MIN - AC-FT# +1,940
WTR YR 1980 MEAN 3317.17 MAX 3340.04 MIN 3289.09 AC-FT# +1,270

† Contents, in acre-feet, at 2400 on last day of month.

‡ Change in contents, in acre-feet.

MALHEUR RIVER BASIN

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13217500 NORTH FORK MALHEUR RIVER AT BEULAH, OR

LOCATION.--Lat 43°54'28", long 118°09'08", in NW¼ sec.22, T.19 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on left bank at Beulah, 0.3 mi (0.5 km) downstream from Agency Valley Dam, 12 mi (19 km) northwest of Juntura, and at mile 14.5 (23.3 km).

DRAINAGE AREA.--440 mi² (1,140 km²), approximately.

PERIOD OF RECORD.--June 1926 to current year. Published as "near Beulah" June 1926 to September 1935.

REVISED RECORDS.--WSP 1397: 1927-32, 1934, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,261.20 ft (994.014 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 25, 1926, water-stage recorder at site 1 mi (2 km) downstream at different datum. Apr. 25, 1936, to Sept. 30, 1949, nonrecording gage at site 20 ft (6 m) downstream at datum 1.0 ft (0.3 m) higher. Oct. 1, 1949, to June 30, 1964, at present site at datum 1.0 ft (0.3 m) higher.

REMARKS.--Records good. Flow regulated since 1935 by Beulah Reservoir (see station 13217000). Diversions for irrigation above station.

AVERAGE DISCHARGE.--45 years (water years 1936-80), 140 ft³/s (3.965 m³/s), 101,400 acre-ft/yr (125 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft³/s (198 m³/s) May 7, 1942, gage height, 8.4 ft (2.56 m) from floodmark, caused by failure of gates at Agency Valley Dam, from rating curve extended above 1,100 ft³/s (31.2 m³/s) on basis of computation of peak flow over dam; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,450 ft³/s (41.1 m³/s) Apr. 23, gage height, 5.44 ft (1.658 m); minimum recorded, 0.16 ft³/s (0.005 m³/s) Jan. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	.25	.20	.20	.18	.45	.80	470	240	373	360	374
2	71	.25	.21	.20	.20	.50	.87	625	228	372	399	370
3	71	.25	.20	.20	.20	.56	.88	623	211	370	411	367
4	72	.25	.20	.20	.20	.54	1.2	646	200	370	410	363
5	72	.25	.20	.21	.20	.72	3.0	661	192	372	413	356
6	73	.24	.20	.19	.20	.89	2.9	742	157	341	409	356
7	72	.22	.20	.18	.20	.90	2.5	721	146	327	390	353
8	57	.22	.20	.18	.20	.90	2.9	675	149	346	388	346
9	45	.22	.20	.19	.20	.90	3.2	675	182	358	385	281
10	45	.25	.20	.19	.20	.90	3.7	674	239	362	383	254
11	45	.25	.20	.18	.20	.90	3.5	498	282	360	382	233
12	37	.23	.20	.21	.20	.90	3.5	315	291	359	381	212
13	25	.20	.20	.21	.20	.90	3.5	258	287	358	379	212
14	.47	.19	.20	.22	.20	.90	3.4	255	286	330	382	210
15	.32	.20	.20	.21	.20	.90	3.1	256	286	314	409	210
16	.32	.21	.20	.21	.21	.91	3.5	256	277	314	433	207
17	.32	.23	.20	.22	.21	.92	6.1	256	267	311	430	180
18	.34	.21	.20	.21	.21	.85	16	255	271	312	428	118
19	.31	.20	.20	.20	.21	.88	94	250	294	314	424	88
20	.23	.19	.20	.20	.21	.94	103	255	336	312	419	102
21	.21	.19	.20	.20	.21	.89	211	262	350	312	415	126
22	.23	.20	.20	.20	.21	.97	547	261	350	311	412	147
23	.25	.20	.20	.20	.21	1.0	835	261	349	310	408	118
24	.25	.22	.20	.20	.21	1.0	1070	260	347	312	404	98
25	.26	.20	.20	.20	.25	.98	1080	260	347	345	397	98
26	.24	.22	.20	.20	.30	.98	847	252	347	368	394	98
27	.22	.21	.20	.20	.34	.89	561	248	347	393	392	100
28	.22	.20	.20	.20	.37	.86	551	248	346	378	389	100
29	.24	.19	.20	.19	.40	.90	381	243	346	381	386	98
30	.25	.19	.20	.19	---	.78	295	240	365	356	384	98
31	.27	---	.20	.18	---	.72	---	240	---	343	377	---
TOTAL	760.95	6.53	6.21	6.17	6.53	26.23	6639.55	12141	8315	10684	12373	6273
MEAN	24.5	.22	.20	.20	.23	.85	221	392	277	345	399	209
MAX	73	.25	.21	.22	.40	1.0	1080	742	365	393	433	374
MIN	.21	.19	.20	.18	.18	.45	.80	240	146	310	360	88
AC-FT	1510	13	12	12	13	52	13170	24080	16490	21190	24540	12440

CAL YR 1979 TOTAL 42934.38 MEAN 118 MAX 450 MIN .00 AC-FT 85160
WTR YR 1980 TOTAL 57238.17 MEAN 156 MAX 1080 MIN .18 AC-FT 113500

NOTE.--No gage-height record Feb. 1 to Mar. 3.

13226500 BULLY CREEK AT WARMSPRINGS, NEAR VALE, OR

LOCATION.--Lat 44°01'10", long 117°27'35", in SE¼NW¼ sec.9, T.18 S., R.43 E., Malheur County, Hydrologic Unit 17050118, on left bank 400 ft (122 m) downstream from Cottonwood Creek, 4.7 mi (7.6 km) upstream from Bully Creek Dam, 11.4 mi (18.3 km) northwest of Vale, and at mile 17.2 (27.7 km).

DRAINAGE AREA.--539 mi² (1,396 km²).

PERIOD OF RECORD.--September 1903 to February 1904, February 1905 to March 1907, February 1910, January 1911 to May 1917, March 1922 to June 1923, October 1963 to current year. Monthly discharge only for some periods, published in WSP 1317. Published as "near Vale" 1903, 1907, and as "above Vale" 1904-6, 1910.

REVISED RECORDS.--WSP 1317: Drainage area (former site). WSP 1397: 1904-6, 1911, 1914, 1915.

GAGE.--Water-stage recorder. Datum of gage is 2,527.21 ft (770.294 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to July 1, 1923, nonrecording gages within 0.5 mi (0.8 km) downstream at different datums.

REMARKS.--Records good. No regulation. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--23 years (water years 1906, 1912-16, 1964-80), 42.6 ft³/s (1.206 m³/s), 30,860 acre-ft/yr (38.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,800 ft³/s (362 m³/s) Dec. 22, 1964, gage height, 8.68 ft (2.646 m), from rating curve extended above 200 ft³/s (5.66 m³/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Jan. 13	2400	2,050 58.1	4.34 1.323	Feb. 27	0300	684 19.4	2.99 0.911
Feb. 18	0530	*4,000 113	*5.42 1.652				

Minimum, 0.35 ft³/s (0.01 m³/s) Nov. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	11	4.8	11	35	346	52	19	19	12	3.3	1.6
2	2.4	11	5.1	11	39	331	47	20	22	8.8	3.6	1.2
3	2.2	7.4	6.7	11	52	363	45	21	23	8.6	3.8	1.2
4	2.4	7.4	6.7	10	50	326	42	21	24	7.7	3.9	1.2
5	2.8	7.0	6.7	9.0	50	292	50	20	22	7.1	3.8	1.2
6	3.0	6.2	6.7	7.4	50	279	58	17	31	4.9	3.5	1.2
7	3.3	6.5	6.9	7.4	90	246	60	19	51	4.5	3.1	1.2
8	3.2	6.6	6.4	8.0	92	220	50	15	39	4.2	2.4	1.2
9	3.3	6.9	6.7	10	59	203	48	14	33	4.9	2.1	1.2
10	3.5	6.5	6.9	11	47	191	46	17	30	4.8	2.2	1.2
11	3.9	6.4	2.9	12	42	190	46	29	29	4.2	2.1	1.2
12	4.4	5.0	6.6	391	39	170	40	22	41	3.8	2.0	3.0
13	4.8	4.2	5.9	1220	40	161	40	15	49	3.4	2.0	5.3
14	4.9	3.7	6.0	749	38	154	41	15	50	3.3	2.1	4.5
15	5.9	3.5	7.1	439	40	149	48	17	55	3.5	2.1	3.0
16	5.9	3.8	6.4	229	114	127	55	15	49	2.8	2.0	1.5
17	5.8	3.8	6.5	186	547	124	56	16	41	2.6	1.8	1.2
18	6.4	4.1	5.8	118	2030	126	36	18	44	3.4	1.7	.76
19	8.6	3.5	5.8	79	1540	118	37	21	46	2.9	1.9	.69
20	6.3	2.7	5.8	67	1470	95	32	24	44	3.5	2.0	.71
21	6.0	2.9	5.7	61	600	107	32	20	42	2.9	1.8	1.0
22	6.8	3.0	5.4	55	363	94	40	18	44	2.9	1.6	1.3
23	8.0	5.3	4.5	49	304	70	44	18	39	2.4	1.5	1.3
24	7.3	5.9	6.4	48	348	67	34	15	34	2.1	1.4	1.3
25	9.3	5.9	16	47	340	60	31	18	29	2.2	1.4	1.4
26	9.5	5.8	9.9	43	369	61	34	21	24	2.2	1.3	1.4
27	10	2.7	8.2	40	486	67	30	22	24	2.2	1.4	1.7
28	11	2.7	8.2	15	418	61	30	18	22	2.3	1.3	1.7
29	11	3.2	8.2	15	374	57	29	18	21	3.4	1.3	2.0
30	10	3.8	8.2	20	---	47	25	18	14	2.8	1.4	2.4
31	11	---	9.0	27	---	50	---	18	---	2.6	1.4	---
TOTAL	185.1	158.4	212.1	4005.8	10066	4952	1258	579	1035	128.7	67.2	49.76
MEAN	5.97	5.28	6.84	129	347	160	41.9	18.7	34.5	4.15	2.17	1.66
MAX	11	11	16	1220	2030	363	60	29	55	12	3.9	5.3
MIN	2.2	2.7	2.9	7.4	35	47	25	14	14	2.1	1.3	.69
AC-FT	367	314	421	7950	19970	9820	2500	1150	2050	255	133	99
CAL YR 1979	TOTAL	12059.79	MEAN 33.0	MAX 1920	MIN .27	AC-FT 23920						
WTR YR 1980	TOTAL	22697.06	MEAN 62.0	MAX 2030	MIN .69	AC-FT 45020						

13226800 BULLY CREEK RESERVOIR NEAR VALE, OR

LOCATION.--Lat 44°00'55", long 117°23'45", in SE¼SW¼ sec.12, T.18 S., R.43 E., Malheur County, Hydrologic Unit 17050118, U.S. Bureau of Reclamation land, on top of dam over outlet works near right end of dam on Bully Creek, 8.0 mi (12.9 km) northwest of Vale, and at mile 12.5 (20.1 km).

DRAINAGE AREA.--547 mi² (1,417 km²).

PERIOD OF RECORD.--February 1963 to current year. Prior to March 1979, monthend contents only.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Mar. 22, 1979, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill, rock-faced dam. Storage began Feb. 1, 1963. Capacity, 29,980 acre-ft (37.0 hm³) between elevations 2,456.58 ft (748.766 m), outlet works, and 2,516.00 ft (766.877 m), spillway crest. Dead storage, 1,650 acre-ft (2.03 hm³) below elevation 2,456.58 ft (748.766 m). Figures given herein do not include dead storage. Water used for irrigation lands of Vale-Oregon Irrigation District. Bully Creek Reservoir feed canal diverts from Malheur River by way of Vale Oregon canal.

COOPERATION.--Capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents not determined, occurred during period Apr. 4 to May 2, 1969, elevation above 2,516,000 ft (766.877 m), spillway crest; no usable contents at times in 1973, 1977, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 28,520 acre-ft (35.2 hm³) May 1, elevation, 2,514.50 ft (766.420 m); minimum, 7,160 acre-ft (8.83 hm³) Oct. 15, elevation, 2,484.38 ft (757.239 m).

Capacity table (elevation, in feet, and contents, in acre-feet)

2,484	7,000	2,505	20,130
2,490	9,930	2,510	24,370
2,495	12,900	2,520	34,040
2,500	16,290		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2487.07	2487.68	---	2491.76	---	---	2512.20	2514.41	---	2510.76	2504.10	---
2	2486.87	2487.87	---	2491.81	---	---	2512.30	2514.40	---	2510.60	2503.84	---
3	2486.68	2488.06	2490.68	2491.87	---	---	2512.39	2514.37	---	2510.43	2503.61	---
4	2486.47	2488.25	2490.70	2491.92	---	---	2512.49	2514.29	---	2510.28	---	---
5	2486.26	2488.45	2490.73	2491.95	2504.34	---	2512.58	2514.16	---	2510.13	---	---
6	2486.06	2488.63	2490.76	2491.97	2504.46	---	2512.69	2514.02	---	2509.96	---	---
7	2485.86	2488.82	2490.80	2492.02	2504.64	---	2512.81	2513.92	---	2509.80	---	---
8	2485.59	---	2490.83	2492.10	2504.81	---	2512.93	2513.78	---	2509.61	---	---
9	2485.40	---	2490.85	2492.13	2504.84	---	2513.01	2513.67	---	2509.42	---	---
10	2485.20	---	2490.87	2492.18	2504.85	---	2513.11	2513.58	---	2509.19	---	---
11	2485.00	---	2490.89	2493.28	2504.85	---	2513.39	2513.53	---	2508.97	---	---
12	2484.81	---	2490.91	---	2504.86	---	2513.57	2513.46	---	2508.78	---	---
13	2484.61	---	2490.94	---	2504.85	---	2513.66	2513.36	---	2508.55	---	---
14	2484.40	---	2490.97	---	2504.85	---	2513.74	2513.10	---	2508.39	---	---
15	2484.41	---	2491.00	---	2504.85	---	2513.82	2513.06	---	2508.18	---	---
16	2484.46	---	2491.02	---	2504.99	---	2513.91	2513.01	---	2507.93	---	---
17	2484.51	---	2491.05	---	2506.10	---	2513.99	2512.94	---	2507.75	---	---
18	2484.66	---	2491.09	---	2509.38	---	2514.02	2512.88	---	2507.54	---	---
19	2484.91	---	2491.12	---	2511.25	---	2514.04	---	---	2507.37	---	---
20	2485.15	---	2491.19	---	2511.97	---	2514.06	---	---	2507.18	---	---
21	2485.38	---	2491.22	---	2510.48	---	2514.04	---	---	2506.99	---	---
22	2485.62	---	2491.27	---	2508.59	---	2514.08	---	---	2506.76	---	---
23	2485.86	---	2491.34	---	2506.65	---	2514.16	---	---	2506.51	---	---
24	2486.10	---	2491.42	---	---	---	2514.17	---	2511.81	2506.21	---	---
25	2486.32	---	2491.45	---	---	2511.47	2514.28	---	2511.70	2505.95	---	---
26	2486.54	---	2491.48	---	---	2511.61	2514.34	---	2511.49	2505.62	---	---
27	2486.74	---	2491.51	---	---	2511.72	2514.36	---	2511.37	2505.42	---	---
28	2486.95	---	2491.56	---	---	2511.85	2514.37	---	2511.22	2505.15	---	---
29	2487.14	---	2491.62	---	2507.88	2511.96	2514.37	---	2511.06	2504.87	---	---
30	2487.32	2490.59	2491.67	---	---	2512.01	2514.38	---	2510.91	2504.62	---	2492.25
31	2487.50	---	2491.72	2504.02	---	2512.19	---	2512.42	---	2504.36	2495.83	---
MEAN	2485.80	---	---	---	---	---	2513.58	---	---	2507.85	---	---
MAX	2487.50	---	---	---	---	---	2514.38	---	---	2510.76	---	---
MIN	2484.40	---	---	---	---	---	2512.20	---	---	2504.36	---	---
(†)	8620	10260	10910	19340	22530	26340	26350	26560	25180	19610	13430	11220
(‡)	+110	+1,640	+650	+8430	+3190	+3810	+10	+210	-1380	-5570	-6180	-2210

CAL YR 1979 MEAN - MAX - MIN - AC-FT# +2290
WTR YR 1980 MEAN - MAX 2514.50 MIN 2484.38 AC-FT# +2710

† Contents in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

BURNT RIVER BASIN

13269300 NORTH FORK BURNT RIVER NEAR WHITNEY, OR

LOCATION.--Lat 44°36'00", long 118°15'10", in NE¼ se.23, T.11 S., R.36 E., Baker County, Hydrologic Unit 17050202, Wallowa Whitman National Forest, on right bank 950 ft (290 m) upstream from Petticoat Creek, 1.0 mi (1.6 km) downstream from Water and Power Resources Service damsite, 4.5 mi (7.2 km) southeast of Whitney, and 11.5 mi (18.5 km) northwest of Unity.

DRAINAGE AREA.--110 mi² (285 km²), approximately.

PERIOD OF RECORD.--June 1964 to June 1978, January 1979 to June 1980 (discontinued), January to June only, each year.

GAGE.--Water-stage recorder. Altitude of gage is 4,000 ft (1,220 m), from topographic map.

REMARKS.--Records fair prior to Apr. 15 and good thereafter. Some regulations from irrigation and mining operations upstream. A transmountain diversion from headwaters of Middle Fork John Day River delivers as much as 12 ft³/s (0.34 m³/s) to North Fork Burnt River above station.

AVERAGE DISCHARGE.--13 years (water years 1965-77), 49.8 ft³/s (1.410 m³/s), 36,080 acre-ft/yr (44.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,190 ft³/s (33.7 m³/s) Apr. 6, 1971, gage height, 4.31 ft (1.314 m); maximum gage height, 4.95 ft (1.509 m) Jan. 29, 1965 (ice jam); minimum discharge, 0.14 ft³/s (0.004 m³/s) Aug. 15, 1977, but may have been less when stage fell below inlets July 19 to Aug. 17, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge recorded, 382 ft³/s (10.8 m³/s) Apr. 20, gage height, 2.49 ft (0.759 m); minimum recorded, 6.6 ft³/s (0.19 m³/s) Jan. 1, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				7.0	15	212	60	136	28			
2				7.0	19	185	58	133	30			
3				7.0	19	133	56	131	27			
4				7.0	19	150	56	110	25			
5				7.4	18	180	70	108	25			
6				17	18	170	88	141	27			
7				13	17	150	78	106	30			
8				9.5	17	120	72	90	27			
9				8.6	16	100	90	112	23			
10				8.6	16	94	110	104	21			
11				12	15	105	100	85	24			
12				7.8	15	98	160	76	42			
13				16	15	90	200	69	37			
14				21	15	95	240	69	69			
15				36	14	105	257	71	58			
16				27	17	92	254	74	49			
17				22	22	84	284	64	42			
18				19	28	78	310	58	36			
19				16	35	74	333	51	30			
20				15	50	76	337	48	28			
21				15	47	73	341	36	24			
22				14	44	76	333	41	22			
23				14	42	81	329	41	25			
24				13	38	73	303	37	21			
25				12	38	76	237	38	19			
26				11	53	78	212	41	21			
27				9.0	115	80	196	42	24			
28				7.0	146	74	199	36	18			
29				6.8	212	70	209	33	15			
30				7.8	---	66	165	32	14			
31				9.0	---	64	---	30	---			
TOTAL				402.5	1135	3202	5737	2243	881			
MEAN				13.0	39.1	103	191	72.4	29.4			
MAX				36	212	212	341	141	69			
MIN				6.8	14	64	56	30	14			
AC-FT				798	2250	6350	11380	4450	1750			

BURNT RIVER BASIN

91

13270800 SOUTH FORK BURNT RIVER ABOVE BARNEY CREEK, NEAR UNITY, OR

LOCATION.--Lat 44°24'25", long 118°18'01", in NW¼SE¼ sec.28, T.13 S., R.36 E., Baker County, Hydrologic Unit 17050202, Wallowa Whitman National Forest, on right bank 84 ft (26 m) upstream from Barney Creek and 6 mi (10 km) southwest of Unity.

DRAINAGE AREA.--38.5 mi² (99.7 km²).

PERIOD OF RECORD.--March 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,341.75 ft (1,323.365 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to July 18, 1963, nonrecording gage at site 222 ft (68 m) upstream at datum 5.47 ft (1.667 m) higher, July 18, 1963, to July 18, 1979, at site 216 ft (66 m) upstream at datum 5.313 ft (1.619 m) higher.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--17 years, 27.4 ft³/s (0.776 m³/s), 19,850 acre-ft/yr (24.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 186 ft³/s (5.27 m³/s) Apr. 29, 1965, gage height, 1.98 ft (0.604 m), site and datum then in use; maximum gage height, 3.57 ft (1.088 m) Jan. 10, 1974 (backwater from ice), site and datum then in use; minimum discharge, 11 ft³/s (0.31 m³/s) Feb. 12, 1978, but may have been less during period of no gage-height record Nov. 20 to Dec. 5, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 64 ft³/s (1.81 m³/s) Apr. 24, gage height, 3.38 ft (1.030 m); minimum, 13 ft³/s (0.37 m³/s) Jan. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	18	20	19	19	22	22	50	43	30	26	23
2	19	18	20	19	20	22	22	50	45	31	26	23
3	19	18	20	19	20	23	22	52	45	30	26	23
4	19	19	20	19	19	23	22	52	43	29	25	22
5	19	18	20	21	20	22	23	55	43	28	25	22
6	19	18	20	16	21	22	23	57	42	28	25	22
7	19	18	20	16	21	22	22	55	41	28	25	22
8	19	18	20	18	20	22	23	54	40	27	25	22
9	19	18	20	20	20	22	23	54	39	27	25	22
10	19	18	20	19	20	22	23	51	38	26	24	23
11	19	18	18	18	20	23	23	47	40	26	24	23
12	19	18	22	23	20	22	24	43	40	26	24	24
13	19	18	20	22	20	22	28	42	38	27	24	25
14	19	18	20	22	20	23	32	44	48	26	24	23
15	19	18	20	20	21	22	33	42	48	26	24	22
16	19	18	20	20	22	22	35	41	49	26	24	22
17	19	19	20	20	21	22	38	40	47	26	24	22
18	19	19	20	18	21	22	43	39	45	27	25	23
19	22	17	20	20	21	22	46	39	43	27	24	23
20	19	16	20	19	22	22	48	40	41	26	24	24
21	19	18	20	21	21	22	54	40	40	26	24	24
22	19	18	20	19	21	22	53	41	39	26	23	24
23	19	19	18	18	20	22	60	40	37	27	23	23
24	19	20	21	18	20	22	61	39	37	28	23	23
25	20	19	20	18	20	22	56	38	35	28	23	23
26	19	19	18	17	20	22	53	38	35	27	23	23
27	18	18	19	16	20	22	52	37	34	27	23	23
28	19	19	20	15	22	22	55	36	32	27	23	23
29	18	18	19	15	21	22	58	37	32	26	23	23
30	18	20	19	16	---	22	54	38	31	26	23	22
31	18	---	19	18	---	22	---	39	---	26	23	---
TOTAL	589	548	613	579	593	686	1131	1370	1210	841	747	686
MEAN	19.0	18.3	19.8	18.7	20.4	22.1	37.7	44.2	40.3	27.1	24.1	22.9
MAX	22	20	22	23	22	23	61	57	49	31	26	25
MIN	18	16	18	15	19	22	22	36	31	26	23	22
AC-FT	1170	1090	1220	1150	1180	1360	2240	2720	2400	1670	1480	1360
CAL YR 1979	TOTAL	8940	MEAN 24.5	MAX 73	MIN 14	AC-FT 17730						
WTR YR 1980	TOTAL	9593	MEAN 26.2	MAX 61	MIN 15	AC-FT 19030						

13272500 UNITY RESERVOIR NEAR UNITY, OR

LOCATION.--Lat 44°30'13"N, long 118°10'45"W, in SE¼ sec.21, T.12 S., R.37 E., Baker County, Hydrologic Unit 17050202, at spillway near right end of dam on Burnt River, 4.4 mi (7.1 km) north of Unity, and at mile 63.6 (102.3 km).

DRAINAGE AREA.--309 mi² (800 km²).

PERIOD OF RECORD.--March 1938 to current year. Prior to September 1978, monthend contents only.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Water and Power Resources Service bench mark). Mar. 13, 1938, to Nov. 4, 1941, reference mark or mercury pressure gage and Nov. 5, 1941, to Dec. 10, 1978, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway and outlet works, completed by Water and Power Resources Service in 1937; storage began Feb. 19, 1938. Capacity, 25,200 acre-ft (31.1 hm³) between elevations 3,776.5 ft (1,151.08 m), bottom of outlet gates, and 3,820.0 ft (1,164.34 m), top of radial gates on spillway when closed. Dead storage, 600 acre-ft (740,000 m³) below elevations 3,776.5 ft (1,151.08 m). Records given herein represent usable contents. Water used for irrigation in the Burnt River Irrigation District near Hereford and Bridgeport.

COOPERATION.--Data for computing capacity table furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 26,770 acre-ft (33.0 hm³) Apr. 8, 1971, elevation, 3,821.62 ft (1,164.830 m); no contents Sept. 5 to Oct. 4, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 25,690 acre-ft (31.7 hm³) June 15, elevation, 3,820.51 ft (1,164.491 m); minimum, 2,200 acre-ft (2.71 hm³) Oct. 11, elevation, 3,785.66 ft (1,153.869 m).

CORRECTIONS.--Monthend contents for February 1970 and change in contents for February and March 1970 have been corrected, as shown in the following table. They supersede figures published in WSP 2134.

Date	Elevation (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
Feb. 28, 1970	3,809.24	16,100	+3,420
Mar. 31, 1970	-	-	+7,360

Capacity table (elevation, in feet, and usable contents, in acre-feet)

3,785	1,960	3,800	9,600	3,815	20,770
3,790	4,020	3,805	12,960	3,820	25,220
3,795	6,610	3,810	16,680	3,821	26,150

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3786.64	3787.76	3792.25	3796.83	3801.54	3808.48	3818.48	3820.00	3819.67	3819.73	3817.21	3808.56
2	3786.29	3787.89	3792.42	3796.96	3801.68	3808.97	3818.59	3819.96	3819.69	3819.73	3816.90	3808.32
3	3786.00	3788.06	3792.58	3797.08	3801.83	3809.51	3818.72	3819.90	3819.68	3819.81	3816.60	3808.07
4	3785.77	3788.26	3792.76	3797.24	3801.96	3810.23	3818.85	3819.90	3819.68	3819.84	3816.25	3807.83
5	3785.77	3788.44	3792.92	3797.38	3802.08	3810.88	3819.01	3819.95	3819.75	3819.88	3815.92	3807.62
6	3785.86	3788.62	3793.10	3797.45	3802.20	3811.37	3819.18	3820.09	3819.81	3819.91	3815.62	3807.38
7	3785.93	3788.78	3793.32	3797.52	3802.32	3811.79	3819.25	3820.16	3819.86	3819.92	3815.31	3807.12
8	3785.90	3788.95	3793.51	3797.68	3802.45	3812.14	3819.26	3820.30	3819.90	3819.91	3815.00	3806.89
9	3785.90	3789.09	3793.70	3797.82	3802.58	3812.50	3819.28	3820.25	3819.88	3819.94	3814.71	3806.64
10	3785.73	3789.25	3793.84	3797.91	3802.70	3812.87	3819.33	3820.25	3819.89	3819.93	3814.43	3806.44
11	3785.66	3789.37	3793.97	3798.06	3802.81	3813.32	3819.32	3820.17	3819.91	3819.90	3814.16	3806.13
12	3785.71	3789.50	3794.12	3798.25	3802.93	3813.68	3819.36	3820.08	3820.00	3819.85	3813.85	3805.92
13	3785.77	3789.64	3794.25	3798.50	3803.02	3814.01	3819.48	3820.07	3820.07	3819.83	3813.58	3805.73
14	3785.86	3789.77	3794.40	3798.81	3803.15	3814.37	3819.57	3820.06	3820.41	3819.78	3813.28	3805.47
15	3785.95	3789.91	3794.55	3799.20	3803.26	3814.75	3819.59	3820.06	3820.45	3819.77	3812.97	3805.21
16	3786.04	3790.06	3794.69	3799.46	3803.44	3815.07	3819.61	3820.05	3820.32	3819.71	3812.68	3804.95
17	3786.11	3790.24	3794.85	3799.67	3803.84	3815.33	3819.72	3820.04	3820.29	3819.63	3812.41	3804.72
18	3786.21	3790.42	3794.99	3799.82	3804.26	3815.59	3819.81	3820.01	3820.24	3819.57	3812.09	3804.47
19	3786.35	3790.56	3795.14	3799.93	3804.62	3815.83	3819.94	3819.95	3820.22	3819.49	3811.82	3804.27
20	3786.46	3790.68	3795.28	3800.06	3805.14	3816.03	3819.95	3819.84	3820.17	3819.45	3811.57	3804.01
21	3786.55	3790.83	3795.44	3800.23	3805.49	3816.27	3820.02	3819.75	3820.10	3819.40	3811.33	3803.81
22	3786.64	3790.97	3795.55	3800.38	3805.80	3816.51	3820.05	3819.64	3819.98	3819.31	3811.06	3803.67
23	3786.76	3791.13	3795.70	3800.53	3806.06	3816.73	3819.97	3819.60	3819.93	3819.18	3810.81	3803.51
24	3786.87	3791.32	3795.84	3800.66	3806.31	3816.97	3819.88	3819.60	3819.92	3818.97	3810.55	3803.35
25	3786.98	3791.48	3795.96	3800.78	3806.54	3817.20	3819.93	3819.62	3819.89	3818.79	3810.27	3803.20
26	3787.08	3791.65	3796.07	3800.87	3806.82	3817.40	3819.94	3819.70	3819.83	3818.60	3810.04	3803.06
27	3787.18	3791.79	3796.17	3800.95	3807.17	3817.63	3819.88	3819.75	3819.85	3818.38	3809.76	3802.95
28	3787.29	3791.89	3796.28	3801.24	3807.54	3817.83	3819.94	3819.74	3819.82	3818.12	3809.50	3802.83
29	3787.37	3791.97	3796.43	3801.28	3808.00	3818.02	3820.02	3819.74	3819.78	3817.92	3809.26	3802.72
30	3787.50	3792.09	3796.58	3801.34	---	3818.16	3820.05	3819.75	3819.73	3817.69	3809.02	3802.61
31	3787.65	---	3796.72	3801.41	---	3818.33	---	3819.73	---	3817.42	3808.78	---
MEAN	3786.38	3790.01	3794.63	3799.20	3804.05	3814.44	3819.53	3819.93	3819.96	3819.33	3812.80	3805.25
MAX	3787.65	3792.09	3796.72	3801.41	3808.00	3818.33	3820.05	3820.30	3820.45	3819.94	3817.21	3808.56
MIN	3785.66	3787.76	3792.25	3796.83	3801.54	3808.48	3818.48	3819.60	3819.67	3817.42	3808.78	3802.61
(†)	2980	5050	7590	10510	15150	23710	25260	24970	24970	22900	15740	11310
(‡)	+270	+2070	+2540	+2920	+4640	+8560	+1550	-290	0	-2070	-7160	-4430
CAL YR 1979	MEAN	3803.41	MAX	3820.26	MIN	3785.66	AC-FT†	-1540				
WTR YR 1980	MEAN	3807.13	MAX	3820.45	MIN	3785.66	AC-FT‡	+8600				

† Contents in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

13273000 BURNT RIVER NEAR HEREFORD, OR

LOCATION.--Lat 44°30'14", long 118°10'35", in SE¼ sec.21, T.12 S., R.37 E., Baker County, Hydrologic Unit 17050202, on left bank 800 ft (244 m) downstream from Unity Dam, 0.4 mi (0.6 km) upstream from Van Cleve ditch, 7 mi (11 km) west of Hereford, and at mile 63.5 (102.2 km).

DRAINAGE AREA.--309 mi² (800 km²).

PERIOD OF RECORD.--March to September 1915, April to September 1916, October 1928 to current year. Monthly discharge only for some periods, published in WSP 1317.

REVISED RECORDS.--WSP 903: 1939. WSP 1397: 1916, 1930, 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 3,758.19 ft (1,145.496 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1943, to Oct. 31, 1966, water-stage recorder at site 450 ft (137 m) downstream at datum 1.44 ft (0.439 m) lower. See WSP 1317 or 1737 for history of changes prior to Oct. 1, 1943.

REMARKS.--Records fair. Flow regulated since 1938 by Unity Reservoir (see station 13272500). Diversions for irrigation above station.

AVERAGE DISCHARGE.--52 years (water years 1929-80), 83.1 ft³/s (2.353 m³/s), 60,210 acre-ft/yr (74.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,220 ft³/s (62.9 m³/s) Apr. 17, 1943, gage height, 5.91 ft (1.801 m), present datum, from rating curve extended above 1,300 ft³/s (36.8 m³/s); maximum gage height, 6.41 ft (1.954 m), present datum, Apr. 16, 1943, just before concrete control washed out; no flow at times; minimum discharge before construction of Unity Dam, 1.6 ft³/s (0.045 m³/s) Aug. 31, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 375 ft³/s (10.6 m³/s) Apr. 23, gage height, 5.52 ft (1.682 m); minimum, 0.27 ft³/s (0.008 m³/s) Oct. 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	.42	2.7	5.0	6.3	9.9	2.5	203	71	62	135	111
2	80	.46	2.8	5.2	6.3	10	18	203	68	63	139	111
3	70	.46	2.8	5.2	6.3	11	18	191	68	62	145	110
4	63	.46	2.8	5.2	6.5	11	14	148	70	62	152	110
5	20	.46	2.8	5.2	6.8	9.9	33	120	66	62	151	110
6	.88	.46	3.1	4.7	7.1	9.2	51	117	71	62	148	109
7	.67	.46	3.3	4.7	6.3	8.9	83	129	71	62	147	108
8	7.7	.46	3.4	5.0	5.7	7.9	116	141	73	63	140	108
9	10	.46	3.6	5.0	6.3	7.7	119	166	72	66	136	113
10	7.9	.50	3.6	4.7	6.5	7.9	124	194	71	68	135	119
11	5.0	.50	3.8	4.7	6.6	7.1	146	193	71	67	134	119
12	3.6	.50	3.8	5.0	6.8	6.8	146	170	69	65	131	119
13	2.3	.50	3.4	4.7	6.8	6.5	148	134	74	65	130	118
14	1.9	.50	3.3	4.7	6.8	6.3	235	125	112	64	128	116
15	1.9	1.0	3.4	4.7	7.0	6.8	242	123	210	63	126	116
16	1.4	3.8	3.4	4.7	7.0	6.8	240	120	212	63	116	116
17	1.4	3.6	3.6	5.2	7.0	6.8	236	122	177	63	116	115
18	1.3	3.4	3.6	5.2	7.2	6.5	252	122	137	64	114	107
19	1.2	3.0	3.6	5.2	13	5.5	284	122	126	84	114	102
20	.67	3.0	3.4	5.0	14	4.7	339	119	119	112	113	102
21	.30	3.0	3.8	5.0	7.7	4.0	346	105	116	119	112	93
22	.30	3.0	4.0	5.0	7.9	3.6	342	93	104	122	112	85
23	.30	3.1	4.4	5.0	8.5	3.0	364	82	99	120	111	85
24	.30	3.0	4.6	5.2	8.2	3.0	366	73	99	120	110	73
25	.32	2.7	4.7	5.2	8.2	3.1	291	72	99	124	108	73
26	.38	2.7	5.0	5.2	8.5	3.3	228	71	99	136	113	73
27	.35	2.7	5.0	5.2	8.9	2.8	226	78	99	140	113	65
28	.38	2.8	5.2	5.5	9.2	3.1	219	80	90	138	112	60
29	.42	3.0	5.2	5.7	9.6	3.1	186	78	82	139	112	60
30	.46	3.0	5.0	6.0	---	2.3	184	76	66	135	112	60
31	.42	---	5.0	6.0	---	2.3	---	74	---	135	111	---
TOTAL	368.75	53.40	118.1	158.0	223.0	190.8	5598.5	3844	2961	2770	3876	2966
MEAN	11.9	1.78	3.81	5.10	7.69	6.15	187	124	98.7	89.4	125	98.9
MAX	84	3.8	5.2	6.0	14	11	366	203	212	140	152	119
MIN	.30	.42	2.7	4.7	5.7	2.3	2.5	71	66	62	108	60
AC-FT	731	106	234	313	442	378	11100	7620	5870	5490	7690	5880

CAL YR 1979 TOTAL 29029.95 MEAN 79.5 MAX 434 MIN .30 AC-FT 57580
WTR YR 1980 TOTAL 23127.55 MEAN 63.2 MAX 366 MIN .30 AC-FT 45870

NOTE.--No gage-height record Aug. 26 to Sept. 30.

BURNT RIVER BASIN

13274200 BURNT RIVER NEAR BRIDGEPORT, OR

LOCATION.--Lat 44°32'27", long 117°41'10", in NW¼NW¼ sec.10, T.12 S., R.41 E., Baker County, Hydrologic Unit 17050202, on left bank 0.5 mi (0.8 km) downstream from Dark Canyon, 4.6 mi (7.4 km) upstream from Deer Creek, 5.0 mi (8.0 km) northeast of Bridgeport, and at mile 37.1 (59.7 km).

DRAINAGE AREA.--650 mi² (1,680 km²), approximately.

PERIOD OF RECORD.--October 1956 to September 1980 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 3,223.22 ft (982.437 m) National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

REMARKS.--Records good. Flow regulated since 1938 by Unity Reservoir (see station 13272500). Many diversions for irrigation above station.

AVERAGE DISCHARGE.--24 years, 105 ft³/s (2.974 m³/s), 76,070 acre-ft/yr (93.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,600 ft³/s (45.3 m³/s) Apr. 9, 1971, gage height, 6.40 ft (1.951 m); minimum, 5.2 ft³/s (0.15 m³/s) Dec. 5, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 546 ft³/s (15.5 m³/s) Apr. 25, gage height, 3.68 ft (1.122 m); minimum, 9.4 ft³/s (0.27 m³/s) Nov. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	24	22	22	45	113	59	319	119	115	59	93
2	83	23	23	22	54	116	61	316	119	110	70	93
3	82	23	24	22	62	116	66	316	113	113	62	95
4	82	23	27	22	60	118	76	350	107	103	65	93
5	81	22	27	23	59	121	76	305	115	95	72	89
6	78	22	27	20	70	118	87	232	116	91	81	77
7	55	22	28	18	66	111	103	197	121	86	91	73
8	46	22	29	21	56	107	119	184	118	78	94	78
9	42	22	29	25	62	103	154	211	108	81	93	71
10	41	21	29	24	75	103	172	250	105	75	93	72
11	42	21	27	28	68	104	179	274	113	75	97	86
12	41	21	24	35	55	101	193	284	149	77	90	98
13	39	21	24	49	45	94	213	263	149	77	78	127
14	38	20	26	49	44	73	222	230	156	79	78	154
15	37	19	27	60	45	69	246	198	217	77	79	156
16	34	19	27	54	52	65	302	204	248	72	81	135
17	32	22	26	43	86	64	338	204	278	71	85	130
18	30	23	26	40	181	66	355	198	282	71	90	132
19	31	24	26	36	156	64	362	195	236	69	98	129
20	30	23	26	38	217	63	396	183	198	68	95	137
21	30	20	26	41	188	66	453	171	183	68	97	134
22	30	21	27	39	107	68	525	154	169	72	89	137
23	30	23	23	37	95	65	528	134	147	62	90	127
24	29	21	25	34	90	63	534	132	137	54	90	113
25	29	21	22	33	87	57	540	116	135	45	87	107
26	28	21	21	31	90	57	528	125	132	57	83	111
27	27	23	20	26	110	60	442	127	151	61	85	113
28	26	16	22	25	116	57	386	121	151	69	87	100
29	24	18	21	28	115	56	386	116	137	73	86	89
30	24	24	20	27	---	56	352	113	121	66	86	85
31	24	---	23	35	---	55	---	115	---	62	90	---
TOTAL	1323	645	774	1007	2556	2549	8453	6337	4630	2372	2621	3234
MEAN	42.7	21.5	25.0	32.5	88.1	82.2	282	204	154	76.5	84.5	108
MAX	83	24	29	60	217	121	540	350	282	115	98	156
MIN	24	16	20	18	44	55	59	113	105	45	59	71
AC-FT	2620	1280	1540	2000	5070	5060	16770	12570	9180	4700	5200	6410
CAL YR 1979	TOTAL	32112	MEAN	88.0	MAX	514	MIN	14	AC-FT	63690		
WTR YR 1980	TOTAL	36501	MEAN	99.7	MAX	540	MIN	16	AC-FT	72400		

BURNT RIVER BASIN

95

13275000 BURNT RIVER AT HUNTINGTON, OR

LOCATION.--Lat 44°21'30", long 117°16'20", in NE¼ sec.13, T.14 S., R.44 E., Baker County, Hydrologic Unit 17050202, on right bank 0.5 mi (0.8 km) northwest of Huntington and at mile 2.9 (4.7 km).

DRAINAGE AREA.--1,093 mi² (2,831 km²).

PERIOD OF RECORD.--September 1928 to September 1932, October 1956 to September 1959, June 1962 to September 1980 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 2,104.75 ft (641.528 m) National Geodetic Vertical Datum of 1929. Sept. 13, 1928, to Sept. 30, 1932, nonrecording gage at site 200 ft (61 m) upstream at different datum. Oct. 1, 1956, to Sept. 30, 1959, water-stage recorder and Oct. 1, 1959, to Aug. 20, 1962, crest-stage gage.

REMARKS.--Records good except those for period of no gage-height record April 20 to June 11, which are fair. Flow regulated since 1938 by Unity Reservoir (see station 13272500). Diversions for irrigation above station.

AVERAGE DISCHARGE.--25 years, 132 ft³/s (3.738 m³/s), 95,630 acre-ft/yr (118 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,220 ft³/s (62.9 m³/s) Dec. 22, 1964, gage height, 5.94 ft (1.811 m); maximum gage height, 6.80 ft (2.073 m) Feb. 3, 1963 (ice jam); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 662 ft³/s (18.7 m³/s) Apr. 26, gage height, 3.30 ft (1.006 m); minimum, 25 ft³/s (0.71 m³/s) Nov. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	60	49	64	78	264	143	420	150	157	45	89
2	98	58	51	63	83	264	150	400	160	141	42	93
3	102	58	56	62	81	259	160	400	170	134	48	96
4	101	59	61	61	89	251	170	400	160	134	45	95
5	98	58	61	68	84	264	170	450	160	124	49	92
6	93	58	61	63	87	251	180	350	175	119	51	86
7	84	57	62	45	99	232	200	270	175	116	59	76
8	67	58	64	54	101	225	220	240	175	102	76	71
9	61	57	67	62	106	212	240	220	170	101	76	76
10	59	56	67	62	104	205	260	270	170	96	76	76
11	58	56	57	56	102	203	260	300	170	92	80	83
12	59	55	54	66	104	196	280	320	235	94	86	90
13	59	54	59	107	104	194	300	330	243	96	84	132
14	57	51	61	135	104	176	320	310	261	98	80	171
15	59	50	62	157	106	161	343	280	304	94	83	167
16	59	52	62	147	114	147	374	220	332	88	83	165
17	58	56	61	141	203	151	432	230	348	86	86	151
18	57	60	60	111	541	151	460	220	345	84	90	151
19	72	58	60	83	503	143	470	200	304	82	93	153
20	67	55	60	86	528	143	480	190	261	80	89	157
21	63	49	60	90	467	163	520	160	237	78	81	157
22	62	49	61	89	334	161	560	150	225	76	80	155
23	66	54	49	87	284	165	620	140	210	82	80	153
24	64	57	49	86	256	153	640	140	198	66	83	149
25	63	57	54	84	245	145	640	130	191	56	81	135
26	67	59	50	80	248	147	660	140	178	48	80	134
27	63	48	46	62	270	151	640	150	194	54	75	137
28	62	37	50	50	286	147	540	160	200	60	75	130
29	61	43	48	52	278	147	480	150	187	64	77	119
30	59	56	47	50	---	143	470	150	174	56	81	111
31	60	---	54	64	---	141	---	150	---	50	87	---
TOTAL	2145	1635	1763	2487	5989	5755	11382	7640	6462	2808	2301	3650
MEAN	69.2	54.5	56.9	80.2	207	186	379	246	215	90.6	74.2	122
MAX	102	60	67	157	541	264	660	450	348	157	93	171
MIN	57	37	46	45	78	141	143	130	150	48	42	71
AC-FT	4250	3240	3500	4930	11880	11420	22580	15150	12820	5570	4560	7240

CAL YR 1979 TOTAL 45495 MEAN 125 MAX 616 MIN 30 AC-FT 90240
WTR YR 1980 TOTAL 54017 MEAN 148 MAX 660 MIN 37 AC-FT 107100

NOTE.--No gage-height record Apr. 20 to June 11.

13275300 POWDER RIVER NEAR SUMPTER, OR

LOCATION.--Lat 44°40'20", long 117°59'40", in NE¼NE¼ sec.25, T.10 S., R.38 E., Baker County, Hydrologic Unit 17050203, Wallowa Whitman National Forest, on left bank 1,200 ft (366 m) downstream from Mason Dam, 1.4 mi (2.3 km) upstream from California Gulch, 11.4 mi (18.3 km) southeast of Sumpter, and at mile 123.2 (198.2 km).

DRAINAGE AREA.--168 mi² (435 km²), approximately. Prior to Oct. 1, 1970, 170 mi² (440 km²) at cableway, 0.5 mi (0.8 km) downstream.

PERIOD OF RECORD.--April 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,898.47 ft (1,188.254 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to July 29, 1965, nonrecording gage at datum 1.03 ft (0.314 m) higher.

REMARKS.--Records good. Flow completely regulated since Oct. 31, 1967, by Phillips Lake, active capacity, 90,540 acre-ft (112 hm³). Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--15 years, 103 ft³/s (2.917 m³/s), 74,620 acre-ft/yr (92.0 hm³/yr), not adjusted for storage in Phillips Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 971 ft³/s (27.5 m³/s) Apr. 30, 1965, gage height, 4.43 ft (1.350 m); no flow Nov. 12, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 1,600 ft³/s (45.3 m³/s), approximately, Mar. 20, 1910, based on comparison with records for station downstream, near Baker.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 630 ft³/s (17.8 m³/s) Aug. 15, gage height, 3.90 ft (1.189 m); minimum recorded, 0.60 ft³/s (0.017 m³/s) Oct. 10, but may have been less during period of no gage-height record Dec. 7-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119	9.0	7.8	7.5	7.4	12	11	155	195	302	308	196
2	20	9.0	7.9	7.8	7.4	12	11	167	155	298	286	190
3	10	8.6	8.3	8.0	8.5	12	11	193	108	299	270	187
4	10	8.6	4.9	7.7	9.0	13	11	198	123	299	270	175
5	10	8.6	1.8	8.4	9.0	14	13	289	179	255	270	177
6	11	8.6	1.8	8.2	9.0	14	13	397	238	212	270	178
7	11	8.6	1.8	7.4	9.0	14	13	396	256	180	271	178
8	11	8.6	1.8	7.4	9.0	13	13	398	264	139	273	178
9	6.5	8.6	1.8	7.4	9.0	12	13	290	302	139	274	178
10	4.0	8.6	1.8	8.0	9.0	11	13	308	303	133	297	179
11	13	8.6	1.8	9.3	8.6	11	14	377	278	127	309	180
12	11	8.6	3.0	7.9	8.6	13	15	376	87	127	299	172
13	10	8.2	4.5	8.4	8.6	12	15	377	53	127	264	95
14	10	8.2	8.0	8.9	8.6	11	14	355	77	127	283	69
15	10	8.2	9.0	9.4	8.6	11	14	277	77	127	288	52
16	9.9	8.2	9.0	8.4	8.6	10	13	258	103	127	259	26
17	9.4	8.2	8.6	9.1	8.6	10	19	272	143	125	332	26
18	9.4	8.2	8.2	10	8.6	10	23	308	203	143	344	69
19	9.4	8.2	8.7	11	8.6	11	24	308	208	180	345	91
20	9.4	8.2	9.1	11	8.6	11	24	308	206	179	345	76
21	9.4	8.2	8.8	11	8.6	11	24	309	207	179	341	20
22	9.4	8.2	8.4	11	9.0	11	24	309	208	180	341	20
23	9.2	8.2	8.7	11	9.0	11	27	309	208	205	342	20
24	9.0	8.2	8.4	11	9.0	11	43	309	222	223	342	20
25	9.0	7.7	8.3	9.3	9.4	11	78	309	290	223	303	20
26	9.0	7.8	8.2	8.8	9.4	11	81	309	297	223	277	20
27	9.0	7.8	7.8	8.4	9.4	11	98	309	300	229	224	20
28	9.0	7.8	7.6	7.4	11	11	115	309	298	241	218	20
29	9.0	7.8	7.9	7.4	12	11	146	265	298	262	193	20
30	9.0	7.8	8.2	7.4	---	11	155	202	301	261	195	20
31	9.0	---	8.2	7.4	---	11	---	202	---	293	196	---
TOTAL	414.0	249.1	200.1	271.3	259.1	358	1088	9148	6187	6164	8829	2872
MEAN	13.4	8.30	6.45	8.75	8.93	11.5	36.3	295	206	199	285	95.7
MAX	119	9.0	9.1	11	12	14	155	398	303	302	345	196
MIN	4.0	7.7	1.8	7.4	7.4	10	11	155	53	125	193	20
AC-FT	821	494	397	538	514	710	2160	18150	12270	12230	17510	5700
CAL YR 1979	TOTAL	37251.2	MEAN	102	MAX	487	MIN	1.8	AC-FT	73890		
WTR YR 1980	TOTAL	36039.6	MEAN	98.5	MAX	398	MIN	1.8	AC-FT	71480		

POWDER RIVER BASIN

97

13277000 POWDER RIVER AT BAKER, OR

LOCATION.--Lat 44°46'06", long 117°49'50", in SE¼NE¼ sec.20, T.9 S., R.40 E., Baker County, Hydrologic Unit 17050203, on right bank 600 ft (180 m) upstream from Myrtle Street Bridge in Baker, 0.5 mi (0.8 km) downstream from Sutton Creek, and at mile 107.6 (173.1 km).

DRAINAGE AREA.--351 mi² (909 km²).

PERIOD OF RECORD.--May to September 1913, April to July 1914, November 1971 to current year. Monthly discharge only May 1913, April 1914 published in WSP 1317. November 1971 to September 1978 in reports of Oregon Water Resources Department.

REVISED RECORDS.--WSP 1317: 1913.

GAGE.--Water-stage recorder. Datum of gage is 3,441.71 ft (1,049.033 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 19, 1971, nonrecording gage at site 0.7 mi (1.1 km) downstream at different datum.

REMARKS.--Records good. Flow regulated since Oct. 31, 1967, by Phillips Lake, active capacity, 90,540 acre-ft (112 hm³). Old Settlers Slough diverts from left bank 0.2 mi (0.3 km) upstream for irrigation below station.

AVERAGE DISCHARGE.--8 years, 99.0 ft³/s (2.804 m³/s), 71,730 acre-ft/yr (88.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft³/s (31.7 m³/s) Jan. 15, 1974, gage height, 5.55 ft (1.692 m); minimum, 0.7 ft³/s (0.020 m³/s) Oct. 28, 29, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 510 ft³/s (14.4 m³/s) Feb. 20, gage height, 3.90 ft (1.189 m); minimum, 1.0 ft³/s (0.028 m³/s) Nov. 27, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	8.7	22	21	24	49	29	100	173	259	221	113
2	39	9.0	24	19	32	48	28	100	145	263	199	111
3	16	9.0	25	18	48	47	30	124	89	265	180	109
4	10	9.7	22	17	66	45	29	122	83	269	181	91
5	9.0	9.7	22	14	48	46	32	164	128	251	178	93
6	8.1	9.7	13	12	44	45	38	292	197	188	169	95
7	7.5	9.3	12	13	45	41	33	305	233	173	166	95
8	7.5	9.7	12	15	42	38	32	307	231	121	168	93
9	7.0	10	12	19	38	35	33	323	263	118	171	96
10	4.7	10	12	18	31	35	33	202	269	106	190	102
11	3.3	10	15	27	31	34	32	314	289	86	202	98
12	7.3	10	18	48	27	31	32	309	145	84	204	110
13	6.2	10	20	125	21	32	33	307	69	82	164	85
14	6.2	11	20	54	19	33	36	300	92	83	180	56
15	6.7	9.7	18	55	20	33	39	246	91	79	178	39
16	6.2	10	18	32	28	28	41	201	89	74	181	25
17	6.2	16	17	29	56	30	45	213	98	71	217	18
18	6.7	15	17	24	97	29	52	238	136	71	244	25
19	8.4	13	17	22	97	28	64	234	142	111	248	57
20	7.5	9.3	17	26	161	29	78	236	136	111	248	58
21	7.5	9.7	17	30	63	37	62	234	133	98	261	27
22	7.5	15	17	26	50	44	58	229	131	81	280	15
23	9.0	13	21	24	48	47	62	221	136	84	267	14
24	8.1	12	27	23	45	38	64	233	141	122	269	13
25	8.1	11	23	22	44	34	72	234	221	136	255	13
26	8.4	7.8	17	20	49	33	80	238	229	121	231	13
27	7.5	6.7	18	17	57	34	88	246	248	122	183	13
28	7.5	9.4	18	16	56	31	110	253	251	129	161	13
29	8.1	12	21	17	53	32	88	240	246	152	132	16
30	8.1	17	21	16	---	31	102	180	253	158	119	19
31	9.0	---	24	21	---	30	---	168	---	192	113	---
TOTAL	395.3	322.4	577	850	1440	1127	1555	7113	5087	4260	6160	1725
MEAN	12.8	10.7	18.6	27.4	49.7	36.4	51.8	229	170	137	199	57.5
MAX	133	17	27	125	161	49	110	323	289	269	280	113
MIN	3.3	6.7	12	12	19	28	28	100	69	71	113	13
AC-FT	784	639	1140	1690	2860	2240	3080	14110	10090	8450	12220	3420

CAL YR 1979 TOTAL 34300.1 MEAN 94.0 MAX 574 MIN 3.3 AC-FT 68030
WTR YR 1980 TOTAL 30611.7 MEAN 83.6 MAX 323 MIN 3.3 AC-FT 60720

13285000 THIEF VALLEY RESERVOIR NEAR NORTH POWDER, OR

LOCATION.—Lat 45°00'45", long 117°46'50", in NE¼SW¼ sec.26, T.6 S., R.40 E., Baker County, Hydrologic Unit 17050203, Water and Power Resources Service land, on top of right end of dam on Powder River, 7.0 mi (11.3 km) east of North Powder, and at mile 70.0 (112.6 km).

DRAINAGE AREA.—910 mi² (2,357 km²), approximately.

PERIOD OF RECORD.—October 1979 to September 1980.

GAGE.—Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Water and Power Resources Service bench mark).

REMARKS.—Reservoir is formed by concrete dam. Storage began in February 1932. Capacity, 17,400 acre-ft (21.5 hm³) between elevations 3,094.00 ft (943.051 m), minimum pool, and 3,133.00 ft (954.938 m), spillway crest. No dead storage. Water used for irrigation of lands of Lower Powder River Irrigation District.

COOPERATION.—Capacity table furnished by Oregon Water Resources Department.

EXTREMES FOR CURRENT YEAR.—Maximum contents, 18,150 acre-ft (22.4 hm³) June 13, elevation, 3,134.00 ft (955.243 m); minimum, 4,620 acre-ft (5.70 hm³) Oct. 12, elevation, 3,111.10 ft (948.263 m).

Capacity table (elevation, in feet, and contents, in acre-feet)

3,111	4,530	3,125	11,880
3,115	6,370	3,130	15,210
3,120	8,950	2,135	18,910

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3111.45	3113.91	3119.88	3128.95	3133.10	3133.44	3133.28	3133.49	3133.52	3133.69	3129.62	3120.98
2	3111.45	3114.03	3120.19	3129.22	3133.14	3133.43	3133.31	3133.48	3133.55	3133.78	3129.24	3120.58
3	3111.45	3114.19	3120.52	3129.46	3133.15	3133.43	3133.31	3133.54	3133.57	3133.85	3128.89	3120.22
4	3111.55	3114.37	3120.86	3129.75	3133.16	3133.42	3133.33	3133.55	3133.58	3133.82	3128.56	3119.83
5	3111.58	3114.54	3121.19	3130.02	3133.17	3133.41	3133.34	3133.59	3133.59	3133.81	3128.17	3119.45
6	3111.56	3114.71	3121.55	3130.17	3133.19	3133.41	3133.33	3133.63	3133.61	3133.81	3127.77	3119.03
7	3111.49	3114.89	3121.94	3130.31	3133.19	3133.40	3133.33	3133.63	3133.65	3133.77	3127.44	3118.66
8	3111.42	3115.10	3122.35	3130.53	3133.19	3133.39	3133.33	3133.63	3133.70	3133.69	3127.12	3118.34
9	3111.33	3115.26	3122.77	3130.79	3133.20	3133.39	3133.31	3133.77	3133.69	3133.65	3126.83	3118.00
10	3111.25	3115.47	3123.14	3131.02	3133.19	3133.40	3133.31	3133.66	3133.72	3133.59	3126.65	3117.70
11	3111.16	3115.61	3123.40	3131.22	3133.19	3133.34	3133.32	3133.56	3133.82	3133.50	3126.49	3117.45
12	3111.12	3115.78	3123.65	3131.36	3133.19	3133.33	3133.33	3133.51	3133.93	3133.41	3126.32	3117.30
13	3111.23	3115.95	3123.93	3131.78	3133.19	3133.35	3133.33	3133.49	3133.99	3133.39	3126.14	3117.33
14	3111.35	3116.12	3124.20	3132.62	3133.19	3133.32	3133.32	3133.45	3133.93	3133.36	3125.80	3117.53
15	3111.43	3116.29	3124.50	3133.46	3133.19	3133.33	3133.32	3133.47	3133.91	3133.35	3125.39	3117.75
16	3111.53	3116.49	3124.83	3133.53	3133.24	3133.31	3133.33	3133.45	3133.87	3133.27	3125.00	3118.11
17	3111.62	3116.78	3125.16	3133.41	3133.37	3133.32	3133.31	3133.42	3133.84	3133.21	3124.63	3118.45
18	3111.70	3117.08	3125.46	3133.26	3133.49	3133.32	3133.33	3133.44	3133.82	3133.09	3124.29	3118.73
19	3111.82	3117.35	3125.74	3133.20	3133.72	3133.33	3133.34	3133.47	3133.85	3132.92	3124.03	3118.93
20	3111.94	3117.57	3126.03	3133.21	3133.63	3133.35	3133.37	3133.52	3133.77	3132.77	3123.71	3119.13
21	3112.04	3117.75	3126.34	3133.24	3133.65	3133.37	3133.39	3133.53	3133.71	3132.65	3123.45	3119.33
22	3112.17	3117.92	3126.59	3133.23	3133.57	3133.40	3133.33	3133.62	3133.68	3132.46	3123.24	3119.52
23	3112.32	3118.16	3126.69	3133.22	3133.53	3133.38	3133.34	3133.60	3133.73	3132.22	3122.96	3119.70
24	3112.47	3118.46	3126.94	3133.22	3133.50	3133.37	3133.37	3133.51	3133.72	3131.96	3122.64	3119.94
25	3112.66	3118.71	3127.29	3133.20	3133.47	3133.35	3133.38	3133.48	3133.64	3131.70	3122.40	3120.14
26	3112.89	3118.97	3127.59	3133.09	3133.47	3133.34	3133.40	3133.52	3133.61	3131.47	3122.29	3120.31
27	3113.11	3119.11	3127.86	3133.05	3133.48	3133.34	3133.41	3133.58	3133.66	3131.22	3122.19	3120.40
28	3113.29	3119.20	3128.09	3133.07	3133.47	3133.36	3133.45	3133.59	3133.70	3130.95	3122.07	3120.61
29	3113.44	3119.35	3128.26	3133.08	3133.46	3133.33	3133.51	3133.55	3133.67	3130.61	3121.83	3120.70
30	3113.60	3119.58	3128.42	3133.08	---	3133.31	3133.45	3133.55	3133.69	3130.29	3121.57	3120.74
31	3113.78	---	3128.68	3133.08	---	3133.30	---	3133.54	---	3129.98	3121.26	---
MEAN	3111.97	3116.62	3124.65	3131.99	3133.33	3133.36	3133.35	3133.54	3133.72	3132.75	3125.10	3119.16
MAX	3113.78	3119.58	3128.68	3133.53	3133.72	3133.44	3133.51	3133.77	3133.99	3133.85	3129.62	3120.98
MIN	3111.12	3113.91	3119.88	3128.95	3133.10	3133.30	3133.28	3133.42	3133.52	3129.98	3121.26	3117.30
(†)	5800	8720	14290	17460	17740	17620	17740	17800	17920	15200	9650	9360
(‡)	+1030	+2920	+5570	+3170	+280	-120	+120	+60	+120	-2720	-5550	-290

WTR YR 1980 MEAN 3127.45 MAX 3133.99 MIN 3111.12 AC-FT# +4590

† Content in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

13285500 POWDER RIVER BELOW THIEF VALLEY RESERVOIR, NEAR NORTH POWDER, OR

LOCATION.—Lat 45°00'20", long 117°46'50", in NE¼NW¼ sec.35, T.6 S., R.40 E., Baker County, Hydrologic Unit 17050203, on right bank 0.6 mi (1.0 km) downstream from Thief Valley Reservoir, 7.0 mi (11.3 km) east of North Powder, and at mile 69.4 (112 km).

DRAINAGE AREA.—910 mi² (2,360 km²), approximately.

PERIOD OF RECORD.—March 1909 to June 1912, July to September 1932, August 1978 to current year. Prior to July 1932, published as Powder River near North Powder.

REVISED RECORDS.—WSP 1317: Drainage area.

GAGE.—Water-stage recorder. Datum of gage is 3,080.166 ft (938.835 m) National Geodetic Vertical Datum of 1929 (Water and Power Resources Service bench mark). Prior to Aug. 18, 1978, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum.

REMARKS.—Records good except those for period of no gage-height record Aug. 13 to Sept. 30, which are poor. Flow regulated by Phillips Lake since October 1967, usable capacity, 90,540 acre-ft (112 hm³), by Wolf Creek Reservoir since April 1975, usable capacity, 10,400 acre-ft (12.8 hm³), and by Thief Valley Reservoir since February 1932, usable capacity, 17,400 acre-ft (21.5 hm³). Many diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge observed, 2,920 ft³/s (82.7 m³/s) Mar 21, 1910, gage height, 10.0 ft (3.05 m), from rating curve extended above 1,000 ft³/s (28.3 m³/s); no flow Aug. 9 to Sept. 10, 1910.

EXTREMES FOR CURRENT YEAR.—Maximum discharge, 810 ft³/s (22.9 m³/s) June 12, gage height, 7.80 ft (2.377 m); minimum, 4.3 ft³/s (0.12 m³/s) Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	18	15	16	65	260	158	255	310	424	127	45
2	43	18	15	16	81	242	141	274	322	520	135	47
3	43	19	15	16	76	231	147	289	325	623	135	52
4	44	19	15	16	86	229	149	319	341	614	135	52
5	45	19	15	16	97	234	158	395	351	592	135	52
6	46	19	15	16	104	231	166	398	371	588	135	52
7	46	20	15	16	106	224	164	391	398	532	127	52
8	45	16	15	16	108	219	156	496	427	461	106	52
9	45	13	15	16	108	209	153	492	442	431	106	52
10	45	13	15	16	104	197	158	381	528	367	69	62
11	45	13	15	16	106	192	147	322	665	310	59	80
12	36	13	15	16	109	179	141	274	773	234	59	100
13	11	13	15	16	108	173	135	274	743	192	58	125
14	9.1	13	15	16	106	175	137	283	684	179	30	160
15	16	13	15	40	108	170	137	272	641	166	30	120
16	16	14	16	100	118	166	135	242	620	135	33	100
17	16	14	16	250	166	162	130	216	620	101	35	86
18	16	14	16	200	274	166	125	239	596	104	35	86
19	15	14	16	170	357	156	145	266	592	103	45	86
20	15	14	16	140	496	166	188	298	566	97	40	86
21	15	14	16	140	446	188	190	384	500	101	38	89
22	16	14	16	160	424	197	153	384	457	104	37	92
23	16	14	16	140	357	202	170	338	492	103	35	95
24	16	14	16	130	322	197	175	289	473	101	36	90
25	16	14	16	131	295	181	173	295	446	100	37	77
26	17	14	16	104	272	170	181	325	398	106	37	64
27	17	14	16	72	272	175	204	347	406	111	37	60
28	17	15	16	73	283	170	292	322	431	111	37	60
29	17	16	16	73	274	177	274	292	439	109	37	60
30	17	15	16	76	---	173	244	301	435	127	40	60
31	17	---	16	74	---	164	---	295	---	127	45	---
TOTAL	821.1	453	481	2297	5828	5975	5026	9948	14792	7973	2050	2294
MEAN	26.5	15.1	15.5	74.1	201	193	168	321	493	257	66.1	76.5
MAX	46	20	16	250	496	260	292	496	773	623	135	160
MIN	9.1	13	15	16	65	156	125	216	310	97	30	45
AC-FT	1630	899	954	4560	11560	11850	9970	19730	29340	15810	4070	4550

CAL YR 1979 TOTAL 63337.1 MEAN 174 MAX 758 MIN 9.1 AC-FT 125600
WATER YR 1980 TOTAL 57938.1 MEAN 158 MAX 773 MIN 9.1 AC-FT 114900

NOTE.—No gage-height record Aug. 13 to Sept. 30.

13286700 POWDER RIVER NEAR RICHLAND, OR

LOCATION.--Lat 44°46'40", long 117°17'30", in SE¼ sec.14, T.9 S., R.44 E., Baker County, Hydrologic Unit 17050203, on left bank 0.4 mi (0.6 km) upstream from Upper Timber Canyon, 6.0 mi (9.7 km) west of Richland, and at mile 20.3 (32.7 km).

DRAINAGE AREA.--1,310 mi² (3,390 km²), approximately.

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,277.42 ft (694.158 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter periods, which are fair. Regulation by several reservoirs, the largest being Phillips Lake since Oct. 31, 1967, active capacity, 90,540 acre-ft (112 hm³), Thief Valley reservoir, capacity, 17,400 acre-ft (21.5 hm³), and since April 1975, Wolf Creek Reservoir, capacity, 10,400 acre-ft (12.8 hm³). Diversions for irrigation above and below station.

AVERAGE DISCHARGE.--23 years, 245 ft³/s (6.938 m³/s), 177,500 acre-ft/yr (219 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,470 ft³/s (98.3 m³/s) Jan. 31, 1965, gage height, 6.68 ft (2.036 m); maximum gage height, 9.29 ft (2.832 m) Jan. 15, 1974 (ice jam); minimum discharge, 0.80 ft³/s (0.023 m³/s) Aug. 11, 12, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,220 ft³/s (34.6 m³/s) Feb. 20, gage height, 3.91 ft (1.192 m); minimum, 18 ft³/s (0.51 m³/s) Aug. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	48	62	60	170	449	250	298	361	516	79	50
2	52	47	70	57	180	422	240	240	370	551	88	56
3	49	47	75	55	190	404	223	220	374	633	97	61
4	49	48	68	53	180	396	230	247	391	741	99	59
5	50	50	60	57	170	391	233	269	396	706	82	62
6	52	50	62	86	180	404	272	287	422	666	42	64
7	52	49	59	90	190	378	276	361	435	661	20	61
8	52	49	57	88	190	365	269	357	462	583	43	65
9	50	49	56	96	207	349	261	409	501	516	59	59
10	49	44	55	100	186	329	272	511	536	472	59	77
11	50	42	45	95	183	321	272	481	605	409	82	113
12	52	40	50	123	154	309	265	378	717	345	64	88
13	48	43	47	151	154	291	276	302	870	321	43	142
14	50	43	50	132	142	287	294	233	951	291	34	183
15	40	43	52	139	144	284	325	230	896	280	34	135
16	38	44	54	210	151	280	325	247	801	207	39	115
17	43	49	56	458	276	269	337	240	735	175	42	99
18	43	59	55	387	594	269	361	220	678	142	43	95
19	44	52	53	298	583	261	370	189	639	103	53	101
20	42	57	52	207	908	254	387	166	639	86	45	99
21	42	55	52	207	819	287	417	186	599	84	47	105
22	42	58	52	226	683	298	453	247	526	84	42	107
23	44	48	52	201	605	321	396	333	511	75	40	111
24	48	66	60	186	521	302	341	353	531	67	42	103
25	47	69	67	172	467	291	317	317	506	70	43	84
26	44	53	67	159	444	276	280	317	496	62	44	72
27	44	45	56	109	449	272	243	333	453	62	43	70
28	43	50	50	90	462	269	230	357	462	67	45	70
29	47	56	50	120	477	265	284	374	491	67	43	67
30	45	58	58	100	---	272	349	349	501	77	47	72
31	45	---	54	140	---	254	---	337	---	75	50	---
TOTAL	1446	1511	1756	4652	10059	9819	9048	9388	16855	9194	1633	2645
MEAN	46.6	50.4	56.6	150	347	317	302	303	562	297	52.7	88.2
MAX	52	69	75	458	908	449	453	511	951	741	99	183
MIN	38	40	45	53	142	254	223	166	361	62	20	50
AC-FT	2870	3000	3480	9230	19950	19480	17950	18620	33430	18240	3240	5250
CAL YR 1979	TOTAL	84523.3	MEAN 232	MAX 1080	MIN 6.0	AC-FT 167700						
WTR YR 1980	TOTAL	78006.0	MEAN 213	MAX 951	MIN 20	AC-FT 154700						

13288200 EAGLE CREEK ABOVE SKULL CREEK, NEAR NEW BRIDGE, OR

LOCATION.--Lat 44°52'50", long 117°15'10", in SE¼ sec.7, T.8 S., R.45 E., Baker County, Hydrologic Unit 17050203, Wallowa-Whitman National Forest, on left bank 0.5 mi (0.8 km) upstream from Skull Creek, 6.5 mi (10.5 km) northwest of New Bridge, and at mile 10.5 (16.9 km).

DRAINAGE AREA.--156 mi² (404 km²).

PERIOD OF RECORD.--October 1957 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft (853 m), from topographic map.

REMARKS.--Records good. No regulation. Some diversions above station for irrigation and one small interbasin diversion for irrigation supply. All diversions are small compared to flow at station during irrigation season.

AVERAGE DISCHARGE.--23 years, 322 ft³/s (9.119 m³/s), 233,300 acre-ft/yr (288 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,310 ft³/s (150 m³/s) July 12, 1975, gage height, 5.06 ft (1.542 m), from rating curve extended above 2,500 ft³/s (70.8 m³/s) on basis of slope-area measurement of peak flow; maximum gage height, 6.88 ft (2.097 m) Jan. 25, 1962 (ice jam); minimum daily discharge, 30 ft³/s (0.85 m³/s) Nov. 28, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft³/s (48.1 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Apr. 28	2300	1,740 49.3	3.43 1.045	May 21	2330	*1,910 54.1	3.52 1.073
May 5	2130	*1,910 54.1	*3.53 1.076				

Minimum daily, 60 ft³/s (1.70 m³/s) Jan. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	104	119	80	86	182	132	1080	596	779	204	115
2	73	102	122	86	115	179	137	1160	558	810	194	115
3	72	102	122	84	109	176	134	1220	523	749	185	115
4	70	104	104	83	97	176	134	1380	506	712	176	109
5	70	109	99	90	87	185	150	1560	500	636	170	104
6	68	107	97	96	84	173	156	1680	489	616	161	100
7	70	104	99	70	82	164	147	1440	478	616	158	99
8	70	102	97	66	80	161	145	1220	517	622	176	99
9	70	100	95	76	80	153	158	1150	629	670	176	97
10	70	99	97	80	78	153	161	965	720	636	170	109
11	70	100	82	70	80	156	164	885	902	565	167	109
12	68	99	76	76	80	156	182	859	956	500	161	102
13	70	99	84	79	80	156	217	850	850	467	158	227
14	72	99	93	89	78	156	266	850	868	467	158	207
15	80	99	95	107	80	150	289	834	795	424	156	147
16	78	100	93	100	84	145	314	795	810	409	153	129
17	80	124	91	100	117	145	366	795	984	399	150	119
18	91	115	91	95	197	142	467	885	1180	370	153	122
19	129	102	90	78	182	139	589	1020	1230	344	150	127
20	99	91	90	93	201	145	734	1270	1230	331	145	129
21	93	111	89	107	182	147	850	1560	1310	331	145	127
22	95	117	88	99	156	145	876	1610	1200	335	142	119
23	100	113	82	91	139	147	993	1220	993	331	139	115
24	100	109	94	91	134	145	1040	929	787	310	137	111
25	158	104	88	89	132	142	894	772	734	278	134	109
26	170	102	82	87	150	147	938	720	720	263	132	107
27	122	91	76	82	173	145	1040	663	656	252	129	104
28	115	84	75	60	194	139	1230	622	609	244	127	102
29	109	85	74	70	188	142	1530	596	677	227	127	102
30	107	113	76	62	---	139	1160	577	712	217	124	100
31	107	---	78	76	---	134	---	558	---	213	119	---
TOTAL	2819	3090	2838	2612	3525	4764	15593	31725	23719	14123	4776	3576
MEAN	90.9	103	91.5	84.3	122	154	520	1023	791	456	154	119
MAX	170	124	122	107	201	185	1530	1680	1310	810	204	227
MIN	68	84	74	60	78	134	132	558	478	213	119	97
AC-FT	5590	6130	5630	5180	6990	9450	30930	62930	47050	28010	9470	7090
CAL YR 1979	TOTAL	97455	MEAN 267	MAX 1540	MIN 50	AC-FT 193300						
WTR YR 1980	TOTAL	113160	MEAN 309	MAX 1680	MIN 60	AC-FT 224500						

IMNAHA RIVER BASIN

13292000 IMNAHA RIVER AT IMNAHA, OR

LOCATION.—Lat 45°33'45", long 116°50'00", in SW¼ sec.16, T.1 N., R.48 E., Wallowa County, Hydrologic Unit 17060102, on left bank at Imnaha, 0.3 mi (0.5 km) downstream from Big Sheep Creek, and at mile 19.3 (31.1 km).

DRAINAGE AREA.—622 mi² (1,611 km²).

PERIOD OF RECORD.—June 1928 to current year.

REVISED RECORDS.—WSP 833: 1938. WSP 1397: 1929, 1932(M), 1949. WSP 1737: Drainage area.

GAGE.—Water-stage recorder. Datum of gage is 1,941.14 ft (591.659 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1934, nonrecording gage at site 0.25 mi (0.40 km) upstream at different datum. Aug. 6–31, 1934, nonrecording gage at present site and datum.

REMARKS.—Records good. No regulation. Diversions for irrigation above station. Water is diverted from Big Sheep Creek and tributaries above station for irrigation in Wallowa River basin.

AVERAGE DISCHARGE.—52 years, 512 ft³/s (14.50 m³/s), 370,900 acre-ft/yr (457 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 10,100 ft³/s (286 m³/s) Jan. 17, 1974, gage height, 7.86 ft (2.396 m), from rating curve extended above 3,500 ft³/s (99.1 m³/s); minimum observed, 16 ft³/s (0.45 m³/s) Nov. 22, 1931, result of freezeup; minimum daily, 25 ft³/s (0.71 m³/s) Nov. 22, 23, 1931.

EXTREMES FOR CURRENT YEAR.—Peak discharges above base of 1,600 ft³/s (45.3 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Apr. 29	0630	*2,260 64.0	*4.64 1.414	May 22	0500	1,980 56.1	4.40 1.341
May 6	2000	2,160 61.2	4.55 1.387	June 18	0400	2,040 57.8	4.45 1.356

Minimum, 26 ft³/s (0.74 m³/s) Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	154	173	173	120	470	250	1510	1430	1170	316	159
2	100	146	173	162	140	420	250	1600	1480	1220	300	165
3	100	148	173	157	160	400	250	1700	1370	1160	289	171
4	100	154	188	157	188	370	250	1810	1300	1200	279	159
5	98	151	176	162	167	380	278	1900	1250	1070	268	151
6	98	154	173	136	162	363	363	2100	1290	1030	261	146
7	98	148	173	85	159	333	369	1980	1240	1010	248	146
8	104	146	170	104	151	309	363	1800	1190	1000	241	143
9	110	146	167	185	138	286	396	1920	1230	1010	231	140
10	113	141	173	165	133	273	458	1810	1230	1010	225	154
11	113	141	151	119	138	278	453	1610	1370	921	218	203
12	104	133	141	165	133	269	468	1460	1650	853	209	171
13	102	138	165	206	138	269	539	1380	1720	781	209	265
14	100	136	170	291	136	314	750	1330	1810	756	206	385
15	113	136	170	413	138	328	942	1440	1900	706	206	279
16	119	143	170	374	138	300	935	1450	1830	657	203	215
17	115	159	159	338	151	300	1020	1370	1850	616	206	197
18	115	170	159	291	304	291	1250	1380	1910	588	209	188
19	194	151	157	209	616	269	1450	1390	1920	549	209	191
20	188	113	154	167	651	269	1710	1500	1860	523	194	194
21	151	90	157	273	582	295	1920	1710	1860	508	188	215
22	138	136	159	216	500	261	1800	1890	1840	508	182	197
23	159	167	136	188	400	269	1940	1680	1680	497	179	191
24	159	167	148	197	300	278	2030	1430	1450	478	171	188
25	179	151	157	194	290	282	1740	1330	1310	439	165	182
26	379	154	146	162	290	286	1700	1460	1290	403	159	176
27	216	117	115	121	300	300	1790	1540	1230	376	159	176
28	188	68	113	90	310	269	1890	1620	1090	364	159	171
29	173	40	115	90	360	265	2160	1610	1120	347	159	168
30	165	151	141	96	---	269	1760	1530	1190	335	157	165
31	159	---	197	110	---	258	---	1430	---	323	157	---
TOTAL	4352	4149	4919	5796	7393	9523	31474	49670	44890	22408	6562	5651
MEAN	140	138	159	187	255	307	1049	1602	1496	723	212	188
MAX	379	170	197	413	651	470	2160	2100	1920	1220	316	385
MIN	98	40	113	85	120	258	250	1330	1090	323	157	140
AC-FT	8630	8230	9760	11500	14660	18890	62430	98520	89040	44450	13020	11210
CAL YR 1979	TOTAL	158190	MEAN 433	MAX 2380	MIN 40	AC-FT 313800						
WTR YR 1980	TOTAL	196787	MEAN 538	MAX 2160	MIN 40	AC-FT 390300						

GRANDE RONDE RIVER BASIN

103

13318800 GRANDE RONDE RIVER AT HILGARD, OR

LOCATION.--Lat 45°20'21", long 118°14'35", in NE¼NE¼ sec.1, T.3 S., R.36 E., Union County, Hydrologic Unit 17060104, on left bank 8.8 mi (14.2 km) northwest of La Grande, 1.6 mi (2.6 km) upstream from Fivepoint Creek, and at mile 171.3 (275.6 km).

DRAINAGE AREA.--555 mi² (1,437 km²).

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,993.62 ft (912.455 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent except those for winter periods, which are fair. Slight regulation by city of La Grande reservoir on Beaver Creek, capacity, about 900 acre-ft (1.11 hm³). Diversions for irrigation above station. Since 1909, city of La Grande has diverted about 3 ft³/s (0.08 m³/s) from Beaver Creek above station for domestic water supply.

AVERAGE DISCHARGE.--14 years, 299 ft³/s (8,468 m³/s), 216,600 acre-ft/yr (267 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,740 ft³/s (134 m³/s) Mar. 13, 1972, gage height, 7.18 ft (2.188 m); maximum gage height, 12.25 ft (3.734 m) Jan. 15, 1974 (ice jam); minimum discharge, 9.6 ft³/s (0.27 m³/s) Aug. 17, 18, 23, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 30, 1965, reached a stage of about 9 ft (2.74 m), from floodmark, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,410 ft³/s (39.9 m³/s) Apr. 29, gage height, 4.73 ft (1.422 m), no peak above base of 1,700 ft³/s (48.1 m³/s); minimum, 13 ft³/s (0.37 m³/s) Nov. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	37	50	97	80	589	320	934	968	297	63	33
2	22	33	54	59	105	526	284	926	1140	324	59	35
3	22	37	62	56	130	544	284	909	1050	316	55	38
4	22	38	64	56	120	636	288	901	1020	288	53	36
5	22	42	60	50	105	678	330	917	1010	265	51	32
6	21	41	54	40	120	583	427	1040	1130	277	49	30
7	22	38	64	38	130	538	406	903	1150	238	48	30
8	22	36	57	50	120	490	395	822	1060	219	46	29
9	21	36	60	52	110	444	478	994	962	216	45	29
10	22	28	54	48	100	411	629	1020	865	195	43	30
11	22	27	42	48	88	466	583	1030	791	175	42	36
12	21	24	52	100	82	422	643	955	893	162	40	37
13	21	26	56	200	80	390	812	934	861	153	39	71
14	22	28	60	401	82	406	1010	878	966	148	38	87
15	27	29	70	433	84	427	1060	884	1030	144	38	58
16	32	39	80	320	80	365	977	843	957	129	37	45
17	31	56	74	297	111	370	995	785	929	119	36	40
18	34	61	84	222	288	355	1050	719	828	113	41	39
19	45	38	84	138	360	345	1080	669	733	107	50	49
20	63	26	84	119	455	340	1090	633	661	102	45	51
21	46	26	84	185	401	340	1160	613	589	96	39	51
22	38	61	72	141	330	395	1130	631	548	90	36	48
23	39	54	41	104	311	466	1090	551	653	83	35	43
24	42	48	76	92	297	422	1040	508	535	78	33	40
25	45	52	92	70	302	360	943	496	472	75	32	38
26	56	45	66	54	411	370	884	586	447	71	31	36
27	46	42	42	40	602	375	892	661	450	67	31	35
28	42	35	42	28	692	311	943	844	391	65	31	34
29	41	40	99	34	713	345	1300	896	349	71	31	33
30	38	45	101	30	---	320	1110	899	317	63	31	32
31	38	---	141	50	---	302	---	871	---	60	32	---
TOTAL	1008	1168	2121	3652	6889	13331	23633	25252	23755	4806	1280	1225
MEAN	32.5	38.9	68.4	118	238	430	788	815	792	155	41.3	40.8
MAX	63	61	141	433	713	678	1300	1040	1150	324	63	87
MIN	21	24	41	28	80	302	284	496	317	60	31	29
AC-FT	2000	2320	4210	7240	13660	26440	46880	50090	47120	9530	2540	2430
CAL YR 1979	TOTAL	129565	MEAN	355	MAX	2030	MIN	21	AC-FT	257000		
WTR YR 1980	TOTAL	108120	MEAN	295	MAX	1300	MIN	21	AC-FT	214500		

13319000 GRANDE RONDE RIVER AT LA GRANDE, OR

LOCATION.—Lat 45°20'47", long 118°07'26", in NW¼SE¼ sec.36, T.2 S., R.37 E., Union County, Hydrologic Unit 17060104, on right bank 1.8 mi (2.9 km) northwest of La Grande, 5.7 mi (9.2 km) downstream from Fivepoint Creek, and at mile 164.0 (263.9 km).

DRAINAGE AREA.—678 mi² (1,756 km²).

PERIOD OF RECORD.—October 1903 to September 1915, February 1918 to September 1923, October 1925 to current year. Monthly discharge only for some periods, published in WSP 1317. Published as "at Hilgard" 1903-15.

REVISED RECORDS.—WSP 768: 1933. WSP 1397: 1904-11, 1913, 1915, 1919-20, 1922-23, 1926, 1929-31, 1936-37, 1939, 1942. WSP 1737: Drainage area. WRD Oreg. 1974: 1973(M).

GAGE.—Water-stage recorder. Datum of gage is 2,826.25 ft (861.441 m) National Geodetic Vertical Datum of 1929. Nov. 6, 1903, to Sept. 30, 1915, nonrecording gage at site 5.5 mi (8.8 km) upstream at various datums. Feb. 16, 1918, to June 28, 1923, and Oct. 1, 1925, to Nov. 23, 1931, nonrecording gage at site 0.7 mi (1.1 km) downstream at various datums. Nov. 24, 1931, to Oct. 8, 1965, water-stage recorder at site 0.3 mi (0.5 km) upstream at datum 4.61 ft (1.405 m) higher.

REMARKS.—Records fair prior to March and good hereafter. Since 1915, slight regulation by city of La Grande reservoir on Beaver Creek, capacity, about 900 acre-ft (1.11 hm³). Diversions for irrigation above station. Since 1909, city of La Grande has diverted about 3 ft³/s (0.08 m³/s) from Beaver Creek above station for domestic water supply.

AVERAGE DISCHARGE.—72 years, 381 ft³/s (10.79 m³/s), 276,000 acre-ft/yr (340 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 14,100 ft³/s (300 m³/s) Jan. 30, 1965, gage height, 11.44 ft (3.487 m), site and datum then in use, from rating curve extended above 7,200 ft³/s (204 m³/s); minimum, 3.9 ft³/s (0.11 m³/s) Aug. 26, 1940.

EXTREMES FOR CURRENT YEAR.—Maximum discharge, 1,800 ft³/s (51.0 m³/s) Apr. 29, gage height, 6.39 ft (1.948 m), no peak above base of 2,100 ft³/s (59.5 m³/s); minimum daily, 22 ft³/s (0.62 m³/s) Oct. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	42	58	130	90	827	388	1150	1180	329	77	40
2	23	36	63	88	110	722	341	1140	1440	360	72	42
3	24	41	68	74	140	735	344	1110	1310	354	66	46
4	24	45	70	71	130	900	350	1080	1260	326	65	44
5	24	49	68	64	120	972	414	1100	1250	302	63	40
6	23	47	62	54	130	813	546	1260	1420	314	60	36
7	24	44	72	47	145	744	512	1080	1420	273	59	35
8	24	43	66	54	130	670	490	966	1290	250	58	35
9	24	42	68	66	120	605	585	1220	1160	264	54	33
10	22	33	60	64	110	565	781	1290	1020	253	52	34
11	23	30	49	61	100	641	718	1280	925	217	50	40
12	23	29	60	111	95	581	785	1180	1050	200	48	46
13	23	30	64	304	92	531	1020	1140	1050	187	46	68
14	24	32	68	439	92	535	1330	1060	1170	180	46	125
15	29	33	80	532	95	561	1370	1060	1280	178	46	82
16	35	40	90	391	90	476	1260	1010	1180	156	46	60
17	34	64	86	371	120	487	1310	925	1130	145	44	52
18	39	68	95	279	417	455	1380	832	993	137	50	48
19	45	47	93	180	523	441	1420	767	866	131	60	54
20	74	35	96	135	679	434	1460	713	767	125	56	66
21	57	31	94	200	585	434	1640	687	679	117	50	63
22	45	70	82	150	462	483	1590	705	625	109	44	62
23	42	64	52	120	411	621	1470	613	749	102	43	55
24	46	56	75	100	388	554	1370	565	609	94	41	50
25	49	60	105	80	391	458	1220	550	535	91	40	47
26	60	54	80	60	589	465	1120	679	505	86	38	43
27	51	48	60	47	885	465	1130	781	512	82	37	42
28	48	41	54	34	993	382	1200	1040	441	79	37	40
29	45	47	120	40	1020	424	1660	1130	391	86	38	38
30	42	52	130	36	---	391	1400	1130	357	79	38	37
31	42	---	160	60	---	360	---	1070	---	74	40	---
TOTAL	1113	1353	2448	4442	9252	17732	30604	30313	28564	5680	1564	1503
MEAN	35.9	45.1	79.0	143	319	572	1020	978	952	183	50.5	50.1
MAX	74	70	160	532	1020	972	1660	1290	1440	360	77	125
MIN	22	29	49	34	90	360	341	550	357	74	37	33
AC-FT	2210	2680	4860	8810	18350	35170	60700	60130	56660	11270	3100	2980

CAL YR 1979 TOTAL 162897 MEAN 446 MAX 2760 MIN 22 AC-FT 323100
WTR YR 1980 TOTAL 134568 MEAN 368 MAX 1660 MIN 22 AC-FT 266900

NOTE.—Discharges estimated due to indefinite stage-discharge relation Oct. 1 to Feb. 17.

GRANDE RONDE RIVER BASIN

105

13320000 CATHERINE CREEK NEAR UNION, OR

LOCATION.--Lat 45°09'20", long 117°46'26", in NW¼SE¼ sec.2, T.5 S., R.40 E., Union County, Hydrologic Unit 17060104, on right bank 3.0 mi (4.8 km) downstream from Little Catherine Creek, 5.5 mi (8.8 km) southeast of Union, and at mile 25.4 (40.9 km).

DRAINAGE AREA.--105 mi² (272 km²).

PERIOD OF RECORD.--May 1906 to May 1907 (gage heights only), August 1911 to December 1912, March to September 1915, February 1918 to September 1919, October 1925 to current year. Monthly discharge only for some periods, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1912-13, 1919, 1926, 1928-33, 1937, 1939, 1940(M), 1941-43, 1950.

GAGE.--Water-stage recorder. Datum of gage is 3,081.76 ft (939.320 m) National Geodetic Vertical Datum of 1929 (Oregon State Highway Department bench mark). Prior to Nov. 28, 1938, nonrecording gage at several sites within 1.8 mi (2.9 km) of present site at various datums. Nov. 28, 1938, to May 16, 1939, water-stage recorder at site 400 ft (122 m) downstream at datum 4.29 ft (1.308 m) lower.

REMARKS.--Records good except those for winter periods, which are fair. No regulation. Several small diversions for irrigation above station. Since 1937, diversion to Big Creek in Powder River basin provides a small part of the water used for irrigation in that basin.

AVERAGE DISCHARGE.--57 years (water years 1912, 1919, 1926-80), 118 ft³/s (3.342 m³/s), 85,490 acre-ft/yr (105 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,740 ft³/s (49.3 m³/s) May 27, 1948, gage height, 4.57 ft (1.393 m); minimum, 6.5 ft³/s (0.18 m³/s) Feb. 4, 1955, result of freezeup; minimum daily, 8 ft³/s (0.23 m³/s) Nov. 7, 1925.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 500 ft³/s (14.2 m³/s) and maximum discharge, 596 ft³/s (16.9 m³/s) Apr. 29, gage height, 2.87 ft (0.875 m); minimum, 18 ft³/s (0.51 m³/s) Nov. 20, but may have been less during period of ice effect Jan. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	28	30	34	26	110	60	412	276	168	47	31
2	22	28	36	33	33	105	60	416	267	171	45	35
3	22	28	36	29	38	99	60	423	250	166	44	35
4	21	30	38	30	38	101	61	458	248	161	44	31
5	21	30	34	27	37	101	75	495	245	148	43	29
6	21	30	32	24	37	94	81	551	245	140	42	28
7	21	28	33	27	36	89	80	504	237	132	41	28
8	21	27	33	26	35	83	80	447	234	126	39	27
9	21	26	33	32	34	76	89	454	242	124	39	27
10	21	27	34	28	33	73	90	401	259	112	38	41
11	21	26	26	25	33	75	89	365	282	105	37	34
12	21	31	29	35	33	70	96	341	294	101	35	32
13	21	27	30	45	33	70	118	322	270	94	35	83
14	23	26	30	53	32	68	155	312	282	97	35	67
15	28	24	32	53	33	65	175	309	267	89	34	44
16	26	27	33	52	34	62	185	288	259	83	34	36
17	26	47	34	52	45	60	215	279	273	78	34	34
18	28	35	37	48	80	60	267	282	288	75	37	36
19	44	29	34	38	108	57	328	297	285	72	36	42
20	33	23	34	28	157	58	397	331	282	70	34	42
21	32	27	34	46	128	62	427	382	282	67	33	42
22	31	28	34	37	105	61	423	397	270	62	32	37
23	31	29	30	32	89	64	431	331	242	61	32	35
24	33	29	25	33	76	65	419	291	210	57	31	34
25	43	30	35	33	70	67	365	267	195	56	30	33
26	42	29	34	28	75	67	358	267	195	54	30	32
27	33	27	31	25	90	67	382	250	187	53	30	31
28	32	23	28	18	116	62	451	259	166	52	31	30
29	31	19	27	20	120	62	547	259	161	51	30	30
30	29	21	29	18	---	62	451	256	159	48	30	29
31	30	---	28	22	---	61	---	253	---	47	31	---
TOTAL	852	839	993	1031	1804	2276	7015	10899	7352	2920	1113	1095
MEAN	27.5	28.0	32.0	33.3	62.2	73.4	234	352	245	94.2	35.9	36.5
MAX	44	47	38	53	157	110	547	551	294	171	47	83
MIN	21	19	25	18	26	57	60	250	159	47	30	27
AC-FT	1690	1660	1970	2040	3580	4510	13910	21620	14580	5790	2210	2170
CAL YR 1979	TOTAL	41533	MEAN 114	MAX 728	MIN 17	AC-FT 82380						
WTR YR 1980	TOTAL	38189	MEAN 104	MAX 551	MIN 18	AC-FT 75750						

GRANDE RONDE RIVER BASIN

13323500 GRANDE RONDE RIVER NEAR ELGIN, OR

LOCATION.--Lat 45°30'45", long 117°55'35", in NW¼ sec.3, T.1 S., R.39 E., Union County, Hydrologic Unit 17060104, on right bank 700 ft (213 m) upstream from abandoned highway bridge, 1.5 mi (2.4 km) downstream from Willow Creek, 3.6 mi (5.8 km) south of Elgin, and at mile 104.2 (167.7 km).

DRAINAGE AREA.--1,250 mi² (3,240 km²), approximately.

PERIOD OF RECORD.--August 1955 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,660.31 ft (810.862 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No regulation. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--25 years, 669 ft³/s (18.95 m³/s), 484,700 acre-ft/yr (598 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,480 ft³/s (184 m³/s) Feb. 2, 1965, gage height, 13.79 ft (4.203 m); no flow Aug. 20-24, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Outstanding floods occurred in 1894 and 1917, based on Corps of Engineers flood profiles. Flood in May 1948 reached an elevation of 2,672.9 ft (814.70 m) on Corps of Engineers gage at bridge 700 ft (213 m) downstream, discharge, 5,690 ft³/s (161 m³/s), result of discharge measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,350 ft³/s (66.6 m³/s) Apr. 23, gage height, 7.61 ft (2.320 m); minimum, 5.2 ft³/s (0.15 m³/s) Sept. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	113	107	170	210	1300	745	2270	1650	703	66	7.2
2	16	109	115	182	234	1170	731	2130	1820	672	62	8.8
3	15	104	150	180	316	1090	696	2070	1920	669	56	9.6
4	16	104	172	172	366	1150	689	2010	1910	665	55	11
5	21	112	189	232	381	1290	707	1960	1870	635	51	10
6	23	117	191	234	360	1300	820	1990	1890	615	49	9.6
7	27	115	198	182	355	1190	918	2040	1950	589	47	14
8	45	115	195	180	340	1100	907	1950	1940	541	46	10
9	45	115	187	178	321	1030	911	1970	1850	510	45	6.6
10	40	110	187	250	297	946	1070	2070	1730	495	43	5.5
11	35	106	187	221	290	918	1170	2120	1600	448	40	7.6
12	31	98	156	241	267	930	1180	2100	1540	412	30	8.4
13	31	93	162	349	267	872	1290	2030	1640	378	26	19
14	37	90	158	602	257	831	1510	1930	1650	340	23	47
15	41	93	164	835	243	869	1740	1840	1810	318	20	90
16	44	91	183	820	246	839	1810	1760	1840	300	23	94
17	44	118	187	714	272	788	1800	1660	1790	265	22	97
18	49	145	195	641	471	763	1880	1540	1730	239	23	87
19	79	158	208	579	686	741	1960	1430	1600	223	25	75
20	89	141	212	516	835	724	2040	1350	1470	202	22	75
21	113	115	212	434	958	748	2140	1280	1370	183	21	78
22	109	98	212	445	911	755	2300	1280	1270	164	16	80
23	103	96	166	406	846	872	2340	1270	1270	145	13	90
24	117	109	156	420	780	918	2340	1220	1260	107	12	93
25	117	123	174	324	724	872	2270	1190	1150	93	12	91
26	120	135	198	292	738	824	2150	1220	1040	87	10	96
27	135	130	176	287	1000	835	2050	1350	998	83	8.4	93
28	145	104	141	274	1170	806	2010	1460	930	87	7.6	89
29	143	100	113	227	1330	766	2140	1630	842	83	7.2	83
30	139	106	106	193	---	773	2320	1690	770	79	8.0	78
31	122	---	150	185	---	759	---	1680	---	70	7.2	---
TOTAL	2112	3363	5307	10965	15471	28769	46634	53490	46100	10400	896.4	1563.3
MEAN	68.1	112	171	354	533	928	1554	1725	1537	335	28.9	52.1
MAX	145	158	212	835	1330	1300	2340	2270	1950	703	66	97
MIN	15	90	106	170	210	724	689	1190	770	70	7.2	5.5
AC-FT	4190	6670	10530	21750	30690	57060	92500	106100	91440	20630	1780	3100
CAL YR 1979 TOTAL	283826.2			MEAN 778	MAX 4010	MIN 4.8	AC-FT 563000					
WTR YR 1980 TOTAL	225070.7			MEAN 615	MAX 2340	MIN 5.5	AC-FT 446400					

GRANDE RONDE RIVER BASIN

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13325001 EAST FORK WALLOWA RIVER NEAR JOSEPH, OR

LOCATION.--Lat 45°16'20", long 117°12'35", in NE¼ sec.29, T.3 S., R.45 E., Wallowa County, Hydrologic Unit 17060105, on left bank 0.2 mi (0.3 km) upstream from confluence with West Fork, 1.0 mi (1.6 km) upstream from Wallowa Lake, 5.5 mi (8.8 km) south of Joseph, and at mile 0.2 (0.3 km).

DRAINAGE AREA.--10.3 mi² (26.7 km²).

PERIOD OF RECORD.--July 1924 to current year. Prior to October 1952, records published separately as East Fork Wallowa River near Joseph and Wallowa Falls powerplant tailrace near Joseph.

REVISED RECORDS.--WSP 1247: 1931, 1937(M), 1948-49, records for river station; 1948, records for tailrace station. WSP 1737: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 4,517.69 ft (1,376.992 m) National Geodetic Vertical Datum of 1929 (Pacific Power & Light Co. bench mark). Prior to Apr. 8, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good. All records presented herein include flow in Wallowa Falls powerplant tailrace of Pacific Power & Light co. Most of low flow is diverted at dam 1.5 mi (2.4 km) upstream into a conduit 1.0 mi (1.6 km) above Wallowa Falls powerhouse and discharged into West Fork 0.4 mi (0.6 km) below powerhouse.

AVERAGE DISCHARGE.--56 years, 21.5 ft³/s (0.609 m³/s), 28.35 in/yr (720 mm/yr), 15,580 acre-ft/yr (19.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 450 ft³/s (12.7 m³/s) July 25, 1937 (no flow in powerplant tailrace), from rating curve extended above 80 ft³/s (2.27 m³/s); minimum daily, 4.6 ft³/s (0.13 m³/s) Feb. 17, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 80 ft³/s (2.27 m³/s) June 20; minimum daily, 6.7 ft³/s (0.19 m³/s) Mar. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	12	12	11	9.6	10	8.8	20	32	62	28	15
2	12	12	12	11	9.8	10	9.2	21	30	66	26	17
3	12	12	8.6	11	9.9	9.6	8.5	23	29	67	24	17
4	12	12	9.4	11	9.6	10	8.9	26	28	66	23	16
5	12	12	7.9	10	9.4	9.6	9.0	30	27	64	23	15
6	12	12	14	10	9.2	9.0	9.0	33	27	61	22	15
7	12	12	12	9.8	9.6	9.2	8.9	31	28	59	23	15
8	12	12	12	10	9.2	9.2	8.4	31	32	57	21	16
9	12	8.7	12	11	9.1	9.1	9.1	29	36	63	20	16
10	11	9.3	11	11	9.1	9.2	8.8	27	41	62	20	19
11	13	9.5	11	9.9	9.0	9.1	9.3	24	49	59	21	19
12	13	9.5	12	10	9.1	9.0	9.3	25	56	55	19	13
13	12	11	12	10	9.2	8.9	9.9	23	53	51	20	23
14	12	11	11	12	9.3	9.5	10	26	58	50	19	28
15	14	12	11	11	9.1	9.2	10	24	53	46	19	13
16	12	12	11	12	9.0	9.1	10	27	55	44	19	11
17	13	12	13	11	9.2	9.6	11	23	61	44	18	14
18	13	12	11	11	11	8.8	13	24	65	41	21	18
19	14	12	11	11	10	9.6	14	26	70	39	16	16
20	13	11	10	12	9.9	8.6	16	32	73	38	18	18
21	13	10	11	12	9.9	6.7	16	43	76	37	17	17
22	14	12	11	11	9.8	6.7	16	50	76	36	20	16
23	14	14	10	11	9.8	12	17	43	75	38	16	16
24	9.2	11	11	11	9.7	12	17	40	74	37	16	15
25	24	11	11	10	10	19	16	37	73	35	17	18
26	16	11	11	9.8	10	8.2	17	35	61	33	17	14
27	15	11	11	9.4	10	9.0	19	33	68	31	17	14
28	14	11	11	9.0	10	9.5	22	30	59	30	16	14
29	13	11	11	8.8	10	9.0	26	29	58	29	15	16
30	12	11	11	9.0	---	8.6	20	29	59	29	15	15
31	13	---	11	9.8	---	9.2	---	30	---	28	21	---
TOTAL	405.2	339.0	343.9	326.5	278.5	296.2	387.1	924	1582	1457	607	489
MEAN	13.1	11.3	11.1	10.5	9.60	9.55	12.9	29.8	52.7	47.0	19.6	16.3
MAX	24	14	14	12	11	19	26	50	76	67	28	28
MIN	9.2	8.7	7.9	8.8	9.0	6.7	8.4	20	27	28	15	11
CFSM	1.27	1.10	1.08	1.02	.93	.93	1.25	2.89	5.12	4.56	1.90	1.58
IN.	1.46	1.22	1.24	1.18	1.01	1.07	1.40	3.34	5.71	5.26	2.19	1.77
AC-FT	804	672	682	648	552	588	768	1830	3140	2890	1200	970
CAL YR 1979	TOTAL	6726.0	MEAN 18.4	MAX 70	MIN 7.9	CFSM 1.79	IN 24.29	AC-FT 13340				
WTR YR 1980	TOTAL	7435.4	MEAN 20.3	MAX 76	MIN 6.7	CFSM 1.97	IN 26.85	AC-FT 14750				

GRANDE RONDE RIVER BASIN

13326000 WALLOWA LAKE NEAR JOSEPH, OR

LOCATION.--Lat 45°20'10", long 117°13'15", in NW¼ sec.5, T.3 S., R.45 E., Wallowa County, Hydrologic Unit 17060105, at spillway near right end of Wallowa Lake dam on Wallowa River, 1.3 mi (2.1 km) southeast of Joseph, and at mile 50.2 (80.8 km).

DRAINAGE AREA.--50.8 mi² (131.6 km²).

PERIOD OF RECORD.--November 1903 to July 1906 (gage height only), January 1912 to March 1914, May to September 1915 (gage heights and change in contents only), October 1925 to June 1926, December 1926 to current year. Monthend contents only for some periods, published in WSP 1317. November 1903 to March 1905 published as Wallowa River at Joseph. Change in contents for January 1912 to March 1914 and May to September 1915 published with records for Wallowa River at Joseph.

REVISED RECORDS.--WSP 1737: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,355.66 ft (1,327.605 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1925, nonrecording gage at several sites within 0.5 mi (0.8 km) of present site at different datums. Oct. 1, 1925, to June 30, 1926, Dec. 1, 1926, to May 18, 1961, nonrecording gage near left end of dam at same datum.

REMARKS.--Reservoir is formed by concrete dam. Capacity, 42,750 acre-ft (52.7 hm³) between gage heights 0.0 (sill of outlet gates) and 26.8 ft (8.169 m), spillway crest. About 5,300 acre-ft (6.53 hm³) dead storage above outlet gates, because channel is about 3.4 ft (1.036 m) above outlet gates. Dead storage below outlet gates not known. Records are based on capacities above outlet gates.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 47,830 acre-ft (59.0 hm³) June 5-7, 1957, gage height, 29.85 ft (9.098 m); minimum observed, 4,790 acre-ft (5.91 hm³) Oct. 10, 1929, gage height, 3.10 ft (0.945 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 41,820 acre-ft (51.6 hm³) July 10, gage height, 26.24 ft (7.998 m); minimum, 16,210 acre-ft (20.0 hm³) Oct. 12, gage height, 10.42 ft (3.176 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Gage Height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	10.60	16,490	-
Oct. 31.....	10.97	17,070	+580
Nov. 30.....	11.58	18,040	+970
Dec. 31.....	12.35	19,260	+1,220
CAL YR 1979.....	-	-	-15,770
Jan. 31.....	13.25	20,690	+1,430
Feb. 29.....	14.23	22,250	+1,560
Mar. 31.....	15.42	24,150	+1,900
Apr. 30.....	19.00	29,920	+5,770
May 31.....	24.02	38,140	+8,220
June 30.....	25.40	40,420	+2,280
July 31.....	g23.58	37,420	-3,000
Aug. 31.....	12.68	19,780	-17,640
Sept. 30.....	11.84	18,440	-1,340
WTR YR 1980.....	-	-	+1,950

g Computed from graph based on gage readings.

13327500 WALLOWA RIVER AT JOSEPH, OR

LOCATION.--Lat 45°20'15", long 117°13'35", in NW¼ sec.5, T.3 S., R.45 E., Wallowa County, Hydrologic Unit 17060105, on left bank 0.2 mi (0.3 km) downstream from Wallowa Lake dam, 1.1 mi (1.8 km) south of Joseph, and at mile 50.0 (80.4 km).

DRAINAGE AREA.--50.9 mi² (131.8 km²).

PERIOD OF RECORD.--November 1903 to August 1907, June 1908 to March 1914, May to September 1915, December 1926 to current year. Monthly discharge only for some periods, published in WSP 1317. Published as "near Joseph" 1911.

REVISED RECORDS.--WSP 1397: 1906. WSP 1737: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,326.86 ft (1,318.827 m) National Geodetic Vertical Datum of 1929. Nov. 12, 1903, to Sept. 25, 1915, nonrecording gage at several sites at lake outlet or near present site at different datums.

REMARKS.--Records good. Monthly discharge adjusted for storage in Wallowa Lake (see station 13326000) and diversion from Wallowa Lake by Silver Lake ditch. Silver Lake ditch diverts at Wallowa Lake dam for irrigation northeast of Joseph. City of Joseph diverts less than 1.0 ft³/s (0.028 m³/s) from Wallowa Lake for municipal use.

AVERAGE DISCHARGE.--53 years (water years 1928-80), 133 ft³/s (3.767 m³/s), 35.48 in/yr (901 mm/yr), 96,360 acre-ft/yr (119 hm³/yr), adjusted for storage and diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,550 ft³/s (43.9 m³/s) June 10, 1969, gage height, 5.15 ft (1.570 m); no flow at times in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 594 ft³/s (16.8 m³/s) June 22, gage height, 4.04 ft (1.231 m); minimum, 5.7 ft³/s (0.16 m³/s) May 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	31	27	20	15	13	14	27	233	280	355	174
2	51	32	25	20	14	13	14	27	233	266	353	164
3	50	30	23	19	14	13	14	27	233	268	350	154
4	49	30	23	19	14	13	14	27	216	325	373	146
5	48	30	24	18	14	13	14	23	161	376	371	134
6	48	30	24	20	14	13	14	47	195	389	368	131
7	47	29	24	20	14	13	15	57	203	387	366	124
8	47	29	24	20	15	13	15	58	195	389	355	119
9	46	29	24	20	15	13	15	58	191	387	355	117
10	46	29	23	19	15	13	14	59	191	403	358	117
11	46	29	24	19	16	13	14	59	187	417	355	117
12	40	29	24	16	16	13	14	87	187	417	353	110
13	35	29	23	16	15	13	16	95	227	417	350	98
14	33	29	23	16	14	13	16	119	266	363	358	92
15	33	29	23	14	13	13	16	131	310	284	358	92
16	33	29	23	14	13	13	16	131	327	287	355	90
17	33	29	22	14	13	13	16	131	327	287	340	91
18	33	29	22	14	12	13	15	159	337	287	330	83
19	33	29	21	14	12	13	15	174	363	287	325	79
20	30	29	21	14	12	13	15	176	395	287	320	78
21	29	30	20	14	12	14	16	273	475	291	318	78
22	28	30	21	14	13	14	16	306	560	325	315	77
23	28	34	21	14	13	14	16	308	590	330	310	74
24	28	30	20	15	13	13	16	411	584	332	289	73
25	29	29	20	15	12	14	16	500	564	332	280	66
26	29	28	20	15	12	14	23	448	506	330	275	64
27	29	27	20	15	13	14	26	384	493	330	257	64
28	29	27	20	15	13	14	27	301	439	327	233	64
29	30	27	20	15	13	14	27	246	368	327	225	64
30	32	27	20	15	---	14	27	231	310	327	218	64
31	31	---	20	15	---	14	---	231	---	327	203	---
TOTAL	1154	878	689	508	394	413	506	5311	9866	10381	9971	2998
MEAN	37.2	29.3	22.2	16.4	13.6	13.3	16.9	171	329	335	322	99.9
MAX	51	34	27	20	16	14	27	500	590	417	373	174
MIN	28	27	20	14	12	13	14	23	161	266	203	64
AC-FT	2290	1740	1370	1010	781	819	1000	10530	19570	20590	19780	5950
MEAN†	52.5	49.1	45.9	43.6	43.8	47.0	115	307	375	322	103	96.6
CFSM†	1.03	0.96	0.90	0.86	0.86	0.92	2.26	6.03	7.37	6.33	2.02	1.90
IN†	1.19	1.08	1.04	0.99	0.93	1.06	2.52	6.95	8.22	7.29	2.33	2.12
AC-FT†	3230	2920	2820	2680	2520	2890	6860	18850	22310	19780	6310	5750

CAL YR 1979 TOTAL 41457 MEAN 114 MAX 419 MIN 20 AC-FT 82230 MEAN† 106 CFSM† 2.08 IN† 28.37 AC-FT† 77010
WTR YR 1980 TOTAL 43069 MEAN 118 MAX 590 MIN 12 AC-FT 85430 MEAN† 133 CFSM† 2.61 IN† 35.58 AC-FT† 96920

† Adjusted for change in contents of Wallowa Lake and diversion by Silver Lake ditch.

GRANDE RONDE RIVER BASIN

13330000 LOSTINE RIVER NEAR LOSTINE, OR

LOCATION.—Lat 45°26'20", long 117°25'35", in NW¼ sec.34, T.1 S., R.43 E., Wallowa County, Hydrologic Unit 17060105, on left bank 3.5 mi (5.6 km) south of Lostine and at mile 10.0 (16.1 km).

DRAINAGE AREA.—70.9 mi² (183.6 km²).

PERIOD OF RECORD.—August 1912 to March 1914, April to September 1915, July 1925 to current year. Monthly discharge only for some periods, published in WSP 1317.

REVISED RECORDS.—WSP 1397: 1913, 1942. WSP 1737: Drainage area.

GAGE.—Water-stage recorder. Altitude of gage is 3,650 ft (1,110 m), by barometer. See WSP 1317 or 1737 for history of changes prior to Dec. 16, 1953.

REMARKS.—Records excellent. Minam Lake Reservoir, capacity 440 acre-ft (0.54 hm³), has stored and diverted flow from Minam River since 1917 for irrigation in Lostine River basin. Diversions for irrigation above station.

AVERAGE DISCHARGE.—56 years (water years 1913, 1926-80), 195 ft³/s (5.522 m³/s), 141,300 acre-ft/yr (174 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 2,550 ft³/s (72.2 m³/s) June 16, 1974, gage height, 7.55 ft (2.301 m); minimum, 7.5 ft³/s (0.21 m³/s) Mar. 2, 1966, result of freezeup; minimum daily, 10 ft³/s (0.28 m³/s) Nov. 28-30, 1936.

EXTREMES FOR CURRENT YEAR.—Peak discharges above base of 1,100 ft³/s (31.2 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
May 22	0030	1,320 37.4	6.54 1.993	June 20	2300	*1,360 38.5	*6.62 2.018

Minimum, 16 ft³/s (0.45 m³/s) Nov. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	36	24	31	30	54	38	485	367	723	165	57
2	33	34	39	31	30	53	37	529	353	773	149	64
3	33	36	39	31	36	52	37	599	317	757	135	66
4	32	35	47	31	36	53	36	691	300	740	125	58
5	31	34	41	29	34	52	38	801	293	635	115	54
6	31	34	37	28	34	50	40	926	291	623	108	52
7	30	32	36	25	33	48	38	801	285	632	102	51
8	30	31	34	31	32	46	37	694	335	632	97	50
9	28	31	35	34	31	45	41	644	453	678	93	49
10	27	29	39	31	31	44	41	543	590	644	88	63
11	27	28	29	27	31	45	39	468	760	552	86	65
12	27	28	36	40	31	44	41	427	818	474	83	57
13	26	28	33	50	31	43	46	419	701	414	82	114
14	26	28	33	61	30	45	60	432	829	404	80	119
15	30	28	35	52	30	44	77	463	704	362	76	93
16	31	28	35	45	29	42	86	421	720	357	74	76
17	30	32	42	43	31	43	107	389	886	348	72	69
18	31	31	45	40	38	42	154	442	1070	319	88	67
19	44	28	41	31	41	41	218	549	1120	287	79	77
20	38	21	39	34	44	41	315	727	1130	281	70	90
21	36	24	37	39	40	44	369	1000	1210	289	65	89
22	34	25	36	34	37	43	346	1130	1150	304	62	80
23	37	26	27	35	36	42	406	829	967	306	60	75
24	36	25	38	35	36	41	455	629	723	271	57	70
25	62	26	36	34	36	39	401	504	675	237	56	66
26	74	26	32	31	40	39	419	429	694	216	54	62
27	51	21	27	24	48	40	479	374	590	202	52	60
28	45	18	25	20	59	38	581	348	546	191	51	57
29	42	18	27	25	57	40	777	324	653	182	50	55
30	39	20	27	26	---	39	569	319	704	175	48	53
31	40	---	31	28	---	38	---	328	---	172	55	---
TOTAL	1115	841	1082	1056	1052	1370	6328	17664	20234	13180	2577	2058
MEAN	36.0	28.0	34.9	34.1	36.3	44.2	211	570	674	425	83.1	68.6
MAX	74	36	47	61	59	54	777	1130	1210	773	165	119
MIN	26	18	24	20	29	38	36	319	285	172	48	49
AC-FT	2210	1670	2150	2090	2090	2720	12550	35040	40130	26140	5110	4080
CAL YR 1979	TOTAL	58779	MEAN 161	MAX 1050	MIN 18	AC-FT 116600						
WTR YR 1980	TOTAL	68557	MEAN 187	MAX 1210	MIN 18	AC-FT 136000						

GRANDE RONDE RIVER BASIN

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13330500 BEAR CREEK NEAR WALLOWA, OR

LOCATION.--Lat 45°31'37", long 117°33'05", in NW¼ sec.34, T.1 N., R.42 E., Wallowa County, Hydrologic Unit 17060105, on right bank 30 ft (9 m) downstream from road bridge, 3.0 mi (4.8 km) southwest of Wallowa, and at mile 4.4 (7.1 km).

DRAINAGE AREA.--68 mi² (176 km²), approximately.

PERIOD OF RECORD.--April to September 1915, April 1924 to current year. Monthly discharge only for some periods, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1915, 1927, 1929-30, 1932, 1936-40, 1945, 1949.

GAGE.--Water-stage recorder. Altitude of gage is 3,250 ft (991 m), by barometer. Apr. 13 to Sept. 16, 1915, nonrecording gage at site 1.0 mi (1.6 km) upstream at different datum. Apr. 22, 1924, to Nov. 2, 1931, water-stage recorder at site 1.5 mi (2.4 km) upstream at different datum.

REMARKS.--Records good except those for Nov. 15 to Feb. 10, which are fair. No regulation. Diversions for irrigation above station. Water for irrigation in Lostine River basin diverted from Little Bear Creek, a tributary above station, in sec.32, T.1 S., R.43 E.

AVERAGE DISCHARGE.--56 years (water years 1925-80), 113 ft³/s (3.200 m³/s), 81,870 acre-ft/yr (101 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,730 ft³/s (49.0 m³/s) June 15, 1974; maximum gage height, 3.82 ft (1.164 m) Apr. 22, 1936 (from floodmark); minimum daily discharge, 3 ft³/s (0.085 m³/s) Jan. 20, Feb. 1, 1937.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Apr. 29	0630	637 18.0	2.64 0.805	May 21	2230	*645 18.3	*2.69 0.820

Minimum, 9.4 ft³/s (0.27 m³/s) Oct. 6-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	19	28	30	26	102	40	383	277	239	30	14
2	9.7	20	38	27	27	94	39	401	273	232	28	15
3	9.7	19	41	25	34	90	39	427	246	229	26	15
4	9.7	20	44	22	33	88	38	460	225	229	24	14
5	9.7	19	47	21	33	85	40	506	212	198	24	14
6	9.7	19	42	19	32	77	44	576	201	198	23	14
7	9.7	18	39	18	31	72	44	519	194	184	21	14
8	9.7	18	37	25	29	67	44	479	208	171	21	14
9	10	18	38	30	28	61	53	460	261	171	20	13
10	10	19	34	27	26	60	58	401	315	153	19	18
11	9.7	18	26	32	25	60	61	359	377	131	19	17
12	9.7	19	31	38	24	55	64	321	420	116	19	16
13	9.7	23	32	49	25	54	77	300	377	100	18	29
14	10	25	36	60	25	57	116	290	440	96	18	34
15	13	28	37	71	25	54	162	290	414	85	17	26
16	12	33	34	67	24	53	171	269	407	79	17	21
17	12	36	36	63	26	51	198	258	446	72	17	19
18	14	30	44	55	34	51	246	281	466	66	21	20
19	19	22	44	46	39	50	305	342	427	60	18	22
20	14	15	44	42	61	50	383	427	427	55	18	30
21	13	20	43	38	63	50	427	519	427	51	18	31
22	14	27	40	36	61	49	395	540	407	49	17	28
23	16	30	35	34	57	50	427	407	342	45	17	27
24	15	28	43	32	53	51	427	321	281	43	16	24
25	24	26	34	31	49	50	365	269	265	38	16	23
26	25	24	31	28	51	49	353	246	269	35	15	21
27	24	19	27	24	63	46	389	222	232	32	15	20
28	23	18	28	18	92	45	453	225	218	31	15	19
29	22	16	29	21	105	44	569	229	243	30	14	18
30	21	22	28	24	---	43	446	236	250	29	14	17
31	21	---	26	28	---	41	---	250	---	30	14	---
TOTAL	438.7	668	1116	1081	1201	1849	6473	11213	9547	3277	589	607
MEAN	14.2	22.3	36.0	34.9	41.4	59.6	216	362	318	106	19.0	20.2
MAX	25	36	47	71	105	102	569	576	466	239	30	34
MIN	9.7	15	26	18	24	41	38	222	194	29	14	13
AC-FT	870	1320	2210	2140	2380	3670	12840	22240	18940	6500	1170	1200

CAL YR 1979 TOTAL 37005.1 MEAN 101 MAX 694 MIN 6.6 AC-FT 73400
WTR YR 1980 TOTAL 38059.7 MEAN 104 MAX 576 MIN 9.7 AC-FT 75490

GRANDE RONDE RIVER BASIN

13331500 MINAM RIVER AT MINAM, OR
(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, Hydrologic Unit 17060105, on left bank 2.3 mi (3.7 km) downstream from Squaw Creek, 0.3 mi (0.5 km) west of Minam, and at mile 0.3 (0.5 km).

DRAINAGE AREA.--240 mi² (622 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1912 to March 1914, September 1965 to current year. Monthly discharge only for some periods, published in WSP 1317.

GAGE.--Water-stage recorder. Datum of gage is 2,540.48 ft (774.338 m) National Geodetic Vertical Datum of 1929. June 1912 to March 1914, nonrecording gage at approximately same site at different datum.

REMARKS.--Water-discharge records good. No regulation of diversion above station.

AVERAGE DISCHARGE.--16 years, 472 ft³/s (13.37 m³/s), 26.71 in/yr (678 mm/yr), 342,000 acre-ft/yr (422 hm³/yr).EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,260 ft³/s (177 m³/s) June 16, 1974, gage height, 6.89 ft (2.100 m); maximum gage height, 7.3 ft (2.23 m) May 28, 1913, datum then in use; minimum discharge, 10 ft³/s (0.28 m³/s) Dec. 6, 1972, Jan. 10, 1973, result of freezeup.EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,450 ft³/s (41.1 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Apr. 29	0400	2,220 62.9	4.18 1.274	May 22	0200	*2,760 78.2	*4.64 1.414
May 6	0100	2,470 70.0	4.39 1.338	June 21	0030	2,300 65.1	4.25 1.295

Minimum, 36 ft³/s (1.02 m³/s) Nov. 21.DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	80	80	98	84	490	183	1360	1040	1040	210	86
2	57	76	100	102	94	430	177	1460	1080	1150	196	89
3	57	76	110	93	110	380	173	1550	990	1140	186	112
4	56	76	140	89	130	340	170	1770	911	1130	177	93
5	56	76	158	90	120	310	180	2040	863	968	170	84
6	55	75	146	86	122	290	206	2410	829	904	161	80
7	55	73	137	76	119	277	203	2160	802	883	152	78
8	55	71	129	76	117	262	200	1920	815	869	146	76
9	54	69	127	100	114	246	217	1820	998	904	137	75
10	54	65	146	126	110	235	250	1560	1150	876	134	84
11	54	68	124	127	105	239	254	1370	1390	763	129	122
12	54	67	119	186	102	228	258	1280	1610	667	127	95
13	54	82	127	290	107	224	302	1220	1450	596	122	193
14	54	84	114	360	107	239	413	1200	1540	567	119	213
15	61	91	110	365	107	239	507	1180	1450	517	119	161
16	75	110	114	290	105	228	470	1090	1420	480	114	129
17	64	119	114	250	112	228	496	1030	1660	460	114	114
18	67	105	149	213	167	224	631	1140	1950	434	129	112
19	122	82	137	155	193	213	789	1290	2010	393	132	129
20	117	62	132	140	311	213	1040	1590	1980	369	117	134
21	86	57	127	186	315	224	1220	2120	2090	360	110	149
22	80	78	124	158	273	220	1170	2490	2000	355	105	129
23	86	96	98	132	242	228	1220	1920	1710	355	100	119
24	93	91	107	125	220	235	1370	1490	1330	333	98	114
25	105	86	119	115	203	217	1140	1240	1180	302	93	107
26	200	82	102	105	217	224	1140	1170	1160	273	91	102
27	119	60	76	90	280	220	1260	1060	1070	258	89	98
28	105	56	73	74	360	200	1480	1040	925	242	89	93
29	95	54	80	64	440	203	2010	1010	976	235	86	91
30	89	50	90	70	---	193	1560	968	1050	220	86	89
31	84	---	100	76	---	183	---	947	---	213	84	---
TOTAL	2421	2317	3609	4507	5086	7882	20689	45895	39429	18256	3922	3350
MEAN	78.1	77.2	116	145	175	254	690	1480	1314	589	127	112
MAX	200	119	158	365	440	490	2010	2490	2090	1150	210	213
MIN	54	50	73	64	84	183	170	947	802	213	84	75
CFSM	.33	.32	.48	.60	.73	1.06	2.88	6.17	5.48	2.45	.53	.47
IN.	.38	.36	.56	.70	.79	1.22	3.21	7.11	6.11	2.83	.61	.52
AC-FT	4800	4600	7160	8940	10090	15630	41040	91030	78210	36210	7780	6640

CAL YR 1979	TOTAL	146764	MEAN 402	MAX 2590	MIN 35	CFSM 1.68	IN 22.75	AC-FT 291100
WTR YR 1980	TOTAL	157363	MEAN 430	MAX 2490	MIN 50	CFSM 1.79	IN 24.39	AC-FT 312100

GRANDE RONDE RIVER BASIN

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13331500 MINAM RIVER AT MINAM, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1965 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 27.0°C July 23, 27, 1977; minimum, 0.0°C on many days during winter periods each year.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 24.0°C Aug. 13; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	OXYGEN, DIS- SOLVED (MG/L)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCOCI FECAL, KF AGAR (COLS. PER 100 ML)	SILICA, DIS- SOLVED (MG/L AS SiO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT												
09...	1200	45	10.4	7.8	10.6	60	K2	K1	14	6.4	1.7	3.0
NOV												
13...	1110	112	.3	7.4	13.6	54	K8	K8	19	6.8	1.6	3.0
DEC												
10...	1045	149	1.5	7.5	12.9	54	K7	K5	24	6.6	1.8	2.8
JAN												
14...	1000	342	1.7	7.3	12.6	52	--	39	26	5.6	1.8	2.5
FEB												
11...	1000	105	.2	7.6	13.3	54	--	--	22	6.9	2.0	2.5
APR												
07...	1020	207	4.9	7.4	12.5	54	<1	<1	24	6.0	1.7	2.4
MAY												
12...	1010	1200	4.7	6.9	11.2	33	--	K4	14	3.4	.7	1.5
26...	1335	1140	6.0	7.3	--	32	--	--	15	3.7	.7	1.5
JUN												
04...	0930	936	6.0	7.1	11.0	36	--	24	18	4.0	1.3	1.7
11...	0915	1410	9.0	7.0	--	28	--	--	13	3.1	.8	1.3
16...	1115	1390	9.8	7.0	--	28	--	--	13	3.2	.8	1.4
JUL												
01...	1000	1050	10.6	7.1	10.7	26	--	K3	11	2.8	.6	1.2
28...	1000	247	17.5	7.1	9.0	35	--	K4	14	4.2	.8	1.7
AUG												
26...	1030	91	11.5	7.2	9.8	49	K19	--	17	6.4	1.4	2.1
SEP												
23...	0930	127	9.6	7.5	10.4	46	K3	--	16	5.3	1.3	2.1

GRANDE RONDE RIVER BASIN

13331500 MINAM RIVER AT MINAM, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUC- RIDE, DIS- SOLVED (MG/L AS F)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
OCT												
09...	1.2	23	.8	.4	.1	--	--	--	--	.02	--	--
NOV												
13...	1.0	26	2.8	.5	.0	--	.01	--	--	.00	--	--
DEC												
10...	1.2	25	5.3	.2	.1	--	.12	--	--	.12	--	--
JAN												
14...	3.8	20	4.1	.8	.1	--	.56	--	--	.56	--	.060
FEB												
11...	1.1	28	.7	.6	.0	--	.06	--	--	.05	--	--
APR												
07...	1.2	24	1.9	.5	.0	--	.01	--	--	.02	--	--
MAY												
12...	.7	13	2.0	.3	.0	--	.01	--	--	.00	--	--
26...	.7	14	.1	.0	.0	.58	.01	.53	.000	.02	.55	.020
JUN												
04...	.8	16	.2	.3	.0	.29	.00	.29	.000	.00	.29	.000
11...	.7	16	.2	.1	.0	.21	.00	2.0	.000	.00	2.0	--
16...	.7	24	.4	.1	.0	.18	.00	.34	.000	.24	.58	--
JUL												
01...	.7	19	1.6	.3	.1	.40	.01	.48	.000	.01	.49	.020
28...	.9	17	1.3	.1	.0	--	.00	--	--	.00	--	--
AUG												
26...	1.1	25	.3	1.3	.1	--	.00	--	--	.00	--	--
SEP												
23...	.9	20	.1	.4	.1	--	.00	--	--	.00	--	--

DATE	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED (MG/L AS C)	CARBON, ORGANIC TOTAL (MG/L AS C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	TUR- BID- ITY (NTU)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)
OCT											
09...	.000	--	--	--	23	0	42	41	--	2	.24
NOV											
13...	.070	--	--	--	24	0	48	50	--	2	.60
DEC											
10...	.010	--	--	--	24	0	67	62	--	2	.80
JAN											
14...	.070	--	--	--	21	1	75	59	--	16	15
FEB											
11...	.020	--	--	--	25	0	54	53	--	1	.28
APR											
07...	.030	--	--	--	22	0	42	--	--	3	1.7
MAY											
12...	.040	--	--	--	11	0	34	30	--	5	16
26...	.010	1.6	.2	--	12	0	28	30	1.5	3	9.2
JUN											
04...	.010	--	.1	2.0	15	0	38	36	1.7	6	15
11...	.030	1.0	.4	--	11	0	34	29	2.1	19	72
16...	.010	1.2	.2	--	11	0	26	34	1.1	8	30
JUL											
01...	.110	1.5	--	--	9	0	22	30	1.3	4	11
28...	.020	--	--	--	14	0	30	33	--	2	1.3
AUG											
26...	.020	--	--	--	22	0	41	45	--	5	1.2
SEP											
23...	.010	--	--	--	19	0	39	38	--	5	1.7

GRANDE RONDE RIVER BASIN

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13331500 MINAM RIVER AT MINAM, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, DIS- SOLVED (UG/L AS B)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT										
09...	--	0	--	0	--	--	--	0	--	10
APR										
07...	0	0	10	100	--	--	<1	1	0	0
MAY										
26...	1	0	10	<100	--	--	0	0	0	0
JUN										
04...	2	0	10	<100	7	20	1	1	0	10
11...	1	0	10	<100	20	60	<1	0	10	10
16...	2	1	10	<100	8	30	<1	0	0	10
JUL										
01...	3	0	20	100	20	4	<1	0	0	0
SEP										
23...	1	1	20	<100	--	--	2	0	0	0

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)
OCT										
09...	--	--	--	0	--	30	--	4	--	4
APR										
07...	<3	--	<10	1	220	310	0	5	2	10
MAY										
26...	0	0	2	6	130	210	2	7	4	10
JUN										
04...	<3	0	<10	8	44	150	0	3	1	10
11...	<3	0	<10	5	24	430	12	12	<1	10
16...	<3	0	<10	8	32	180	<10	10	<1	0
JUL										
01...	<3	0	<10	6	17	130	<10	7	<1	10
SEP										
23...	<3	--	<10	3	38	60	<10	4	1	0

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SILVER, DIS- SOLVED (UG/L AS AG)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ANTI- MONY, DIS- SOLVED (UG/L AS SB)	ANTI- MONY, TOTAL RECOV- ERABLE (UG/L AS SB)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)
OCT										
09...	--	--	--	0	--	0	--	--	--	--
APR										
07...	--	--	0	0	7	30	--	--	--	--
MAY										
26...	1	4	0	0	8	20	--	--	--	--
JUN										
04...	3	4	0	0	6	50	0	0	30	90
11...	0	0	0	0	<3	20	0	0	30	500
16...	0	0	0	0	<3	20	0	0	40	150
JUL										
01...	3	2	0	0	<3	10	--	--	40	90
SEP										
23...	--	--	0	0	31	40	--	--	--	--

GRANDE RONDE RIVER BASIN

13331500 MINAM RIVER AT MINAM, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	LITHIUM TOTAL RECOV- ERABLE (UG/L AS LI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SELE- NIUM, TOTAL (UG/L AS SE)	MERCURY DIS- SOLVED (UG/L AS HG)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
OCT 09...	--	--	--	0	--	.1	--	--	--
APR 07...	<4	--	0	0	--	--	<1	24	<3.0
MAY 26...	--	--	0	0	.0	--	--	--	--
JUN 04...	<4	0	0	0	.0	.0	<1	18	7.0
11...	<4	0	0	0	.0	--	<1	14	<6.0
16...	<4	0	0	0	.0	.0	<1	14	<6.0
JUL 01...	<4	0	0	0	.0	.0	<1	12	<6.0
SEP 23...	<4	--	0	0	.0	.0	<1	20	<6.0

DATE	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)
SEP 23...	.6	<.4	1.3	<.4	1.4	<.4	.40	.27

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ALDRIN, TOTAL (UG/L)	LINDANE TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)
OCT 09...	.00	.00	.0	.00	.00	.00	.00	.00	.00	0	.00	.00
SEP 23...	.00	.00	.0	.00	.00	.00	.00	.00	.00	0	.00	.00

DATE	METH- OXY- CHLOR, TOTAL (UG/L)	PCB TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
OCT 09...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP 23...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 09...	.0	.0	0	.0	.0	0	.0	.0	.0	0
SEP 23...	.0	.0	0	.0	.0	0	.0	.0	.0	0

13331500 MINAM RIVER AT MINAM, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	14.5	8.5	6.5	3.0	.0	.0	---	---	---	---	6.5	2.0
2	14.5	9.0	4.0	1.0	.0	.0	---	---	---	---	6.0	3.0
3	13.5	7.0	5.5	3.0	.0	.0	---	---	---	---	6.0	3.5
4	13.0	6.5	5.5	3.5	.0	.0	---	---	---	---	6.0	4.5
5	14.0	7.5	7.0	4.5	.5	.0	---	---	---	---	4.5	2.0
6	14.0	8.5	6.5	4.5	3.0	.5	---	---	.0	.0	5.0	2.0
7	15.0	11.0	6.5	3.0	4.0	2.0	---	---	.5	.0	5.0	2.5
8	15.0	9.5	5.5	2.0	3.5	2.0	---	---	.5	.0	6.0	3.0
9	13.0	8.0	4.0	1.0	4.0	2.5	---	---	2.0	.0	6.5	2.0
10	12.5	6.5	2.5	.5	3.5	.5	---	---	3.0	.0	8.5	4.0
11	12.5	6.5	1.5	.0	.5	.0	---	---	.5	.0	6.5	3.5
12	12.0	6.5	1.0	.0	.5	.0	---	---	2.0	.0	5.0	2.5
13	11.5	6.5	1.0	.0	1.0	.0	---	---	1.0	.0	5.5	2.5
14	12.5	9.0	.0	.0	2.0	.0	---	---	.5	.0	4.5	2.0
15	13.0	11.0	.0	.0	4.0	2.0	3.5	---	2.0	.0	5.0	1.0
16	11.0	8.0	.0	.0	3.5	2.5	3.0	2.0	4.0	1.5	6.0	.5
17	13.5	8.0	1.5	.0	---	2.5	3.0	2.0	3.5	2.0	4.0	2.0
18	9.0	6.0	1.5	.0	---	---	2.0	.0	2.5	2.0	5.5	3.0
19	8.0	6.5	1.5	.0	---	---	.0	.0	3.5	1.5	6.0	3.5
20	8.0	5.5	1.5	.5	---	---	.0	.0	3.5	1.5	3.5	2.0
21	8.5	6.0	1.0	.0	---	---	.0	.0	4.5	2.0	5.0	1.0
22	6.5	5.5	.5	.0	---	---	.5	.0	3.0	2.0	8.5	1.5
23	8.5	6.0	.0	.0	---	---	2.0	.0	6.0	2.0	6.0	2.5
24	9.0	7.5	.0	.0	---	---	1.5	.0	5.5	2.5	7.0	1.5
25	8.5	8.0	.0	.0	---	---	.5	.0	5.5	2.0	8.0	1.5
26	9.5	6.0	.0	.0	---	---	.0	.0	6.0	3.5	4.0	1.5
27	8.0	5.0	.0	.0	---	---	.0	.0	5.5	4.0	5.5	2.0
28	6.5	4.5	1.0	.0	---	---	---	---	5.0	3.5	7.0	.5
29	7.0	4.5	.0	.0	---	---	---	---	6.5	2.5	5.0	2.5
30	6.0	3.0	.0	.0	---	---	---	---	---	---	6.0	1.5
31	8.0	4.5	---	---	---	---	---	---	---	---	6.0	.5
MONTH	15.0	3.0	7.0	.0	4.0	.0	3.5	.0	6.5	.0	8.5	.5
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.0	1.5	9.5	4.5	8.0	6.5	13.0	10.5	22.0	15.0	18.0	10.0
2	6.5	2.0	8.5	5.5	8.5	5.5	11.0	9.5	21.0	14.0	18.5	14.0
3	7.5	2.5	10.0	5.0	7.5	5.0	12.0	9.5	20.5	14.5	18.0	10.0
4	6.5	2.5	10.0	5.0	9.5	5.5	12.0	9.5	20.5	11.5	18.5	9.0
5	7.0	4.5	9.5	5.0	8.5	5.5	14.0	9.5	20.5	12.5	20.0	10.5
6	6.0	2.5	7.5	5.5	9.5	6.0	15.0	10.0	20.5	11.5	20.0	13.0
7	7.5	2.0	9.0	5.5	10.5	6.5	15.5	11.0	21.0	12.0	19.5	13.0
8	7.0	3.0	8.0	5.0	12.5	7.0	15.5	12.0	21.0	12.5	21.0	13.0
9	7.0	4.5	7.5	5.0	12.5	9.0	16.0	12.0	22.0	13.0	22.0	13.0
10	6.5	4.0	7.0	5.0	11.0	8.0	15.5	11.0	22.5	13.0	19.0	15.5
11	9.5	2.5	9.5	5.5	11.0	8.0	16.0	10.5	22.5	15.0	20.0	13.5
12	11.5	3.5	8.5	5.0	9.5	6.5	14.0	11.5	23.0	14.5	16.5	12.5
13	11.5	4.5	10.0	5.5	9.5	6.5	16.5	10.5	24.0	15.0	15.0	12.5
14	9.5	5.5	8.5	6.0	8.5	6.5	13.5	11.0	22.0	15.0	17.0	11.5
15	9.5	5.5	8.0	6.0	9.0	6.5	17.0	10.5	22.5	15.0	17.0	11.0
16	10.5	4.0	8.0	5.5	10.5	7.0	18.0	11.0	18.5	13.5	17.5	9.5
17	10.5	4.5	10.5	5.5	12.5	8.0	18.0	11.5	18.0	13.5	18.0	10.0
18	11.0	5.5	10.5	7.0	11.0	7.5	16.0	11.5	15.5	11.5	15.0	11.0
19	10.5	5.5	11.0	7.0	11.5	7.5	18.0	11.0	---	---	14.5	11.5
20	9.5	5.5	11.5	6.5	12.5	8.0	19.5	12.0	---	---	14.0	11.5
21	7.5	5.5	9.5	6.5	11.5	8.0	21.5	13.5	20.5	11.0	13.0	10.0
22	9.0	5.0	8.5	5.5	11.0	8.0	22.0	15.0	21.5	12.5	12.5	7.5
23	8.5	5.5	5.0	4.5	9.5	7.5	21.5	15.5	21.0	12.5	15.5	9.5
24	7.5	5.5	5.0	4.0	9.5	7.0	20.5	13.5	21.5	12.5	15.5	8.0
25	8.5	4.0	5.0	4.0	12.0	8.5	21.0	14.0	20.5	11.5	15.0	7.0
26	10.0	5.0	6.0	4.0	10.0	7.5	21.5	14.0	20.0	10.5	14.0	8.0
27	10.0	5.0	8.5	5.0	10.0	6.5	22.0	14.5	18.0	13.5	16.0	8.5
28	9.0	5.0	8.5	6.5	13.5	7.5	21.5	14.5	18.0	12.0	16.0	10.5
29	7.5	4.5	8.5	5.5	14.5	10.0	22.0	15.0	17.0	8.5	16.5	9.0
30	7.0	3.5	11.0	6.5	14.0	9.5	22.0	14.5	17.0	9.5	15.0	10.5
31	---	---	11.0	6.5	---	---	20.0	14.5	17.5	12.5	---	---
MONTH	11.5	1.5	11.5	4.0	14.5	5.0	22.0	9.5	24.0	8.5	22.0	7.0

LOCATION.--Lat 45°43'36", long 117°46'59", in SW¼NW¼ sec.23, T.3 N., R.40 E., Wallowa County, Hydrologic Unit 17060106, on right bank at Rondowa, 500 ft (152 m) downstream from Wallowa River, 13 mi (21 km) northeast of Elgin, and at mile 81.4 (131.0 km).

PERIOD OF RECORD.--October 1926 to current year.

REVISED RECORDS.--WSP 1093: 1928-29, 1932-33, 1936, 1938, 1939(M), 1943. WSP 1397: 1927. WSP 1447: 1927.

GAGE.--Water-stage recorder. Datum of gage is 2,281.87 ft (695.514 m) National Geodetic Vertical Datum of 1929.

REMARKS.—Records excellent. Flow slightly regulated by Wallowa Lake (see station 13326000) and small reservoirs. Diversions for irrigation above station, chiefly in vicinity of La Grande, Enterprise, and Wallowa; one transbasin diversion from Sheep Creek into Imnaha River basin for irrigation in Wallowa Valley.

AVERAGE DISCHARGE.--54 years, 2,140 ft³/s (60.60 m³/s), 1,550,000 acre-ft/yr (1.91 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,700 ft³/s (700 m³/s) Jan. 30, 1965, gage height, 10.93 ft (3.331 m); minimum, 179 ft³/s (5.07 m³/s) Aug. 24, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,200 ft³/s (176 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)		Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)	
May 6	1600	*7,470	212	*5.41	1.649	June 19	0430	6,760	191	5.11	1.558
May 22	0530	6,850	194	5.15	1.570						

Minimum. 317 ft³/s (8.98 m³/s) Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	370	604	498	678	801	3000	1640	5750	4150	3420	534	455
2	370	579	534	661	875	2750	1600	5960	4450	3560	528	460
3	347	579	678	653	941	2600	1560	6010	4300	3580	516	480
4	343	571	838	636	990	3000	1530	6250	4110	3690	504	450
5	343	579	922	941	951	3150	1580	6570	4000	3360	498	445
6	356	579	848	903	875	3010	1820	7350	3990	3270	486	425
7	375	563	848	653	903	2710	1910	6990	3940	3240	475	425
8	380	563	810	687	885	2520	1860	6330	3920	3170	450	440
9	390	563	783	678	829	2320	1970	6130	4150	3200	435	420
10	385	534	848	747	783	2180	2280	5750	4360	3170	430	420
11	370	528	783	645	774	2190	2340	5310	4710	2860	440	534
12	365	498	730	970	730	2120	2350	5010	5290	2590	435	486
13	375	504	730	2030	739	2020	2570	4780	5030	2350	420	801
14	370	492	687	2370	730	2060	3070	4650	5410	2250	410	1050
15	415	480	695	2590	704	2120	3550	4650	5520	2020	410	961
16	440	516	747	2120	704	1990	3620	4380	5410	1850	400	848
17	440	661	756	1960	801	1910	3730	4080	5750	1690	390	783
18	460	712	866	1670	1800	1860	4100	4100	6300	1570	460	765
19	661	653	838	1280	2090	1770	4560	4260	6330	1390	548	801
20	670	556	838	1070	2810	1760	5170	4710	6160	1250	528	820
21	628	480	820	1140	2670	1930	5870	5610	6280	1160	534	885
22	620	492	810	1120	2350	1950	6100	6500	6160	1100	510	810
23	628	579	712	1040	2150	2030	6150	5520	5730	1100	516	783
24	628	571	661	913	2030	2060	6000	4580	4800	951	522	756
25	661	571	721	913	1910	1950	5800	4190	4320	866	510	730
26	875	579	712	783	1960	1860	5600	4240	4210	783	504	712
27	730	534	653	661	2430	1880	5400	4080	3970	721	475	687
28	704	450	587	548	2950	1770	5200	4100	3600	678	470	661
29	670	375	534	528	3190	1720	5400	4110	3580	612	465	636
30	661	492	522	522	---	1730	5600	4070	3620	540	455	612
31	636	---	571	579	---	1690	---	4030	---	522	455	---
TOTAL	15666	16437	22580	32689	42355	67620	109930	160050	143550	62513	14713	19541
MEAN	505	548	728	1054	1461	2181	3664	5163	4785	2017	475	651
MAX	875	712	922	2590	3190	3150	6150	7350	6330	3690	548	1050
MIN	343	375	498	522	704	1690	1530	4030	3580	522	390	420
AC-FT	31070	32600	44790	64840	84010	134100	218000	317500	284700	124000	29180	38760
CAL YR 1979	TOTAL	766184	MEAN	2099	MAX	10300	MIN	296	AC-FT	1520000		
WTR YR 1980	TOTAL	707644	MEAN	1933	MAX	7350	MIN	343	AC-FT	1404000		

GRANDE RONDE RIVER BASIN

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13333000 GRANDE RONDE RIVER AT TROY, OR

LOCATION.--Lat 45°56'47", long 117°26'54", in NE¼NW¼ sec.4, T.5 N., R.43 E., Wallowa County, Hydrologic Unit 17060106, on left bank 500 ft (152 m) downstream from bridge at Troy, 600 ft (183 m) downstream from Wenaha River, and at mile 45.2 (72.7 km).

DRAINAGE AREA.--3,275 mi² (8,482 km²).

PERIOD OF RECORD.--August 1944 to current year. Monthly discharge only August 1944, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1946(M), 1948-50.

GAGE.--Water-stage recorder. Datum of gage is 1,585.98 ft (483.407 m) National Geodetic Vertical Datum of 1929. Aug. 17, 1944, to Sept. 30, 1949, nonrecording gage at site 500 ft (152 m) upstream at datum 10.85 ft (3.307 m) lower. Oct. 1, 1949, to Sept. 5, 1963, water-stage recorder at site 500 ft (152 m) upstream at datum 1.15 ft (0.351 m) higher.

REMARKS.--Records excellent. Flow slightly regulated by Wallowa Lake (see station 13326000) and small reservoirs. Diversions for irrigation above station, chiefly in vicinity of La Grande, Enterprise, and Wallowa; one transbasin diversion from Big Sheep Creek and tributaries in Imnaha River basin for irrigation in Wallowa Valley.

AVERAGE DISCHARGE.--36 years, 3,107 ft³/s (87.99 m³/s), 2,251,000 acre-ft/yr (2.78 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,200 ft³/s (1,200 m³/s) Dec. 23, 1964, gage height, 11.25 ft (3.429 m); minimum, 344 ft³/s (9.74 m³/s) Aug. 19-21, 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 9,000 ft³/s (255 m³/s) and maximum discharge, 9,040 ft³/s (256 m³/s) Apr. 29, gage height, 6.22 ft (1.896 m); minimum, 499 ft³/s (14.1 m³/s) Oct. 4-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	540	810	760	929	1200	4180	2290	7150	5150	4170	822	674
2	540	784	784	943	1300	3960	2250	7300	5580	4260	822	686
3	519	771	902	929	1350	3920	2190	7260	5410	4320	810	698
4	509	784	1160	916	1390	4470	2140	7420	5190	4470	797	686
5	509	784	1490	1130	1310	4870	2210	7650	5060	4170	771	662
6	509	771	1310	1490	1230	4650	2560	8540	5120	4000	759	639
7	530	771	1260	1150	1230	4110	2700	8330	5090	3940	747	628
8	540	759	1210	1040	1190	3770	2630	7530	4990	3800	734	617
9	551	747	1160	1070	1160	3470	2790	7420	5150	3860	698	628
10	551	734	1340	1130	1120	3240	3320	6960	5350	3880	674	594
11	540	722	1290	1010	1100	3290	3420	6450	5650	3580	674	698
12	530	698	1160	1120	1070	3160	3550	6090	6020	3260	686	710
13	540	686	1100	2720	1070	3040	3940	5820	6200	3010	674	875
14	540	686	1040	3660	1040	3010	4770	5720	6240	2790	651	1260
15	572	674	1030	4410	1010	3240	5450	5780	6520	2680	639	1230
16	605	686	1070	3500	1040	3060	5550	5680	6340	2400	628	1090
17	628	822	1070	3140	1700	2890	5650	5410	6490	2210	651	985
18	628	971	1190	2700	3150	2790	6240	5280	6930	2060	686	957
19	849	889	1230	2120	4110	2630	6740	5350	7000	1900	810	985
20	943	810	1210	1750	4340	2560	7340	5610	6700	1670	797	1000
21	835	710	1180	1730	3740	2720	8090	6130	6670	1560	784	1070
22	835	686	1180	1630	3240	2840	8010	7150	6560	1470	771	1010
23	862	797	1100	1510	2970	2960	7930	6490	6340	1460	759	971
24	849	784	985	1340	2750	3010	7970	5680	5890	1340	759	957
25	889	784	1040	1340	2720	2890	7380	5250	5410	1240	734	916
26	1040	771	1030	1180	3360	2720	7000	5450	5220	1130	734	902
27	985	759	985	1010	4310	2680	6960	5280	5030	1040	710	889
28	916	686	902	820	4900	2540	7260	5220	4530	1000	698	849
29	889	580	835	800	4590	2420	8620	5250	4350	943	686	822
30	849	600	797	790	---	2420	8010	5150	4410	875	674	810
31	835	---	797	900	---	2360	---	5120	---	835	674	---
TOTAL	21457	22516	33597	49907	64690	99870	154960	194920	170590	79323	22513	25498
MEAN	692	751	1084	1610	2231	3222	5165	6288	5686	2559	726	850
MAX	1040	971	1490	4410	4900	4870	8620	8540	7000	4470	822	1260
MIN	509	580	760	790	1010	2360	2140	5120	4350	835	628	594
AC-FT	42560	44660	66640	98990	128300	198100	307400	386600	338400	157300	44650	50580
CAL YR 1979	TOTAL	1033989	MEAN	2833	MAX	15500	MIN	450	AC-FT	2051000		
WTR YR 1980	TOTAL	939841	MEAN	2568	MAX	8620	MIN	509	AC-FT	1864000		

13353000 SNAKE RIVER BELOW ICE HARBOR DAM, WA

LOCATION.--Lat 46°14'53", long 118°52'43", in NE¼SW¼, sec.24, T.9 N., R.31 E., Walla Walla County, Hydrologic Unit 17060110, in powerhouse forebay pier P-1 on south side of Bay 1 at Ice Harbor Dam, 8.0 mi (12.9 km) northeast of Burbank, and at mile 9.7 (15.6 km).

DRAINAGE AREA.--108,500 mi² (281,000 km²), approximately.

PERIOD OF RECORD.--October 1907 to March 1917 (gage heights only October 1907 to August 1909), March 1962 to current year. Published as "at Burbank" prior to 1911 and as "near Burbank" 1912-17. Chemical analyses October 1965 to September 1969, October 1971 to September 1972. For records collected at site 7.5 mi (12.1 km) downstream see station 13353200.

REVISED RECORDS.--WSP 1317: Drainage area.

GAUGE.--Watt-hour meters on each turbine in Ice Harbor Dam powerhouse. Elevations are National Geodetic Vertical Datum of 1929. Oct. 2, 1907, to Mar. 31, 1917, nonrecording gage at site approximately 2 mi (3.2 km) downstream at datum 300 ft (91 m) higher. Mar. 23, 1962, to Sept. 30, 1968, water-stage recorder 1.0 mi (1.6 km) downstream National Geodetic Vertical Datum of 1929.

REMARKS.--Records computed from power output, flow over spillway, flow through fish ladder, and lockage records at Ice Harbor Dam. Diversions above station for irrigation of over 4,090,000 acres (16,600 km²). Flow regulated by Lake Sacajawea and many storage reservoirs and powerplants upstream.

COOPERATION.--Records furnished by Corps of Engineers. Records not reviewed.

AVERAGE DISCHARGE.--25 years (water years 1910-16, 1963-80), 55,370 ft³/s (1,570 m³/s), 40,116,000 acre-ft/yr (49,500 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 312,000 ft³/s (8,840 m³/s) June 19, 1974; no flow momentarily Aug. 27, 1965 (result of testing at Ice Harbor Dam).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1948, reached an elevation of 361.9 ft (110.31 m) at a site 0.7 mi (1.1 km) downstream from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 163,000 ft³/s (4,620 m³/s) May 23; maximum forebay elevation, 440.55 ft (134.280 m) May 23; minimum discharge, 200 ft³/s (5.66 m³/s) part of each day on many days during the year; minimum forebay elevation, 437.07 ft (133.219 m) May 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24600	37400	25900	11900	39200	38300	46100	118000	125000	71700	31700	11800
2	18000	26100	14900	29800	10000	23200	28700	99700	120000	61900	18400	27400
3	23900	12900	26600	26200	7700	29800	33600	104000	123000	56200	11300	32000
4	17600	10000	31400	35500	35500	37500	34000	102000	116000	33200	18600	24900
5	27300	26300	37900	21700	38400	42000	15000	113000	117000	63500	31200	26800
6	21200	21800	40800	9700	36700	46400	11500	121000	121000	52200	22500	21500
7	8800	21900	46000	26600	27700	52500	45000	134000	114000	69600	30700	11000
8	16600	20600	30500	37100	33600	26500	28300	116000	127000	54900	29500	29900
9	20100	21600	17800	42500	28900	37700	36000	102000	120000	62800	11800	22600
10	16500	14800	40700	46000	6100	44500	52500	107000	112000	59100	11800	24200
11	15800	8700	41500	54300	35200	38900	40700	103000	118000	59400	31800	22700
12	22000	24400	35700	32500	32100	36300	29700	96900	129000	27600	23300	28200
13	13100	34100	28600	8600	35300	40200	9100	83100	130000	18200	15000	30100
14	8700	43900	30600	25000	39700	29200	46100	74900	138000	45500	23800	24100
15	35000	24200	33200	47300	34900	14700	52700	75100	119000	37200	17100	38500
16	15900	17900	19500	38900	14600	18100	48900	97600	121000	42500	22300	17400
17	10900	16900	35700	44800	6700	50100	47100	102000	122000	32800	13300	21900
18	17600	20100	30600	43500	34000	42900	64400	79900	109000	37300	17800	38100
19	13600	42800	36000	29000	36300	33700	62800	74900	103000	32100	18500	20300
20	22700	34200	35500	13700	43800	39600	53500	106000	106000	19400	29500	28300
21	25300	31200	38800	33800	52400	43500	80200	104000	98500	39500	22900	21800
22	30500	16500	20100	39500	57100	33500	66500	126000	89100	37200	19600	27300
23	23400	36600	15100	48100	20900	8500	98600	136000	99700	43300	16200	50500
24	30500	28000	15000	21800	31700	45900	94400	127000	110000	34000	11500	35200
25	25200	12000	4000	34600	42000	53900	65000	102000	104000	29600	17400	21700
26	24900	36300	38200	30500	28600	44400	94900	116000	85000	14500	22300	34100
27	19800	42000	38200	22300	28900	38200	93700	119000	79500	24600	25800	41500
28	26100	37600	24900	49800	28800	37600	102000	133000	58700	30800	24300	20300
29	39900	38800	4500	46800	47000	32800	119000	120000	48800	27900	16400	32700
30	30800	42200	3100	46100	---	10200	127000	121000	63700	32500	11700	39100
31	21200	---	23600	39700	---	44100	---	132000	---	31000	11700	---
TOTAL	667500	801800	864900	1037600	913800	1114700	1727000	3346100	3227000	1282000	629700	825900
MEAN	21530	26730	27900	33470	31510	35960	57570	107900	107600	41350	20310	27530
MAX	39900	43900	46000	54300	57100	53900	127000	136000	138000	71700	31800	50500
MIN	8700	8700	3100	8600	6100	8500	9100	74900	48800	14500	11300	11000
AC-FT	1324000	1590000	1716000	2058000	1813000	2211000	3426000	6637000	6401000	2543000	1249000	1638000
CAL YR 1979 TOTAL	15192000			MEAN 41620	MAX 143000	MIN 2700	AC-FT 30130000					
WTR YR 1980 TOTAL	16438000			MEAN 44910	MAX 138000	MIN 3100	AC-FT 32600000					

WALLA WALLA RIVER BASIN

14010000 SOUTH FORK WALLA WALLA RIVER NEAR MILTON, OR

LOCATION.--Lat 45°49'48", long 118°10'08", in NE¼ sec.15, T.4 N., R.37 E., Umatilla County, Hydrologic Unit 17070102, on right bank 1.0 mi (1.6 km) downstream from Elbow Creek, 13 mi (21 km) southeast of Milton, and at mile 59.1 (95.1 km).

DRAINAGE AREA.--63 mi² (163 km²), approximately.

PERIOD OF RECORD.--February to October 1903, August 1906 to November 1917, May 1931 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as "12 mi (19 km) above Milton" 1903 and as "above Pacific Power & Light Co.'s intake near Milton" 1907-10.

REVISED RECORDS.--WSP 964: Drainage area. WSP 1398: 1912, 1940, drainage area at former site.

GAGE.--Water-stage recorder. Altitude of gage is 2,050 ft (625 m) from river-profile map. Prior to Mar. 23, 1934, water-stage recorder or nonrecording gage at several sites within 1.5 mi (2.4 km) of present site at various datums.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--59 years (water years 1908-17, 1932-80), 178 ft³/s (5.041 m³/s), 38.37 in/yr (975 mm/yr), 129,000 acre-ft/yr (159 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,530 ft³/s (71.6 m³/s) Jan. 29, 1965, gage height, 5.60 ft (1.707 m); minimum, 72 ft³/s (2.04 m³/s) Feb 14, 1932.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage about 6 ft (2 m) Mar. 31, 1931, present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 460 ft³/s (13.0 m³/s) Apr. 19, no peak above base of 600 ft³/s (17.0 m³/s); minimum, 83 ft³/s (2.35 m³/s) Oct. 13, 14, 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	91	98	112	128	232	130	284	215	128	108	102
2	90	90	118	112	130	215	130	328	209	128	107	107
3	88	90	132	114	136	210	130	315	203	127	109	102
4	88	92	188	115	135	260	130	323	193	125	111	101
5	90	93	182	175	134	260	130	330	187	124	110	100
6	90	92	146	175	143	238	132	338	181	123	109	100
7	90	90	132	152	150	217	143	284	174	126	109	100
8	88	90	125	141	148	204	200	258	169	125	108	99
9	88	90	122	132	145	196	210	260	168	127	108	99
10	88	89	132	126	142	193	170	237	164	131	107	104
11	88	88	118	121	141	202	160	226	163	125	107	105
12	88	88	111	149	138	197	160	216	166	124	107	104
13	88	88	104	238	136	195	168	212	170	123	107	123
14	90	90	100	294	134	199	200	206	161	122	107	108
15	95	90	108	304	130	199	190	200	157	120	106	105
16	90	92	105	233	129	192	230	188	153	117	105	100
17	88	105	118	226	141	187	350	182	150	117	109	100
18	93	112	135	202	262	184	410	180	147	116	127	100
19	115	102	136	176	338	176	460	179	148	114	116	102
20	100	98	132	160	324	177	400	178	147	114	111	110
21	100	97	130	149	272	183	380	179	144	112	109	109
22	100	101	127	139	233	186	350	178	145	109	109	105
23	103	104	120	133	205	196	320	168	147	108	108	103
24	98	106	120	130	190	195	287	163	139	108	108	103
25	105	103	119	128	184	190	278	179	139	108	108	103
26	101	104	115	123	194	180	296	252	145	107	107	102
27	95	100	112	121	223	170	324	255	141	107	107	102
28	96	99	112	110	255	160	356	251	135	106	108	101
29	94	99	110	110	254	150	370	233	132	105	107	100
30	93	98	109	118	---	140	301	216	129	108	107	100
31	93	---	110	122	---	130	---	200	---	108	103	---
TOTAL	2903	2871	3826	4840	5274	6013	7495	7198	4821	3642	3369	3099
MEAN	93.6	95.7	123	156	182	194	250	232	161	117	109	103
MAX	115	112	188	304	338	260	460	338	215	131	127	123
MIN	88	88	98	110	128	130	130	163	129	105	103	99
CFSM	1.49	1.52	1.95	2.48	2.89	3.08	3.97	3.68	2.56	1.86	1.73	1.64
IN.	1.71	1.70	2.26	2.86	3.11	3.55	4.43	4.25	2.85	2.15	1.99	1.83
AC-FT	5760	5690	7590	9600	10460	11930	14870	14280	9560	7220	6680	6150

CAL YR 1979 TOTAL 61066 MEAN 167 MAX 775 MIN 88 CFSM 2.65 IN 36.06 AC-FT 121100
WTR YR 1980 TOTAL 55351 MEAN 151 MAX 460 MIN 88 CFSM 2.40 IN 32.68 AC-FT 109800

NOTE.--No gage-height record Mar. 25 to Apr. 23.

WALLA WALLA RIVER BASIN

14010800 NORTH FORK WALLA WALLA RIVER NEAR MILTON-FREEWATER, OR

LOCATION.--Lat 45°53'06", long 118°11'06", in SE¼NW¼ sec.28, T.5 N., R.37 E., Umatilla County, Hydrologic Unit 17070102, on right bank 2.8 mi (4.5 km) downstream from Little Meadow Canyon, 8.9 mi (14.3 km) southeast of Milton-Freewater, and at mile 5.6 (9.0 km).

DRAINAGE AREA.--34.4 mi² (89.1 km²).

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,940 ft (591 m), from topographic map.

REMARKS.--Records good except those for November, December, June, and July, which are fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--11 years, 52.5 ft³/s (1.487 m³/s), 20.73 in/yr (527 mm/yr), 38,040 acre-ft/yr (46.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,040 ft³/s (29.5 m³/s) Jan. 25, 1975, gage height, 6.58 ft (2.006 m), from rating curve extended above 400 ft³/s (11.3 m³/s) on basis of discharge measurement at gage height 5.67 ft (1.728 m) and slope-area measurement at gage height 6.30 ft (1.920 m); minimum, 3.9 ft³/s (0.11 m³/s) July 19-21, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 240 ft³/s (6.80 m³/s) Jan. 13, gage height, 4.64 ft (1.414 m), no peak above base of 300 ft³/s (8.50 m³/s); minimum, 4.5 ft³/s (0.13 m³/s) Oct. 1, Sept. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	8.0	14	15	26	159	47	76	75	20	6.9	4.9
2	4.7	7.7	18	15	28	139	45	76	65	19	6.7	5.1
3	4.9	7.7	37	17	34	123	44	69	55	19	6.7	5.1
4	5.6	8.0	62	25	36	143	44	65	50	18	6.7	5.1
5	8.7	7.4	40	129	37	141	54	60	45	18	6.7	4.9
6	10	7.4	34	118	43	123	68	64	40	18	6.7	4.7
7	10	7.7	32	73	57	106	64	52	35	18	6.7	4.7
8	9.5	7.2	34	50	53	93	58	44	32	18	6.1	4.7
9	9.0	7.2	29	41	48	87	75	52	30	17	6.1	4.7
10	8.9	7.2	25	36	44	82	92	45	29	16	6.1	4.7
11	8.7	7.0	22	52	42	103	92	41	29	16	5.9	4.7
12	8.4	7.0	21	156	39	102	96	37	30	15	5.9	4.7
13	8.4	7.0	20	198	37	95	116	38	32	14	5.9	6.7
14	8.4	7.0	18	139	34	97	161	36	30	14	5.9	6.4
15	9.0	7.4	18	128	32	103	190	36	28	14	5.9	5.4
16	8.7	10	20	120	30	92	192	34	28	13	5.9	5.1
17	8.6	15	22	110	33	81	202	32	27	13	5.9	4.9
18	9.0	17	23	102	120	74	210	31	27	12	7.7	4.5
19	11	16	24	79	218	66	210	30	27	12	7.7	4.5
20	9.6	15	26	58	222	63	198	29	27	11	6.4	4.7
21	9.4	14	25	48	186	76	196	29	27	11	5.9	5.6
22	9.3	14	23	42	139	85	174	30	27	11	5.6	5.4
23	9.2	14	21	37	107	93	147	28	28	11	5.6	5.1
24	9.5	15	20	35	88	85	128	28	27	10	5.4	5.1
25	10	16	19	34	77	73	112	30	26	10	5.1	4.7
26	11	16	18	31	92	65	110	95	25	10	5.1	4.7
27	9.7	15	17	26	129	57	110	100	24	8.7	4.9	4.7
28	8.7	14	16	25	168	50	113	100	23	7.2	4.9	4.7
29	8.4	13	15	24	184	49	116	100	22	7.2	4.9	4.7
30	8.4	13	15	24	---	48	93	95	20	7.2	4.9	4.7
31	8.4	---	15	25	---	47	---	85	---	6.9	4.9	---
TOTAL	267.6	327.9	743	2012	2383	2800	3557	1667	990	415.2	185.7	149.6
MEAN	8.63	10.9	24.0	64.9	82.2	90.3	119	53.8	33.0	13.4	5.99	4.99
MAX	11	17	62	198	222	159	210	100	75	20	7.7	6.7
MIN	4.5	7.0	14	15	26	47	44	28	20	6.9	4.9	4.5
CFSM	.25	.32	.70	1.89	2.39	2.63	3.46	1.56	.96	.39	.17	.15
IN.	.29	.35	.80	2.18	2.58	3.03	3.85	1.80	1.07	.45	.20	.16
AC-FT	531	650	1470	3990	4730	5550	7060	3310	1960	824	368	297

CAL YR 1979 TOTAL 17224.9 MEAN 47.2 MAX 332 MIN 4.1 CFSM 1.37 IN 18.63 AC-FT 34170
WTR YR 1980 TOTAL 15498.0 MEAN 42.3 MAX 222 MIN 4.5 CFSM 1.23 IN 16.76 AC-FT 30740

NOTE.--No gage-height record May 23 to July 20.

14019200 COLUMBIA RIVER AT McNARY DAM, NEAR UMATILLA, OR

LOCATION.--Lat 45°56'05", long 119°17'45", in NE¼ sec.10, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070101, in powerhouse forebay between generator units 2 and 3 at McNary Dam, 2.5 mi (4.0 km) northeast of Umatilla, 3.0 mi (4.8 km) upstream from Umatilla River, and at mile 292.0 (469.8 km).

DRAINAGE AREA.--214,000 mi² (554,300 km²), approximately.

PERIOD OF RECORD.--October 1950 to current year. Gage-height records collected at site at Umatilla since 1876 are contained in reports of National Weather Service. Prior to October 1966, published as "below McNary Dam."

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1966, at site 1.2 mi (1.9 km) downstream (tailwater) at 240.04 ft (73.164 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records computed from power output and flow over spillway at McNary dam. Considerable regulation by many reservoirs upstream. Diurnal fluctuation caused by powerplant and gates at McNary Dam since beginning of operation in April 1953. Many diversions for irrigation above station.

COOPERATION.--Daily discharge and midnight forebay elevation records furnished by Corps of Engineers. Two discharge measurements made and records reviewed by Geological Survey.

AVERAGE DISCHARGE.--30 years, 182,500 ft³/s (5,168 m³/s), 132,200,000 acre-ft/yr (163 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 818,000 ft³/s (23,200 m³/s) June 2, 1956, elevation, 277.01 ft (84.433 m), at site 1.2 mi (1.9 km) downstream; maximum daily discharge, 798,000 ft³/s (22,600 m³/s) June 2, 1956; minimum daily discharge, 39,500 ft³/s (1,120 m³/s) July 10, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1894, reached an elevation of 284.2 ft (86.62 m), and that of May 31, 1948, reached an elevation of about 280 ft (85.3 m), both at site 1.2 mi (1.9 km) downstream from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 330,000 ft³/s (9,350 m³/s) June 17; maximum midnight forebay elevation, 339.9 ft (103.60 m) May 14, June 6; minimum daily discharge, 47,500 ft³/s (1,350 m³/s) Apr. 13; minimum midnight forebay elevation, 336.5 ft (102.57 m) Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84100	133000	136000	102000	160000	107000	146000	255000	286000	203000	138000	79600
2	113000	131000	94800	124000	117000	85900	127000	243000	298000	193000	115000	112000
3	106000	112000	119000	146000	92700	122000	114000	241000	303000	165000	99400	124000
4	117000	78800	121000	170000	119000	150000	115000	231000	285000	176000	125000	114000
5	102000	116000	134000	122000	146000	153000	125000	237000	267000	192000	132000	122000
6	99400	114000	149000	131000	160000	152000	73600	261000	286000	188000	115000	94300
7	63900	122000	132000	161000	142000	160000	144000	296000	287000	193000	132000	68200
8	87700	132000	129000	173000	133000	123000	126000	261000	290000	177000	118000	108000
9	104000	133000	82900	176000	129000	114000	136000	267000	289000	203000	107000	104000
10	101000	116000	148000	166000	103000	131000	150000	247000	287000	191000	88500	100000
11	124000	106000	167000	172000	135000	156000	132000	232000	292000	187000	130000	98400
12	93100	142000	164000	122000	157000	157000	102000	228000	305000	131000	123000	102000
13	111000	142000	158000	92400	160000	150000	47500	224000	308000	123000	115000	88100
14	76400	162000	148000	137000	174000	147000	126000	228000	300000	154000	144000	71900
15	111000	136000	112000	149000	171000	126000	132000	231000	277000	188000	132000	91800
16	97300	143000	109000	133000	140000	122000	132000	241000	285000	156000	114000	110000
17	100000	135000	157000	144000	120000	152000	141000	241000	330000	148000	98800	116000
18	121000	106000	133000	148000	125000	156000	148000	222000	317000	144000	113000	124000
19	131000	153000	139000	147000	138000	131000	122000	180000	328000	146000	127000	110000
20	121000	134000	121000	109000	150000	152000	118000	227000	293000	139000	119000	91700
21	85500	156000	145000	137000	153000	112000	160000	225000	292000	167000	105000	77900
22	116000	141000	122000	140000	152000	86600	166000	250000	270000	152000	110000	91000
23	116000	121000	120000	156000	106000	80500	170000	305000	302000	151000	115000	115000
24	111000	128000	132000	132000	114000	113000	166000	271000	298000	137000	57700	105000
25	108000	96900	63900	144000	122000	149000	162000	227000	295000	137000	112000	102000
26	110000	127000	135000	163000	116000	137000	190000	232000	258000	127000	140000	117000
27	75400	145000	135000	130000	128000	136000	167000	247000	241000	105000	130000	113000
28	84000	163000	140000	173000	111000	130000	199000	264000	227000	134000	120000	74100
29	122000	155000	132000	188000	146000	106000	240000	285000	212000	132000	118000	105000
30	121000	156000	95300	184000	---	97700	236000	275000	215000	141000	117000	135000
31	116000	---	116000	180000	---	116000	---	280000	---	136000	103000	---
TOTAL	3228800	3935700	3989900	4551400	3919700	4010700	4313100	7654000	8523000	4916000	3613400	3063000
MEAN	104200	131200	128700	146800	135200	129400	143800	246900	284100	158600	116600	102100
MAX	131000	163000	167000	188000	174000	160000	240000	305000	330000	203000	144000	133000
MIN	63900	78800	63900	92400	92700	80500	47500	180000	212000	105000	57700	68200
AC-FT	6404000	7806000	7914000	9028000	7775000	7955000	8555000	15180000	16910000	9751000	7167000	6075000
CAL YR 1979	TOTAL	52559500	MEAN	144000	MAX	293000	MIN	58100	AC-FT	104300000		
WTR YR 1980	TOTAL	55718700	MEAN	152200	MAX	330000	MIN	47500	AC-FT	110500000		

LOWER COLUMBIA RIVER BASIN

14019250 COLUMBIA RIVER AT UMATILLA, OR

LOCATION.--Lat 45°55'53", long 119°19'39", in SW¼NW¼ sec.9, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070101, near center span on upstream side of bridge at Umatilla, and at mile 290.5 (467.4 km).

DRAINAGE AREA.--214,000 mi² (554,300 km²), approximately.

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW (CFS)	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	OXYGEN, DIS- SOLVED (MG/L)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT										
10...	0900	101000	17.4	7.6	9.5	170	K4	13	.13	.60
NOV										
15...	1000	136000	10.8	7.7	10.8	169	K2	8	.30	.62
DEC										
19...	0900	139000	6.5	8.0	9.8	206	K4	15	.41	.41
FEB										
13...	1000	160000	2.5	8.0	13.2	185	K1	6	.42	.33
APR										
18...	1000	148000	9.4	7.8	12.0	187	K8	7	.38	.37
MAY										
13...	1120	224000	12.4	7.5	11.6	160	K3	16	.13	.38
JUN										
10...	1830	287000	14.4	7.8	12.3	136	<1	1	.19	.37
AUG										
08...	1000	118000	19.8	8.4	8.8	133	K1	14	.00	.47
SEP										
24...	1000	105000	18.0	8.2	8.7	140	10	15	.10	.39

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	CYANIDE TOTAL (MG/L AS CN)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)
OCT									
10...	.100	.70	.83	.040	0	.00	4	0	50
NOV									
15...	.010	.63	.93	.040	3	.00	2	0	0
DEC									
19...	.010	.42	.83	.050	4	.01	--	0	0
FEB									
13...	.110	.44	.86	.020	6	.00	0	0	40
APR									
18...	.040	.41	.79	.070	6	.00	4	0	40
MAY									
13...	.020	.40	.53	.030	32	.00	2	0	30
JUN									
10...	.040	.41	.60	.040	13	.00	6	0	50
AUG									
08...	.040	.51	.51	.030	15	.00	0	0	30
SEP									
24...	.000	.39	.49	.030	16	.00	7	0	50

14020000 UMATILLA RIVER ABOVE MEACHAM CREEK, NEAR GIBBON, OR

LOCATION.--Lat 45°43'11", long 118°19'20", in SE¼SW¼ sec.21, T.3 N., R.36 E., Umatilla County, Hydrologic Unit 17070103, Umatilla Indian Reservation, on right bank 0.8 mi (1.3 km) downstream from Ryan Creek, 2.2 mi (3.5 km) upstream from Meacham Creek, 2.5 mi (4.0 km) northeast of Gibbon, and at mile 83.1 (133.7 km).

DRAINAGE AREA.--131 mi² (339 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1933 to current year.

REVISED RECORDS.--WSP 1935: 1946-48(M), 1950(M), 1953(M), 1956-59(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,854.81 ft (565.346 m) National Geodetic Vertical Datum of 1929. Prior to June 27, 1939, at site 1 mi (2 km) downstream at datum 43.94 ft (13.393 m) lower.

REMARKS.--Water-discharge records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--47 years, 226 ft³/s (6.400 m³/s), 23.43 in/yr (595 mm/yr), 163,700 acre-ft/yr (202 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft³/s (168 m³/s) Jan. 25, 1975, gage height, 9.18 ft (2.798 m), from rating curve extended above 3,500 ft³/s (99.1 m³/s); maximum gage height, 9.50 ft (2.896 m) Jan. 29, 1965; minimum discharge, 16 ft³/s (0.45 m³/s) Nov. 9, 1965, momentary regulation from unknown source.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,070 ft³/s (30.3 m³/s) Jan. 14, gage height, 4.77 ft (1.454 m), no peak above base of 1,400 ft³/s (39.6 m³/s); minimum, 41 ft³/s (1.16 m³/s) Aug. 9, Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	56	76	82	105	520	240	371	327	77	46	45
2	50	55	88	80	129	445	221	381	330	77	46	49
3	51	55	132	81	163	420	208	358	298	76	47	47
4	52	57	341	84	176	530	209	346	267	73	47	45
5	51	63	345	264	180	505	248	341	243	71	46	44
6	51	61	226	272	193	430	295	343	226	68	45	44
7	52	59	185	203	239	374	273	291	204	66	45	44
8	51	57	168	170	226	345	249	264	181	64	45	44
9	51	57	156	145	203	317	301	270	167	65	44	43
10	52	57	153	132	188	345	394	251	154	72	45	45
11	50	56	134	117	175	345	373	233	143	63	45	47
12	50	55	118	245	162	329	375	215	145	60	45	46
13	51	54	103	659	152	325	477	201	151	59	46	61
14	52	54	94	873	145	337	629	189	145	59	46	54
15	57	53	97	823	132	317	615	180	144	57	46	48
16	54	55	100	531	125	305	556	169	137	55	46	47
17	52	72	110	473	150	297	609	157	140	54	47	46
18	60	95	141	385	490	293	657	150	130	53	56	47
19	83	90	152	300	638	264	649	144	122	52	54	48
20	70	82	145	246	704	265	646	139	115	52	51	53
21	71	78	137	210	584	311	706	135	107	52	48	51
22	64	78	128	182	450	342	655	134	104	50	47	48
23	70	84	115	166	357	362	579	122	110	49	45	46
24	65	91	108	158	305	327	520	120	98	49	45	46
25	66	92	105	152	281	289	469	136	96	48	44	46
26	69	91	97	142	325	274	456	483	100	47	44	46
27	64	85	91	120	500	257	464	564	100	48	44	45
28	60	75	88	100	632	241	489	610	91	48	44	45
29	59	70	85	95	614	242	550	510	84	47	44	45
30	58	70	83	95	---	244	434	410	80	46	44	45
31	56	---	81	95	---	246	---	331	---	46	46	---
TOTAL	1795	2057	4182	7680	8723	10443	13546	8548	4739	1803	1433	1410
MEAN	57.9	68.6	135	248	301	337	452	276	158	58.2	46.2	47.0
MAX	83	95	345	875	704	530	706	610	330	77	56	61
MIN	50	53	76	80	105	241	208	120	80	46	44	43
CFSM	.44	.52	1.03	1.89	2.30	2.57	3.45	2.11	1.21	.44	.35	.36
IN.	.51	.58	1.19	2.18	2.48	2.97	3.85	2.43	1.35	.51	.41	.40
AC-FT	3560	4080	8290	15230	17300	20710	26870	16950	9400	3580	2840	2800
CAL YR 1979	TOTAL	80610	MEAN 221	MAX	1620	MIN 40	CFSM 1.69	IN 22.89	AC-FT	159900		
WTR YR 1980	TOTAL	66359	MEAN 181	MAX	873	MIN 43	CFSM 1.38	IN 18.84	AC-FT	131600		

UMATILLA RIVER BASIN

14020000 UMATILLA RIVER ABOVE MEACHAM CREEK, NEAR GIBBON, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: June 1959 to September 1980 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 25.0°C July 13, 15, 21, 1961, July 21, 22, 1980; minimum, 0.0°C on several days during winter period in 1960, 1962-64, 1968, 1969, 1973.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 25.0°C July 21, 22; minimum recorded, 3.0°C Jan. 8-10.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	14.5	12.0	9.0	8.0	4.5	4.5	5.5	5.0	---	---	6.0	5.5
2	14.5	12.0	8.5	7.0	5.5	4.5	5.5	5.0	---	---	6.5	5.5
3	13.5	11.0	8.5	8.0	6.5	5.5	5.5	5.0	---	---	6.0	5.5
4	14.0	11.0	9.5	8.5	6.5	6.0	5.5	5.0	---	---	6.0	5.5
5	14.5	11.5	9.5	9.0	6.0	5.5	5.5	5.0	---	---	5.5	4.5
6	14.5	11.5	9.5	9.0	6.0	5.5	5.0	4.0	---	---	5.0	4.0
7	14.5	13.0	9.0	8.5	5.5	5.5	4.5	3.5	4.5	4.5	5.0	4.5
8	13.5	11.5	9.0	8.5	5.5	5.5	4.0	3.0	5.0	4.5	5.5	4.5
9	13.0	11.0	8.5	8.0	6.0	5.5	3.5	3.0	5.0	4.5	5.0	4.5
10	13.0	10.5	8.0	6.0	6.0	4.5	3.5	3.0	4.5	4.5	6.5	4.5
11	13.0	10.5	7.0	6.0	4.5	4.0	3.5	3.5	4.5	4.5	6.0	5.0
12	12.0	10.5	6.5	6.0	4.5	4.5	4.0	3.5	4.5	4.5	5.5	4.5
13	12.0	10.5	6.5	6.5	5.0	4.5	4.0	4.0	4.5	4.5	5.5	4.5
14	13.0	11.0	6.5	6.5	4.5	4.5	4.5	4.0	4.5	4.0	5.0	4.5
15	13.0	12.0	6.5	6.0	5.0	4.5	4.5	4.5	4.5	4.0	5.0	4.0
16	12.0	11.0	7.0	6.0	5.0	4.5	5.5	4.5	4.5	4.0	5.5	4.0
17	12.0	11.0	8.0	7.0	6.0	4.5	5.0	5.0	5.0	4.0	5.0	4.5
18	11.0	10.5	8.0	6.0	6.0	5.5	5.5	4.5	4.5	4.0	6.0	4.5
19	11.0	10.5	6.5	6.0	6.0	6.0	4.5	4.0	5.0	4.0	6.5	5.5
20	11.0	10.5	6.0	5.5	6.0	5.5	4.5	4.0	5.0	4.5	6.0	5.5
21	11.0	10.5	5.5	5.0	6.0	5.5	4.5	4.5	5.0	4.5	6.0	5.0
22	10.5	10.5	5.5	5.0	5.5	4.5	4.5	4.0	5.0	4.5	8.0	5.0
23	11.0	10.5	5.5	5.0	4.5	4.0	4.5	4.0	5.0	4.5	6.5	5.5
24	11.0	11.0	5.5	5.5	5.0	4.0	4.5	4.5	6.0	4.5	6.5	5.5
25	11.5	11.0	6.0	5.5	5.0	4.5	4.5	4.0	6.0	5.0	7.0	4.5
26	11.5	11.0	6.0	5.0	5.0	4.5	---	---	6.5	6.0	5.5	4.5
27	11.5	10.5	5.5	5.0	4.5	4.0	---	---	6.0	6.0	6.5	4.5
28	11.0	10.0	5.0	3.5	4.0	4.0	---	---	6.0	5.5	6.5	4.5
29	10.5	9.5	4.0	3.5	4.5	4.0	---	---	6.0	5.5	6.0	5.5
30	9.5	9.0	4.5	4.0	4.0	4.0	---	---	---	---	6.5	4.5
31	9.5	9.0	---	---	5.0	4.0	---	---	---	---	5.5	4.5
MONTH	14.5	9.0	9.5	3.5	6.5	4.0	5.5	3.0	6.5	4.0	8.0	4.0

UMATILLA RIVER BASIN

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14020000 UMATILLA RIVER ABOVE MEACHAM CREEK, NEAR GIBBON, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	6.5	4.5	10.5	5.5	9.0	8.0	21.5	13.5	21.5	15.0	15.5	11.0
2	7.0	4.0	9.5	7.0	8.0	7.0	18.0	14.5	21.0	14.5	15.0	13.0
3	8.0	4.5	11.0	6.0	9.0	6.5	18.0	13.0	21.0	15.0	15.5	10.5
4	8.0	5.5	11.5	6.5	10.0	6.5	15.5	13.5	21.0	13.5	16.0	10.5
5	6.5	5.5	10.5	7.0	10.0	6.5	18.5	13.5	20.5	14.5	16.5	11.0
6	6.0	5.0	8.5	7.0	9.5	6.5	21.0	13.5	20.5	13.5	16.5	11.5
7	7.0	4.5	8.5	6.5	11.5	8.0	21.0	14.5	21.0	14.0	16.0	11.5
8	7.0	5.5	10.5	6.5	14.5	8.5	21.0	15.5	20.5	14.5	15.5	11.0
9	7.0	5.5	9.0	6.5	15.0	9.5	22.0	15.5	21.0	14.5	16.5	11.0
10	6.0	5.0	8.0	7.0	13.5	9.0	21.0	14.5	21.5	14.5	15.0	13.0
11	8.5	4.5	11.0	7.0	14.5	9.0	21.5	14.0	21.5	15.5	16.0	11.5
12	9.0	5.0	9.5	6.5	11.0	9.5	19.5	15.5	21.5	15.0	14.0	11.5
13	9.0	5.5	11.5	7.0	11.0	9.5	21.5	14.0	21.0	15.0	13.5	11.5
14	7.0	6.0	8.5	7.0	11.0	10.0	19.0	15.5	20.0	14.5	15.0	11.0
15	8.5	5.5	10.0	7.0	13.0	9.5	22.0	15.0	19.5	14.0	14.0	10.0
16	9.0	5.0	10.5	7.0	16.5	9.5	22.0	14.5	19.5	13.5	14.5	10.0
17	9.0	6.0	12.0	6.5	16.5	10.5	22.0	14.5	17.0	13.5	14.0	10.0
18	9.0	5.5	11.5	7.0	16.5	10.0	21.0	14.5	16.0	13.5	13.0	10.5
19	9.0	5.5	13.5	8.5	18.5	10.5	22.0	14.5	19.0	13.0	13.0	10.5
20	7.0	6.0	14.5	8.5	19.0	11.5	23.5	15.0	19.0	13.0	12.0	11.0
21	6.5	6.0	13.5	9.0	19.0	11.5	25.0	15.5	18.5	11.5	11.0	10.0
22	6.5	6.0	10.0	8.0	15.0	12.0	25.0	17.0	18.5	12.0	11.0	8.5
23	6.5	6.0	9.5	7.0	15.5	11.5	23.5	16.5	18.5	12.0	12.0	10.0
24	7.0	6.0	8.5	7.0	16.0	11.0	23.0	15.0	18.0	12.0	11.5	8.5
25	9.0	5.0	8.0	7.0	14.5	13.0	23.5	15.5	16.5	11.0	11.5	8.0
26	10.0	5.5	7.0	6.0	13.5	11.5	23.0	15.0	17.0	11.0	11.0	9.0
27	10.0	6.0	8.0	6.5	15.0	11.0	23.5	15.0	15.5	13.0	12.0	9.0
28	9.0	6.5	8.5	6.5	19.5	11.0	23.5	15.0	15.5	12.0	11.5	9.5
29	7.0	6.0	9.5	6.0	19.0	12.0	23.0	16.0	15.0	10.0	12.0	9.0
30	6.5	5.0	9.5	6.5	19.5	11.5	22.0	14.5	14.0	10.5	11.5	9.5
31	---	---	11.0	6.5	---	---	21.5	15.0	14.5	13.0	---	---
MONTH	10.0	4.0	14.5	5.5	19.5	6.5	25.0	13.0	21.5	10.0	16.5	8.0

UMATILLA RIVER BASIN

14020300 MEACHAM CREEK AT GIBBON, OR

LOCATION.--Lat 45°41'20", long 118°21'20", in SE¼SE¼ sec.31, T.3. N., R.36 E., Umatilla County, Hydrologic Unit 17070103, on left bank 250 ft (76 m) downstream from Union Pacific railroad bridge, 0.9 mi (1.4 km) southeast of Gibbon, and at mile 1.4 (2.3 km).

DRAINAGE AREA.--176 mi² (456 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,803.05 ft (549.570 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--5 years, 184 ft³/s (5.211 m³/s), 14.20 in/yr (361 mm/yr), 133,300 acre-ft (164 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,770 ft³/s (107 m³/s) Dec. 14, 1977, gage height, 6.37 ft (1.942 m), from floodmark; minimum, 7.1 ft³/s (0.20 m³/s) Aug. 11-14, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 25, 1975, reached a stage of 7.21 ft (2.198 m), from floodmark, discharge, about 8,200 ft³/s (230 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 912 ft³/s (25.8 m³/s) Jan. 15, gage height, 4.34 ft (1.323 m), no peak above base of 1,600 ft³/s (45.3 m³/s); minimum, 8.2 ft³/s (0.23 m³/s) Oct. 5-7, 12-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.1	20	45	59	100	635	274	306	340	56	15	11
2	9.1	19	52	57	110	536	254	290	368	53	15	12
3	9.1	19	64	57	122	511	235	261	332	51	15	11
4	9.1	19	115	56	130	549	226	235	298	49	15	11
5	8.7	21	267	122	132	572	282	218	279	45	14	10
6	8.7	20	218	211	144	495	377	226	282	42	14	10
7	8.7	20	176	192	176	430	364	188	267	38	14	10
8	8.7	20	160	173	188	377	340	165	242	37	13	10
9	9.1	20	152	142	186	340	401	182	207	36	13	10
10	10	20	175	126	178	315	545	211	178	37	13	11
11	9.1	20	156	107	171	349	519	213	152	34	12	11
12	8.7	20	132	167	161	340	536	201	149	32	13	14
13	8.2	19	109	422	154	326	630	182	152	31	12	19
14	9.1	19	95	687	145	332	810	167	149	29	12	16
15	11	19	89	837	135	338	783	156	152	29	12	15
16	11	19	95	615	127	317	657	144	147	28	12	14
17	11	25	100	540	134	306	630	129	149	26	12	13
18	13	57	169	475	361	304	625	116	135	24	15	14
19	20	59	194	374	532	277	596	106	122	24	13	14
20	18	63	186	290	640	285	577	96	112	22	13	16
21	21	62	169	245	620	355	601	90	100	21	13	16
22	21	62	151	205	515	371	572	86	94	20	13	15
23	22	65	129	176	411	430	495	82	99	19	13	15
24	22	50	115	161	340	411	426	78	86	19	12	15
25	23	54	106	152	306	358	358	82	82	19	11	14
26	24	57	93	140	401	332	323	176	80	18	11	14
27	24	53	83	118	640	309	309	306	77	17	11	14
28	23	52	76	90	789	274	332	471	69	16	11	14
29	22	49	70	92	789	269	426	487	64	16	11	14
30	21	47	65	94	---	274	355	422	58	16	11	14
31	21	---	60	98	---	279	---	352	---	15	11	---
TOTAL	453.4	1069	3866	7280	8837	11596	13858	6424	5021	919	395	397
MEAN	14.6	35.6	125	235	305	374	462	207	167	29.6	12.7	13.2
MAX	24	65	267	837	789	635	810	487	368	56	15	19
MIN	8.2	19	45	56	100	269	226	78	58	15	11	10
CFSM	.08	.20	.71	1.34	1.73	2.13	2.63	1.18	.95	.17	.07	.08
IN.	.10	.23	.82	1.54	1.87	2.45	2.93	1.36	1.06	.19	.08	.08
AC-FT	899	2120	7670	14440	17530	23000	27490	12740	9960	1820	783	787
CAL YR 1979 TOTAL	75480.8			MEAN 207	MAX 1460	MIN 8.2	CFSM 1.18	IN 15.95	AC-FT 149700			
WTR YR 1980 TOTAL	60115.4			MEAN 164	MAX 837	MIN 8.2	CFSM .93	IN 12.71	AC-FT 119200			

UMATILLA RIVER BASIN

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14020300 MEACHAM CREEK AT GIBBON, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May to July 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	SILICA, DIS- SOLVED (MG/L AS SI02)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CAC03)
MAY											
26...	0800	158	8.0	7.2	52	31	5.1	1.8	2.7	1.6	21
JUN											
03...	0930	331	9.0	7.2	49	31	4.5	1.9	2.6	1.5	23
10...	0930	203	11.5	7.4	51	32	4.9	1.9	2.8	1.6	25
14...	0805	158	11.0	7.2	52	31	5.0	1.9	2.9	1.7	25
JUL											
15...	1005	28	16.0	8.0	67	34	6.1	2.4	3.4	2.1	34

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)
MAY											
26...	.8	4.2	.0	.78	.01	.53	.000	.02	.55	.030	.040
JUN											
03...	2.9	.1	.1	.27	.01	.37	.000	.00	.37	.010	.030
10...	.7	.1	.0	.29	.00	.92	.000	.01	.93	.010	.030
14...	.8	.2	.1	.23	.00	.33	.000	.01	.34	.020	.030
JUL											
15...	2.1	.7	.2	.38	.00	1.1	.010	.00	1.1	.020	.020

DATE	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE (MG/L AS C)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L CAC03)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	TUR- BID- ITY (NTU)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAY										
26...	2.0	.3	20	0	58	60	3.5	--	--	--
JUN										
03...	2.4	.1	19	0	61	59	3.2	6	5.4	62
10...	3.5	.2	20	0	58	60	1.9	6	3.3	58
14...	3.9	.2	20	0	56	59	1.6	--	--	--
JUL										
15...	1.4	.1	25	0	76	71	.60	--	--	--

UMATILLA RIVER BASIN

14020300 MEACHAM CREEK AT GIBBON, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	ARSENIC TOTAL (UG/L AS AS)	BARIIUM, DIS- SOLVED (UG/L AS BA)	BARIIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, DIS- SOLVED (UG/L AS B)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
MAY 26...	0	0	<100	0	--	--	0	0	0	0
JUN 03...	2	4	<100	0	20	30	1	1	10	10
10...	2	2	<100	0	20	40	<1	0	0	10
14...	2	1	<100	0	20	70	<1	0	0	10

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)
MAY 26...	0	0	2	4	210	300	0	2	6	10
JUN 03...	<3	0	<10	4	91	270	0	0	3	10
10...	<3	0	<10	3	100	180	0	4	1	10
14...	<3	0	<10	2	60	180	0	0	<1	10

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SILVER, DIS- SOLVED (UG/L AS AG)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ANTI- MONY, DIS- SOLVED (UG/L AS SB)	ANTI- MONY, TOTAL RECOV- ERABLE (UG/L AS SB)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)
MAY 26...	1	2	0	0	3	40	--	--	--	--
JUN 03...	3	4	0	0	9	20	0	0	50	160
10...	0	0	0	0	<3	10	0	0	110	130
14...	0	0	0	0	<3	30	0	0	60	310

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	LITHIUM TOTAL RECOV- ERABLE (UG/L AS LI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	MERCURY DIS- SOLVED (UG/L AS HG)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
MAY 26...	--	--	0	0	--	--	--	--	--
JUN 03...	<4	0	0	0	.0	.0	<1	26	7.0
10...	<4	0	0	0	.0	.0	<1	26	<6.0
14...	<4	0	0	0	.0	.0	<1	27	<6.0

14021000 UMATILLA RIVER AT PENDLETON, OR

LOCATION.--Lat 45°40'20", long 118°47'30", in NW¼ sec.10, T.2 N., R.32 E., Umatilla County, Hydrologic Unit 17070103, on wingwall 0.3 mi (0.5 km) downstream from Main Street bridge at Pendleton, 1.5 mi (2.4 km) downstream from Wildhorse Creek, 2.8 mi (4.5 km) upstream from McKay Creek, and at mile 55.2 (88.8 km).

DRAINAGE AREA.--637 mi² (1,650 km²).

PERIOD OF RECORD.--February 1891 to July 1892, May 1903 to June 1905 (gage heights and discharge measurements only June to December 1904), October 1934 to current year. Monthly discharge only February 1891 to July 1892, published in WSP 1318.

REVISED RECORDS.--WSP 1398: 1904, 1937.

GAGE.--Water-stage recorder. Datum of gage is 1,054.3 ft (321.35 m) National Geodetic Vertical Datum of 1929 (levels by Oregon Department of Transportation). Apr. 24 to Aug. 26, 1959, nonrecording gage and Aug. 27, 1959, to Feb. 4, 1965, water-stage recorder at 8th Street Bridge 0.7 mi (1.1 km) upstream at datum of 1,067.01 ft (325.225 m) National Geodetic Vertical Datum of 1929. Feb. 5 to Nov. 18, 1965, nonrecording gage at Main Street Bridge 1,600 ft (2,574.4 m) upstream at different datum. Nov. 19, 1965, to Sept. 30, 1969, water-stage recorder at 8th Street Bridge 0.7 mi (1.1 km) upstream at datum of 1,067.60 ft (325.404 m) National Geodetic Vertical Datum of 1929 Nov. 19, 1965, to Mar. 28, 1967, and at datum of 1,064.02 ft (324.313 m) National Geodetic Vertical Datum of 1929 Mar. 29, 1967, to Sept. 30, 1969. See WSP 1738 for history of changes prior to Apr. 24, 1959.

REMARKS.--Records good. No regulation. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--46 years (water years 1935-80), 498 ft³/s (14.10 m³/s), 360,800 acre-ft/yr (445 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft³/s (439 m³/s) Jan. 30, 1965, gage height, 9.40 ft (2.865 m), datum then in use; minimum, 10 ft³/s (0.28 m³/s) July 13-16, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 17,000 ft³/s (481 m³/s) Dec. 14, 1882 (date and discharge from data furnished by Corps of Engineers). Flood of May 30, 31, 1906, reached a stage of 11.0 ft (3.35 m), 1934-58 site and datum, but before channel was improved, discharge, 15,500 ft³/s (439 m³/s), estimated by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,040 ft³/s (57.8 m³/s) Jan. 14, gage height, 5.70 ft (1.737 m), no peak above base of 3,500 ft³/s (99.1 m³/s); minimum, 35 ft³/s (0.99 m³/s) Aug. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	86	155	180	200	1260	689	737	753	128	48	54
2	42	86	162	175	200	1080	673	753	804	125	46	52
3	43	84	212	175	270	975	611	689	737	128	48	56
4	43	89	446	180	400	996	598	641	673	125	51	52
5	46	91	937	371	468	1100	673	673	598	122	48	52
6	46	91	705	753	457	1060	823	689	557	115	48	43
7	48	89	557	611	544	937	823	598	530	109	46	43
8	46	86	468	544	584	861	785	530	490	109	46	51
9	48	86	424	450	557	823	823	544	413	109	46	49
10	49	86	424	360	517	753	1020	557	371	102	42	43
11	48	86	402	319	457	823	1020	517	310	99	42	52
12	46	84	345	737	424	823	975	517	302	94	46	51
13	48	84	302	1540	371	804	1100	468	328	91	46	79
14	56	84	257	1620	345	823	1320	446	319	86	43	86
15	58	82	236	1730	319	861	1340	413	319	84	46	77
16	59	84	250	1390	293	842	1230	391	310	79	46	65
17	63	96	243	1210	279	823	1190	354	302	77	48	65
18	65	153	319	1020	657	769	1260	328	286	68	54	56
19	89	175	402	823	996	804	1230	293	257	68	63	61
20	102	170	402	673	1300	705	1230	265	236	67	59	67
21	99	162	380	571	1300	1060	1280	243	222	63	54	72
22	96	162	354	490	1080	1040	1280	236	206	63	51	68
23	94	170	319	413	880	1080	1130	229	217	59	51	67
24	96	186	286	371	753	937	937	222	196	56	49	65
25	94	206	279	345	705	842	804	222	180	54	46	61
26	99	212	250	319	721	785	804	611	175	54	48	61
27	99	190	229	250	1020	753	753	975	180	54	43	58
28	94	170	217	206	1260	705	861	1130	166	51	49	54
29	91	160	206	200	1390	689	1020	1060	153	49	52	56
30	91	155	191	200	---	689	842	918	141	49	52	48
31	89	---	186	200	---	689	---	823	---	49	52	---
TOTAL	2133	3745	10545	18426	18747	27191	29124	17072	10731	2586	1509	1764
MEAN	68.8	125	340	594	646	877	971	551	358	83.4	48.7	58.8
MAX	102	212	937	1730	1390	1260	1340	1130	804	128	63	86
MIN	42	82	155	175	200	689	598	222	141	49	42	43
AC-FT	4230	7430	20920	36550	37180	55930	57770	33860	21280	5130	2990	3500

CAL YR 1979 TOTAL 181860 MEAN 498 MAX 3500 MIN 33 AC-FT 360700
WTR YR 1980 TOTAL 143573 MEAN 392 MAX 1730 MIN 42 AC-FT 284800

UMATILLA RIVER BASIN

14022200 NORTH FORK MCKAY CREEK NEAR PILOT ROCK, OR

LOCATION.--Lat 45°30'24", long 118°36'57", in NE¼SE¼ sec.1, T.1 S., R.33 E., Umatilla County, Hydrologic Unit 17070103, Umatilla Indian Reservation, on left bank 10 mi (16 km) northeast of Pilot Rock and at mile 0.5 (0.8 km).

DRAINAGE AREA.--48.6 mi² (125.9 km²).

PERIOD OF RECORD.--May 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,870 ft (570 m), from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--7 years, 43.1 ft³/s (1.221 m³/s), 31,230 acre-ft/yr (38.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,980 ft³/s (56.1 m³/s) Jan. 25, 1975, gage height, 8.48 ft (2.585 m), from floodmark, from rating curve extended above 150 ft³/s (4.25 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.30 ft³/s (0.008 m³/s) July 15, 1975 (result of temporary construction upstream).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 290 ft³/s (8.21 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Dec. 4	1430	*403	11.4	May 26	1900	357	10.1
Jan. 14	1830	375	10.6				3.25
							0.991

Minimum, 0.95 ft³/s (0.027 m³/s) Aug. 11-16, 24-27, Sept. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	6.4	19	14	27	140	90	18	92	5.9	1.2	1.2
2	1.1	6.2	27	14	35	119	83	16	89	5.6	1.2	1.3
3	1.1	5.9	65	14	50	103	77	15	73	5.6	1.2	1.2
4	1.0	6.2	178	16	66	95	81	13	61	5.1	1.2	1.1
5	1.0	8.3	138	108	69	86	94	13	52	4.7	1.1	1.0
6	1.0	8.6	89	103	73	74	97	16	44	4.4	1.2	1.0
7	1.1	8.6	67	67	109	70	83	13	38	4.2	1.1	1.0
8	1.1	8.3	54	54	101	67	77	12	33	4.0	1.1	1.0
9	1.1	7.9	46	49	87	63	100	18	28	3.8	1.1	1.0
10	1.1	7.2	42	39	74	61	103	19	24	3.6	1.1	1.1
11	1.1	6.7	33	32	63	84	89	19	21	3.2	1.0	1.2
12	1.1	6.2	28	140	55	80	83	17	23	3.0	1.0	1.4
13	1.1	5.9	24	334	49	77	78	17	27	2.8	1.0	2.1
14	1.2	5.4	21	305	43	83	75	16	26	2.8	1.0	1.7
15	2.0	5.1	23	227	37	86	66	16	25	2.6	1.0	1.6
16	1.7	5.1	25	157	32	81	57	16	23	2.5	1.0	1.5
17	1.5	12	30	150	46	81	50	14	23	2.3	1.0	1.4
18	1.6	44	37	114	117	84	45	13	20	2.1	1.3	1.5
19	4.7	41	37	89	119	86	40	11	17	2.0	1.3	1.5
20	6.2	37	37	67	192	101	37	11	16	2.0	1.2	1.7
21	11	34	36	57	155	167	37	9.8	14	1.9	1.1	1.7
22	10	31	32	47	126	188	34	9.4	13	1.7	1.0	1.6
23	9.8	44	28	41	105	186	31	8.6	14	1.6	1.0	1.6
24	9.8	45	25	38	92	148	27	8.6	11	1.6	1.0	1.6
25	9.8	40	25	37	87	124	25	9.8	10	1.5	1.0	1.5
26	9.8	37	22	31	133	116	22	262	11	1.5	1.0	1.5
27	9.4	32	20	26	159	109	20	302	9.8	1.4	1.0	1.5
28	9.0	29	18	22	184	100	19	201	8.3	1.4	1.0	1.5
29	8.3	25	17	23	172	101	23	133	7.2	1.3	1.1	1.5
30	7.6	21	16	24	---	101	19	95	6.7	1.3	1.1	1.5
31	7.0	---	15	25	---	98	---	70	---	1.3	1.2	---
TOTAL	134.4	580.0	1274	2464	2657	3159	1762	1412.2	860.0	88.7	33.8	42.0
MEAN	4.34	19.3	41.1	79.5	91.6	102	58.7	45.6	28.7	2.86	1.09	1.40
MAX	11	45	178	334	192	188	103	302	92	5.9	1.3	2.1
MIN	1.0	5.1	15	14	27	61	19	8.6	6.7	1.3	1.0	1.0
AC-FT	267	1150	2530	4890	5270	6270	3490	2800	1710	176	67	83
CAL YR 1979	TOTAL	16470.49	MEAN	45.1	MAX	463	MIN	.45	AC-FT	32670		
WTR YR 1980	TOTAL	14467.10	MEAN	39.5	MAX	334	MIN	1.0	AC-FT	28700		

14022500 MCKAY CREEK NEAR PILOT ROCK, OR

LOCATION.--Lat 45°32'57", long 118°46'24", in NW¼SE¼ sec.23, T.1 N., R.32 E., Umatilla County, Hydrologic Unit 17070103, on left bank 500 ft (152 m) upstream from county road bridge, 5.5 mi (8.8 km) northeast of Pilot Rock, and at mile 8.2 (13.2 km).

DRAINAGE AREA.--180 mi² (466 km²).

PERIOD OF RECORD.--May to August 1921, October 1926 to June 1928, December 1928 to July 1929, October 1929 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1398: 1928-29, 1933, 1940.

GAGE.--Water-stage recorder. Datum of gage is 1,343.60 ft (409.529 m) National Geodetic Vertical Datum of 1929. See WSP 1318 or 1738 for history of changes prior to Apr. 9, 1941. Apr. 9, 1941, to July 24, 1963, at site 1,000 ft (305 m) downstream at datum 7.92 ft (2.414 m) lower.

REMARKS.--Records good except those for January, which are fair. No regulation. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--52 years (water years 1927, 1930-80), 99.4 ft³/s (2.816 m³/s), 72,020 acre-ft/yr (88.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,400 ft³/s (210 m³/s) Jan. 30, 1965, gage height, 8.40 ft (2.560 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 840 ft³/s (23.8 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Jan. 14	-	*1,140 32.3	*4.63 1.411	May 27	2200	1,030 29.2	4.47 1.362
Mar. 22	2230	966 27.4	4.50 1.372				

Minimum, 0.88 ft³/s (0.025 m³/s) Oct. 11-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	15	55	35	45	454	283	105	329	24	2.6	2.0
2	2.1	14	91	35	55	349	252	94	355	21	2.6	1.9
3	2.1	13	192	37	65	292	229	75	293	20	2.8	2.1
4	2.1	14	423	40	75	284	227	60	257	19	2.7	2.1
5	1.8	17	253	280	85	267	261	56	232	18	2.1	2.0
6	1.5	18	185	240	96	229	295	61	205	16	2.3	1.9
7	1.3	18	142	190	184	227	267	54	170	14	1.9	1.7
8	1.3	18	120	150	187	205	241	49	140	14	1.7	1.7
9	1.3	18	104	120	156	190	298	62	110	13	1.6	1.8
10	1.3	17	100	100	134	185	360	75	96	12	1.6	2.0
11	.98	16	84	80	109	245	322	84	90	11	1.5	2.0
12	.88	16	72	136	88	240	328	79	87	10	1.6	2.0
13	.88	15	63	792	77	222	350	77	102	10	1.6	4.1
14	1.2	14	56	912	63	211	392	71	97	9.4	1.6	5.0
15	1.7	13	57	586	48	252	366	71	100	8.5	1.7	5.0
16	1.7	13	70	339	41	230	307	71	91	7.3	1.7	4.6
17	1.7	18	77	275	45	221	285	65	87	7.0	1.6	4.5
18	1.7	80	104	189	143	242	266	60	77	6.9	1.7	4.2
19	2.6	113	105	126	173	244	245	53	67	6.4	2.0	4.6
20	3.0	96	98	96	349	284	226	48	61	6.2	2.2	4.9
21	4.2	88	93	76	322	708	217	43	53	5.4	1.8	5.4
22	5.8	77	85	60	239	790	208	42	47	5.1	1.7	5.4
23	10	99	73	54	190	815	187	39	54	4.8	1.5	5.3
24	9.4	121	66	52	161	594	164	37	44	4.7	1.5	5.0
25	12	121	64	47	147	462	139	37	42	4.6	1.5	5.0
26	17	116	58	42	266	410	119	540	45	4.4	1.5	5.0
27	16	102	51	37	450	374	104	950	45	3.6	1.3	4.5
28	16	90	46	36	546	324	100	857	36	3.4	1.4	3.4
29	16	71	43	38	585	314	137	582	31	3.0	1.6	3.4
30	16	60	40	40	---	317	117	401	28	3.0	1.5	3.4
31	16	---	37	42	---	316	---	296	---	2.8	1.9	---
TOTAL	171.64	1501	3107	5282	5124	10497	7292	5194	3471	298.5	56.3	105.9
MEAN	5.54	50.0	100	170	177	339	243	168	116	9.63	1.82	3.53
MAX	17	121	423	912	585	815	392	950	355	24	2.8	5.4
MIN	.88	13	37	35	41	185	100	37	28	2.8	1.3	1.7
AC-FT	340	2980	6160	10480	10160	20820	14460	10300	6880	592	112	210
CAL YR 1979	TOTAL	49336.29	MEAN 135	MAX 1530	MIN .10	AC-FT 97860						
WTR YR 1980	TOTAL	42100.34	MEAN 115	MAX 950	MIN .88	AC-FT 83510						

UMATILLA RIVER BASIN

14023000 MCKAY RESERVOIR NEAR PENDLETON, OR

LOCATION.--Lat 45°36'28", long 118°47'30", in SE¼ sec.34, T.2 N., R.32 E., Umatilla County, Hydrologic Unit 17070103, on Water and Power Resources Service land, near right end of McKay Dam on McKay Creek, 4.0 mi (6.4 km) south of Pendleton, and at mile 4.9 (7.9 km).

DRAINAGE AREA.--186 mi² (482 km²).

PERIOD OF RECORD.--December 1927 to current year.

REVISED RECORDS.--WSP 1154: Drainage area. WDR OR-79-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 0.16 ft (0.49 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 6, 1973, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by gravel-fill dam with concrete facing, completed in 1926; storage began in 1927. Usable capacity, 73,830 acre-ft (91.9 hm³), between gage heights 1,182.0 ft (360.27 m), floor of trashrack structure, and 1,322.0 ft (402.95 m) top of spillway gates. Dead storage, about 6 acre-ft (7,400 m³) included in records. Water is used for irrigation of land along McKay Creek and Umatilla River.

COOPERATION.--Capacity tables furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 73,840 acre-ft (91.0 hm³) June 9, 1950, gage height, 1,322.0 ft (402.95 m); no usable contents Sept. 7, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 68,190 acre-ft (84.1 hm³) May 17, 18, gage height, 1,317.41 ft (401.547 m); minimum, 10,240 acre-ft (12.6 hm³) Oct. 4, gage height, 1,238.05 ft (377.358 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30.....	1,238.30	10,340	-
Oct. 31.....	1,238.77	10,530	+190
Nov. 30.....	1,245.44	13,430	+2,900
Dec. 31.....	1,257.64	19,550	+6,120
CAL YR 1979.....	-	-	-7,740
Jan. 31.....	1,275.68	30,570	+11,020
Feb. 29.....	1,292.72	43,370	+12,800
Mar. 31.....	1,311.85	61,860	+18,490
Apr. 30.....	1,317.13	67,860	+6,000
May 31.....	1,317.20	67,940	+80
June 30.....	1,315.20	65,630	-2,310
July 31.....	1,297.05	47,160	-18,470
Aug. 31.....	1,272.35	28,340	-18,820
Sept.30.....	1,253.30	17,260	-11,080
WTR YR 1980.....	-	-	+6,920

g Observed, not at 2400.

14023500 MCKAY CREEK NEAR PENDLETON, OR

LOCATION.--Lat 45°36'34", long 118°47'55", in SE¼NW¼ sec.34, T.2 N., R.32 E., Umatilla County, Hydrologic Unit 17070103, on right bank 35 ft (11 m) upstream from diversion dam, 0.2 mi (0.3 km) downstream from McKay Dam, 4.5 mi (7.2 km) south of Pendleton, and at mile 4.7 (7.6 km).

DRAINAGE AREA.--186 mi² (482 km²).

PERIOD OF RECORD.--November 1918 to May 1919, October 1919 to September 1923, October 1924 to September 1927, November 1927 to September 1943, April 1944 to October 1947 (irrigation seasons only), March 1948 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1154: Drainage area. WSP 1398: 1923.

GAGE.--Water-stage recorder. Concrete control since Mar. 23, 1928. Datum of gage is 1,163.71 ft (354.699 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). See WSP 1318 or 1738 for history of changes prior to Nov. 16, 1948.

REMARKS.--Records good. Flow completely regulated since 1927 by McKay Reservoir (see station 14023000). Many diversions for irrigation above station. Since 1932, records have excluded flow in Elder ditch which, since 1953, has diverted not over 1.5 ft³/s (0.042 m³/s) at station for irrigation during season and up to 1 ft³/s (0.03 m³/s) seepage from reservoir, for stock water at other times.

AVERAGE DISCHARGE.--43 years (water years 1933-43, 1949-80), 93.8 ft³/s (2.656 m³/s), 67,960 acre-ft/yr (83.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 3,250 ft³/s (92.0 m³/s) Feb. 10, 1921, gage height, 4.4 ft (1.34 m), site and datum then in use, from rating curve extended above 1,200 ft³/s (34.0 m³/s); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 536 ft³/s (15.2 m³/s) May 28, gage height, 1.86 ft (0.567 m); no flow Oct. 2 to Apr. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	.00	.00	.00	.00	.00	.00	91	209	185	320	223
2	.00	.00	.00	.00	.00	.00	.00	91	294	230	322	218
3	.00	.00	.00	.00	.00	.00	.00	91	204	267	321	218
4	.00	.00	.00	.00	.00	.00	.00	84	179	267	320	209
5	.00	.00	.00	.00	.00	.00	.00	72	170	278	318	199
6	.00	.00	.00	.00	.00	.00	.00	62	171	289	347	200
7	.00	.00	.00	.00	.00	.00	.00	53	171	286	348	200
8	.00	.00	.00	.00	.00	.00	.00	49	132	287	342	200
9	.00	.00	.00	.00	.00	.00	.00	37	50	291	341	205
10	.00	.00	.00	.00	.00	.00	.00	32	21	290	326	226
11	.00	.00	.00	.00	.00	.00	.00	32	25	283	315	236
12	.00	.00	.00	.00	.00	.00	72	32	63	269	315	237
13	.00	.00	.00	.00	.00	.00	229	32	81	269	314	231
14	.00	.00	.00	.00	.00	.00	255	32	89	268	312	209
15	.00	.00	.00	.00	.00	.00	163	43	83	270	312	191
16	.00	.00	.00	.00	.00	.00	109	51	91	269	311	194
17	.00	.00	.00	.00	.00	.00	139	53	91	272	309	194
18	.00	.00	.00	.00	.00	.00	195	110	64	272	304	186
19	.00	.00	.00	.00	.00	.00	195	152	98	271	299	152
20	.00	.00	.00	.00	.00	.00	194	135	135	271	286	152
21	.00	.00	.00	.00	.00	.00	168	122	135	288	281	152
22	.00	.00	.00	.00	.00	.00	154	122	135	317	276	145
23	.00	.00	.00	.00	.00	.00	173	122	138	371	276	137
24	.00	.00	.00	.00	.00	.00	184	122	137	390	276	137
25	.00	.00	.00	.00	.00	.00	135	122	137	391	257	137
26	.00	.00	.00	.00	.00	.00	113	49	116	373	250	136
27	.00	.00	.00	.00	.00	.00	114	261	85	372	249	135
28	.00	.00	.00	.00	.00	.00	98	517	109	360	249	135
29	.00	.00	.00	.00	.00	.00	91	500	152	349	229	145
30	.00	.00	.00	.00	---	.00	91	258	169	337	222	156
31	.00	---	.00	.00	---	.00	---	48	---	330	224	---
TOTAL	45.00	.00	.00	.00	.00	.00	2872.00	3577	3734	9262	9171	5495
MEAN	1.45	.000	.000	.000	.000	.000	95.7	115	124	299	296	183
MAX	45	.00	.00	.00	.00	.00	255	517	294	391	348	237
MIN	.00	.00	.00	.00	.00	.00	.00	32	21	185	222	135
AC-FT	89	.00	.00	.00	.00	.00	5700	7090	7410	18370	18190	10900
CAL YR 1979	TOTAL	50783.00	MEAN	139	MAX 761	MIN .00	AC-FT	100700				
WTR YR 1980	TOTAL	34156.00	MEAN	93.3	MAX 517	MIN .00	AC-FT	67750				

14026000 UMATILLA RIVER AT YOAKUM, OR

LOCATION.--Lat 45°40'40", long 119°02'00", in SW¼ sec.2, T.2 N., R.30 E., Umatilla County, Hydrologic Unit 17070103, at left bank on downstream side of highway bridge, 0.5 mi (0.8 km) northeast of Yoakum, 2.5 mi (4.0 km) downstream from abandoned Furnish Reservoir, 12.0 mi (19.3 km) downstream from Birch Creek, and at mile 37.7 (60.7 km).

DRAINAGE AREA.--1,280 mi² (3,320 km²), approximately.

PERIOD OF RECORD.--May 1903 to current year. Published as "above Furnish Reservoir, near Yoakum" October 1916 to September 1934.

REVISED RECORDS.--WSP 794: 1906(M). WSP 1398: 1904-6, 1908-9, 1922-23, 1926, 1936.

GAGE.--Water-stage recorder. Datum of gage is 768.21 ft (234.150 m) National Geodetic Vertical Datum of 1929. See WSP 1318 or 1738 for history of changes prior to Oct. 21, 1948.

REMARKS.--Records good. Slight regulation by Furnish Reservoir 1910-34, capacity, 3,900 acre-ft (4.81 hm³) prior to filling with silt. Flow regulated to some extent since 1927 by McKay Reservoir (see station 14023000). Many diversions for irrigation above station.

AVERAGE DISCHARGE.--77 years, 670 ft³/s (18.97 m³/s), 485,400 acre-ft/yr (598 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s (566 m³/s) May 30, 1906, gage height, about 15.0 ft (4.57 m), site and datum then in use, from floodmarks, from rating curve extended above 6,600 ft³/s (187 m³/s); minimum, 12 ft³/s (0.34 m³/s) Aug. 10-12, 1908, Aug. 4, 1910.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,800 ft³/s (79.3 m³/s) Jan. 15, gage height, 5.13 ft (1.564 m), no peak above base of 3,600 ft³/s (102 m³/s); minimum, 49 ft³/s (1.39 m³/s) Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	107	195	205	273	1620	854	984	1080	312	333	260
2	59	106	196	202	277	1410	797	925	1380	345	329	258
3	56	107	238	202	277	1280	737	872	1180	392	327	261
4	53	109	368	203	481	1310	696	803	1060	395	328	258
5	53	112	1070	339	571	1420	745	837	953	388	330	243
6	53	116	774	815	555	1320	937	843	902	399	348	239
7	53	114	595	682	645	1210	973	716	871	385	362	233
8	52	112	511	600	687	1090	890	618	801	392	347	242
9	52	111	466	600	657	1000	907	646	617	408	342	241
10	53	111	444	500	609	923	1240	654	521	390	335	253
11	54	113	442	643	569	1080	1250	699	452	387	320	262
12	53	111	382	858	530	1040	1240	668	466	363	319	269
13	52	110	334	2000	486	980	1530	621	524	363	316	297
14	56	109	295	2150	450	990	1840	569	510	356	315	296
15	68	108	274	2520	411	1080	1890	542	502	352	314	260
16	63	112	284	1830	378	1000	1660	532	489	346	313	255
17	70	128	282	1510	374	950	1600	486	480	345	315	249
18	72	173	321	1320	1010	960	1720	475	438	339	317	248
19	92	211	410	1040	1610	905	1660	508	396	328	333	218
20	119	208	425	809	1810	896	1630	469	426	328	322	215
21	127	198	405	684	1730	1480	1640	425	403	327	312	220
22	122	195	382	580	1460	1460	1630	411	381	350	304	214
23	117	209	348	516	1230	1550	1510	391	397	386	299	203
24	119	225	316	465	1030	1410	1400	371	374	420	299	200
25	122	252	306	436	914	1240	1220	373	349	416	285	195
26	122	258	288	413	960	1120	1080	711	335	393	274	194
27	124	248	261	370	1430	1070	1040	1340	312	392	271	192
28	117	230	243	330	1700	957	1030	1880	293	381	271	190
29	115	219	230	300	1810	890	1300	2010	314	360	268	194
30	113	209	219	275	---	903	1140	1660	322	352	256	200
31	111	---	213	273	---	878	---	1200	---	341	260	---
TOTAL	2621	4731	11517	23670	24924	35422	37786	24239	17528	11429	9664	7059
MEAN	84.5	158	372	764	859	1143	1260	782	584	369	312	235
MAX	129	258	1070	2520	1810	1620	1890	2010	1380	420	362	297
MIN	52	106	195	202	273	878	696	371	293	312	256	190
AC-FT	5200	9380	22840	46950	49440	70260	74950	48080	34770	22670	19170	14000
CAL YR 1979 TOTAL	285302			MEAN 782	MAX 4770	MIN 52	AC-FT 565900					
WTR YR 1980 TOTAL	210590			MEAN 575	MAX 2520	MIN 52	AC-FT 417700					

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LOCATION.—Lat 45°32'40", long 119°18'40", in SW¼ sec.22, T.1 N., R.28 E., Morrow County, Hydrologic Unit 17070103, on right bank 0.5 mi (0.8 km) downstream from Mattlock Canyon, 6.0 mi (9.7 km) southeast of Pine City, 15 mi (24 km) southwest of Echo, and at mile 28.4 (45.7 km), corrected.

PERIOD OF RECORD.--April to June 1928, November 1928 to June 1929, October 1929 to September 1930, January 1931 to September 1932, February to June 1933, October 1933 to September 1941, January to June 1942, October 1942 to current year. Prior to October 1945, monthly discharge only, published in WSP 1318.

GAGE.—Water-stage recorder. Altitude of gage is 1,400 ft (427 m) by barometer. Prior to Oct. 1, 1944, at datum 1.1 ft (0.34 m) higher and Oct. 1, 1944, to Sept. 6, 1949, at datum 1.0 ft (0.30 m) higher.

AVERAGE DISCHARGE.--48 years (water years 1930, 1932, 1934-41, 1943-80). 25.7 ft³/s (0.728 m³/s), 18.620 acre-ft/yr (23.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,800 ft³/s (108 m³/s) Feb. 21, 1949, gage height, 12.4 ft (3.78 m), present datum, from floodmark, from rating curve extended above 440 ft³/s (12.5 m³/s) on basis of computation of peak flow over dam; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 200 ft³/s (5.66 m³/s) and maximum discharge, 255 ft³/s (7.22 m³/s) Jan. 15, gage height, 3.59 ft (1.094 m); minimum, 2.4 ft³/s (0.07 m³/s) Oct. 1. Aug. 24-28.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	6.9	10	7.6	23	109	78	51	36	13	3.5	3.0
2	3.1	7.1	11	8.4	25	94	72	54	37	13	3.0	3.2
3	3.2	7.1	12	7.8	28	85	68	59	36	13	3.2	3.2
4	3.2	7.6	17	7.5	31	80	68	48	35	12	3.2	3.2
5	3.2	8.0	26	9.7	35	77	76	43	34	13	3.3	3.2
6	3.2	7.8	25	16	40	71	89	59	34	11	3.5	3.2
7	3.3	6.7	23	24	43	71	76	44	34	11	3.0	3.2
8	3.3	7.0	22	16	45	68	68	40	34	11	3.0	3.2
9	3.3	7.0	21	13	44	66	67	51	30	12	2.9	3.2
10	3.4	6.8	20	12	42	63	80	70	27	12	2.7	3.3
11	3.4	6.5	19	20	40	67	74	78	25	10	3.0	3.3
12	3.4	6.7	18	37	38	64	69	68	25	9.2	3.2	3.3
13	3.4	6.5	18	115	36	60	74	63	33	8.5	3.2	3.3
14	3.7	6.4	16	178	34	61	85	61	33	8.1	2.9	3.3
15	4.9	6.2	15	191	30	74	92	61	34	7.2	2.9	3.2
16	4.6	6.7	15	110	31	62	86	55	32	6.8	3.2	3.2
17	4.4	8.2	14	94	32	63	85	48	30	6.5	3.2	3.2
18	4.5	12	13	77	106	62	83	44	28	6.2	3.3	3.3
19	6.9	12	13	63	110	59	83	41	26	5.8	3.7	3.3
20	8.3	10	12	57	109	58	82	39	24	5.8	3.5	3.3
21	9.5	9.3	12	51	95	74	81	36	22	5.3	3.2	3.3
22	6.8	9.2	11	42	83	74	77	36	21	4.8	3.0	3.3
23	6.2	9.6	10	39	75	116	75	36	22	4.6	2.6	3.7
24	6.2	12	8.3	38	80	119	70	34	23	4.6	2.6	5.1
25	6.7	12	10	37	75	109	65	34	21	4.4	2.4	4.8
26	6.3	13	10	34	94	103	61	37	22	4.2	2.4	5.1
27	6.9	12	8.5	27	163	100	57	40	23	4.2	2.6	5.1
28	6.8	11	8.0	22	143	100	53	43	18	4.0	2.4	5.1
29	6.2	9.9	7.8	19	129	97	62	43	16	3.7	2.6	4.8
30	6.3	10	7.7	19	---	87	57	41	14	3.3	2.6	4.8
31	6.5	---	7.6	20	---	86	---	39	---	3.3	2.7	---
TOTAL	153.7	261.2	440.9	1412.0	1859	2479	2213	1496	829	241.5	92.5	109.7
MEAN	4.96	8.71	14.2	45.5	64.1	80.0	73.8	48.3	27.6	7.79	2.98	3.66
MAX	9.5	13	26	191	163	119	92	78	37	13	3.7	5.1
MIN	2.6	6.2	7.6	7.5	23	58	53	34	14	3.3	2.4	3.0
AC-FT	305	518	875	2800	3690	4920	4390	2970	1640	479	183	218
CAL YR 1979	TOTAL	16468.0	MEAN	45.1	MAX 512	MIN 1.1	AC-FT	32660				
WTR YR 1980	TOTAL	11587.5	MEAN	31.7	MAX 191	MIN 2.4	AC-FT	22980				

PRINCIPAL DIVERSIONS FROM UMATILLA RIVER BETWEEN YOAKUM AND UMATILLA GAGING STATIONS, OR

The following canals divert water from Umatilla River between Yoakum and Umatilla, in Umatilla County, Hydrologic Unit 17070103:

14027000 FURNISH CANAL NEAR ECHO diverts from right bank of Umatilla River in SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 31, T.3 N., R.30 E., for irrigation in vicinity of Stanfield. Records available March 1921 to current year (prior to October 1929 and March 1935 to September 1937 irrigation seasons only). Monthly figures only for irrigation seasons 1921-25, published in WSP 1318.

14029000 UMATILLA PROJECT FEED CANAL NEAR ECHO diverts from right bank of Umatilla River in SW $\frac{1}{4}$ sec.22, T.3 N., R.29 E., and delivers water to Cold Springs Reservoir, capacity, 52,380 acre-ft (64.4 hm³) of Bureau of Reclamation. Records available October 1920 to current year (incomplete 1928, 1943-44).

14030000 ALLEN CANAL AT ECHO diverts from right bank of Western Land Canal, 0.5 mi (0.8 km) downstream from headgate of that canal in SW $\frac{1}{4}$ sec.16, T.3 N., R.29 E., for irrigation west of Echo. Records available May 1921 to current year (irrigation seasons only in most years). Monthly figures only October to December 1923, published in WSP 1318. Published as Western Land & Irrigation Co.'s canal at Echo 1921-39.

14030500 WESTERN LAND CANAL NEAR ECHO diverts from left bank of Umatilla River in NE $\frac{1}{4}$ sec.21, T.3 N., R.29 E., for irrigation west of Echo and Stanfield and during non-irrigation seasons since 1978, ground-water recharge near Ordinance. Gage is 1 mi (2 km) downstream from intake. Records available May 1921 to current year (irrigation seasons only in many years). Published as Western Land & Irrigation Co.'s canal at Echo 1921-39.

14031500 MAXWELL CANAL NEAR HERMISTON diverts from right bank of Umatilla River in SW $\frac{1}{4}$ sec.28, T.4 N., R.28 E., for irrigation near Hermiston; at times it receives water from Cold Springs Reservoir. Records available March 1921 to current year (irrigation seasons only in most years). REVISIONS (WATER YEARS).--WSP 1398: 1921.

14032500 WEST DIVISION MAIN CANAL NEAR UMATILLA diverts from left bank of Umatilla River in SW $\frac{1}{4}$ sec.28, T.5 N., R.28 E., for irrigation near Irrigon and Boardman. Records of monthly figures April 1921 to current year (incomplete October 1925 to March 1927). Published as "Main canal, west division Umatilla project" 1921, 1923. REVISIONS (WATER YEARS).--WSP 1398: 1923.

Water diverted by all of these canals is used for irrigation of lands on both sides of Umatilla River near and below Echo, except that diverted by West Division main canal which is applied to land along Columbia River in vicinity of Irrigon. Several small canals also divert water between Yoakum and Umatilla, but no records for these were obtained.

DIVERSIONS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	FURNISH CANAL	UMATILLA PROJECT FEED CANAL	ALLEN CANAL	WESTERN LAND CANAL	MAXWELL CANAL	WEST DIVISION MAIN CANAL
OCTOBER.....	249	0	291	2,730	559	3,330
NOVEMBER.....	0	4,110	0	2,580	4.6	0
DECEMBER.....	0	12,730	0	2,330	0	0
JANUARY.....	0	4,810	0	998	0	0
FEBRUARY.....	0	7,870	0	0	0	0
MARCH.....	0	13,090	0	4,240	0	0
APRIL.....	2,900	3,440	617	8,550	1,280	3,930
MAY.....	6,910	8,460	825	12,080	2,790	6,780
JUNE.....	6,690	7,330	998	11,640	2,340	6,560
JULY.....	7,230	13	1,020	12,880	2,520	6,880
AUGUST.....	6,250	0	828	11,750	2,530	7,760
SEPTEMBER.....	4,050	0	518	9,160	2,210	6,460
WTR YR 1980.....	34,280	61,850	5,100	78,930	14,240	41,700

NOTE.--No gage-height record for months of little or no flow and short periods at other times.

UMATILLA RIVER BASIN

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14033500 UMATILLA RIVER NEAR UMATILLA, OR

LOCATION.--Lat 45°54'11", long 119°19'33", in SW¼NW¼ sec.21, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070103, on left bank 1.6 mi (2.6 km) downstream from West Division main canal of Umatilla project, 1.2 mi (1.9 km) southeast of Umatilla, and at mile 2.1 (3.4 km).

DRAINAGE AREA.--2,290 mi² (5,930 km²), approximately.

PERIOD OF RECORD.--October 1903 to current year.

REVISED RECORDS.--WSP 794: Drainage area. WSP 1398: 1909, 1911, 1914, 1928, 1935.

GAGE.--Water-stage recorder. Datum of gage is 330.47 ft (100.727 m) National Geodetic Vertical Datum of 1929. Oct. 21, 1903 to Jan. 25, 1931, nonrecording gage.

REMARKS.--Records good. Some regulation since 1927 by McKay Reservoir (see station 14023000). Many diversions above station for irrigation of lands above and below station; Brownell Canal diverts below station. Diversions since 1908 to Cold Springs Reservoir, an off-channel reservoir, capacity, 52,380 acre-ft (64.6 hm³).

AVERAGE DISCHARGE.--53 years (water years 1928-80), 442 ft³/s (12.52 m³/s), 320,200 acre-ft/yr (395 hm³/yr). Water years prior to 1928 not included in computation of average discharge owing to increased regulation and diversion since 1927.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,800 ft³/s (561 m³/s) Jan. 30, 1965, gage height, 10.75 ft (3.277 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 3,100 ft³/s (87.8 m³/s) and maximum discharge, 3,640 ft³/s (103 m³/s) Feb. 4, gage height, 5.30 ft (1.615 m); minimum, 0.86 ft³/s (0.024 m³/s) Oct. 14-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	148	148	83	342	1610	846	595	630	1.4	1.2	2.6
2	1.1	141	131	81	416	1340	814	509	913	1.6	1.5	1.9
3	1.1	141	98	79	1250	1150	782	476	762	1.3	1.3	1.6
4	1.1	141	96	81	1370	1110	722	438	630	23	1.3	1.6
5	1.0	144	561	88	782	1250	703	395	460	77	1.2	1.6
6	1.0	148	703	388	666	1320	835	368	368	98	1.5	1.6
7	1.0	144	509	612	752	1150	997	381	295	83	1.2	1.6
8	.95	141	388	595	803	949	913	342	289	42	1.1	1.5
9	.91	137	336	552	742	868	857	162	182	29	1.3	1.6
10	.91	137	295	501	684	793	1060	148	109	50	3.0	2.2
11	.91	137	289	430	612	835	1180	203	28	50	4.4	1.9
12	.91	134	251	666	484	868	1130	199	2.3	66	1.4	1.4
13	.91	131	207	2010	423	825	1370	144	37	70	1.5	20
14	.91	127	174	2280	368	825	1660	106	109	46	1.3	98
15	.91	98	141	2620	330	902	1910	57	127	23	1.3	118
16	.91	86	131	2090	295	857	1560	47	115	20	2.0	70
17	.91	86	134	1570	278	814	1320	35	81	6.5	1.6	55
18	1.2	83	131	1370	476	793	1350	24	61	3.5	1.6	54
19	19	81	178	1060	1430	752	1290	15	10	18	1.6	79
20	74	93	231	868	1520	703	1220	54	3.3	6.8	2.4	83
21	106	96	226	703	1690	1100	1250	39	32	1.4	1.9	81
22	115	81	207	561	1480	1310	1410	13	34	1.3	1.6	68
23	141	81	194	468	1150	1340	1240	25	14	1.7	1.8	55
24	162	90	166	409	949	1310	1030	42	28	1.2	2.3	49
25	162	121	141	368	814	1170	902	33	26	1.2	13	47
26	166	159	131	324	752	1020	703	127	23	1.3	9.6	57
27	166	159	118	310	1130	949	647	902	31	1.2	2.4	59
28	162	155	106	300	1440	835	604	1480	16	1.2	2.1	47
29	155	166	96	290	1690	782	694	1730	11	1.3	8.0	40
30	151	178	88	280	---	846	732	1410	6.0	1.9	13	35
31	151	---	86	295	---	846	---	925	---	1.2	5.0	---
TOTAL	1747.84	3764	6691	22332	25118	31222	31731	11424	5432.6	731.0	94.4	1136.1
MEAN	56.4	125	216	720	866	1007	1058	369	181	23.6	3.05	37.9
MAX	166	178	703	2620	1690	1610	1910	1730	913	98	13	118
MIN	.91	81	86	79	278	703	604	13	2.3	1.2	1.1	1.4
AC-FT	3470	7470	13270	44300	49820	61930	62940	22660	10780	1450	187	2250
CAL YR 1979 TOTAL	206719.14			MEAN 566	MAX 4930	MIN .86	AC-FT 410000					
WTR YR 1980 TOTAL	141423.94			MEAN 386	MAX 2620	MIN .91	AC-FT 280500					

14034500 WILLOW CREEK AT HEPPNER, OR

LOCATION.--Lat 45°21'02", long 119°32'56", in SE¼NW¼ sec.35, T.2 S., R.26 E., Morrow County, Hydrologic Unit 17070104, on right bank at Heppner, 100 ft (30 m) upstream from Court Street bridge, 800 ft (244 m) southeast of Morrow County courthouse, 0.3 mi (0.5 km) downstream from Balm Fork and at mile 52.2 (84.0 km).

DRAINAGE AREA.--87 mi² (225 km²), approximately.

PERIOD OF RECORD.--May 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,952.73 ft (595.192 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. No regulation. Many diversions for irrigation above station. Part of flow of Ditch Creek (John Day River basin) is diverted to Willow Creek above station.

AVERAGE DISCHARGE.--29 years, 18.8 ft³/s (0.532 m³/s), 13,620 acre-ft/yr (16.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 812 ft³/s (23.0 m³/s) May 10, 1957, gage height, 6.15 ft (1.875 m), from rating curve extended above 230 ft³/s (6.51 m³/s); maximum gage height, 6.46 ft (1.969 m) May 25, 1971, backwater from Shobe Canyon; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, about 36,000 ft³/s (1,020 m³/s) June 14, 1903, result of slope-area measurement (see WSP 96). Discharge for flood of Feb. 22, 1949, was 1,700 ft³/s (48.1 m³/s), result of slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 118 ft³/s (3.34 m³/s) Feb. 28, gage height, 2.37 ft (0.722 m), no peak above base of 170 ft³/s (4.81 m³/s); minimum, 0.01 ft³/s (<0.001 m³/s) Sept. 5-12, 16, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	5.0	10	7.8	12	86	45	32	42	11	.10	.02
2	.06	4.7	16	7.8	15	72	41	33	39	11	.17	.02
3	.10	4.7	28	7.8	18	61	38	24	37	11	.17	.02
4	.10	5.0	34	8.2	17	54	36	18	36	11	.17	.02
5	.10	5.9	44	13	20	51	38	15	33	11	.17	.02
6	.06	5.3	37	12	23	47	43	18	30	11	.17	.02
7	.10	5.3	33	11	27	46	41	18	27	9.7	.17	.02
8	.06	5.0	30	9.0	27	46	38	17	23	8.9	.17	.02
9	.06	4.7	26	7.5	26	47	42	20	22	14	.10	.02
10	.10	4.7	23	8.5	26	46	45	26	22	9.3	.06	.01
11	.06	4.7	18	11	24	50	45	26	21	9.3	.03	.02
12	.03	4.7	17	24	22	48	45	21	27	8.9	.06	.02
13	.06	5.0	15	45	21	45	47	20	34	8.6	.03	.02
14	.10	5.3	14	75	18	46	54	22	35	7.4	.06	.02
15	.06	5.3	13	69	16	43	60	22	37	6.7	.03	.02
16	.03	5.6	13	54	17	38	53	19	39	5.6	.06	.02
17	.03	8.2	12	55	18	38	48	19	37	5.3	.06	.02
18	.06	11	11	45	35	37	49	19	30	4.0	.03	.02
19	1.3	8.9	11	38	41	34	50	18	26	2.1	.03	.02
20	3.4	7.4	11	32	62	32	50	17	24	.84	.03	.02
21	5.3	7.0	11	30	62	36	50	14	21	.84	.02	.02
22	4.0	7.0	10	27	54	54	49	16	20	1.1	.03	.02
23	3.4	8.0	8.2	23	48	95	45	16	22	1.3	.02	.02
24	4.0	9.7	8.9	21	45	80	42	16	18	.60	.02	.02
25	4.4	10	10	20	43	71	38	16	18	.60	.02	.02
26	6.3	11	8.9	15	66	66	32	26	19	.84	.02	.02
27	5.9	9.7	8.2	11	97	61	29	36	18	.35	.02	.02
28	5.3	8.9	8.2	10	105	54	28	46	15	.35	.02	.02
29	5.0	8.2	7.4	9.0	104	52	35	49	14	.17	.02	.02
30	5.0	8.2	7.4	9.0	---	50	33	47	13	.17	.02	.01
31	5.3	---	7.6	9.0	---	48	---	44	---	.17	.02	---
TOTAL	59.83	204.1	511.8	724.6	1109	1634	1289	750	799	173.13	2.10	.58
MEAN	1.93	6.80	16.5	23.4	38.2	52.7	43.0	24.2	26.6	5.58	.068	.019
MAX	6.3	11	44	75	105	95	60	49	42	14	.17	.02
MIN	.03	4.7	7.4	7.5	12	32	28	14	13	.17	.02	.01
AC-FT	119	405	1020	1440	2200	3240	2560	1490	1580	343	4.2	1.2
CAL YR 1979	TOTAL	13095.74	MEAN	35.9	MAX	267	MIN	.02	AC-FT	25980		
WTR YR 1980	TOTAL	7257.14	MEAN	19.8	MAX	105	MIN	.01	AC-FT	14390		

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LOCATION.--Lat 45°15'41", long 119°37'02", in NE¼SE¼ sec.31, T.3 S., R.26 E., Morrow County, Hydrologic Unit 17070104, on right bank 1.0 mi (1.6 km) downstream from Sanford Canyon, 8 mi (13 km) southwest of Heppner, and at mile 25.4 (40.9 km).

PERIOD OF RECORD.--August 1960 to current year.

REMARKS.--Records good. No regulation. Many diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,280 ft³/s (36.2 m³/s) June 10, 1969, gage height, 7.05 ft (2.149 m), site and datum then in use, from rating curve extended above 130 ft³/s (3.68 m³/s) on basis of slope-area measurement at gage height 6.72 ft (2.048 m); maximum gage height, 7.41 ft (2.259 m) Dec. 22, 1964. site and datum then in use; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 184 ft³/s (5.21 m³/s) Jan. 14, gage height, 3.07 ft (0.936 m), no peak above base of 230 ft³/s (6.51 m³/s); minimum, 0.60 ft³/s (0.017 m³/s) Aug. 29.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	5.3	13	6.8	12	76	54	17	29	11	1.5	1.8
2	3.2	4.8	43	7.0	14	67	50	18	28	11	2.1	1.3
3	2.5	4.8	60	7.0	16	59	46	16	26	10	2.4	1.4
4	2.3	6.6	72	7.5	18	52	44	13	25	10	1.5	1.9
5	2.2	7.1	67	20	20	51	47	12	22	10	1.3	1.6
6	2.0	5.7	50	28	23	50	47	13	21	10	1.8	1.2
7	1.6	5.2	41	24	25	51	44	13	20	9.1	1.9	1.3
8	2.1	5.1	33	22	25	60	43	11	17	8.7	1.7	1.3
9	2.0	5.0	27	21	26	59	47	16	15	13	2.0	1.3
10	2.0	4.7	23	20	26	56	46	21	14	10	1.9	1.4
11	1.8	4.3	18	24	24	65	41	19	12	9.3	1.9	1.1
12	1.8	3.8	17	64	24	56	39	16	18	8.6	2.2	1.6
13	1.6	4.0	16	133	23	51	38	14	24	7.8	2.4	3.7
14	4.0	3.9	15	158	21	55	38	20	24	7.3	2.4	3.9
15	6.1	3.6	13	117	20	52	37	19	23	6.3	2.4	2.6
16	5.4	4.6	12	83	21	47	32	17	23	5.8	1.9	2.4
17	5.1	11	11	77	25	46	30	17	22	5.1	1.8	1.9
18	5.4	16	11	56	90	45	28	14	20	4.2	2.2	1.9
19	13	11	10	47	84	41	26	13	18	3.4	2.5	2.5
20	9.9	9.3	9.7	39	106	44	27	12	15	3.1	2.0	2.5
21	12	8.9	9.3	30	86	59	29	12	14	3.0	1.9	2.8
22	8.4	9.7	8.3	24	73	95	29	13	16	2.8	2.3	2.2
23	7.3	14	5.8	22	68	122	27	13	16	2.8	2.2	2.2
24	6.8	23	7.4	21	65	98	26	12	15	3.2	2.2	2.2
25	6.8	26	8.9	18	61	86	23	12	15	4.5	2.0	2.3
26	7.3	23	7.0	15	94	81	21	22	21	3.7	1.9	2.3
27	6.1	17	6.3	12	105	76	20	29	18	3.0	1.8	2.4
28	5.8	14	6.1	10	102	68	19	37	14	2.8	1.8	2.4
29	5.1	15	6.6	10	87	65	21	36	13	1.8	1.0	2.3
30	5.1	13	6.3	10	---	61	18	33	12	1.4	.95	2.0
31	5.4	---	6.7	10	---	59	---	29	---	1.6	1.8	---
TOTAL	153.7	289.4	640.4	1143.3	1384	1953	1037	559	570	194.3	59.65	61.7
MEAN	4.96	9.65	20.7	36.9	47.7	63.0	34.6	18.0	19.0	6.27	1.92	2.06
MAX	13	26	72	158	106	122	54	37	29	13	2.5	3.9
MIN	1.6	3.6	5.8	6.8	12	41	18	11	12	1.4	.95	1.1
AC-FT	305	574	1270	2270	2750	3870	2060	1110	1130	385	118	122
CAL YR 1979	TOTAL	13500.60	MEAN	37.0	MAX	410	MIN	.70	AC-FT	26780		
WTR YR 1980	TOTAL	8045.45	MEAN	22.0	MAX	158	MIN	.95	AC-FT	15960		

LOCATION.--Lat 44°20'30", long 118°39'20", in SE 1/4 sec. 20, T.14 S., R.34 E., Grant County, Hydrologic Unit 17070201, on left bank 100 ft (30 m) upstream from Slide Creek, 8.5 mi (13.7 km) south of Prairie City, and at mile 9.0 (14.5 km).

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1944, published as "above South Fork, near Prairie City."

GAGE.--Water-stage recorder and log control. Datum of gage is 4,909.57 ft (1,496.437 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow affected by natural storage in Strawberry Lake. No diversion above station.

AVERAGE DISCHARGE.--50 years, 12.7 ft³/s (0.360 m³/s), 24.64 in/yr (626 mm/yr), 9,200 acre-ft/yr (11.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 274 ft³/s (7.76 m³/s) June 14, 1974, gage height, 2.20 ft (0.671 m), from rating curve extended above 190 ft³/s (5.38 m³/s); maximum gage height, 3.23 ft (0.985 m) May 24, 1956 (backwater from logs); minimum, discharge, 1.0 ft³/s (0.028 m³/s) Mar. 20, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 78 ft³/s (2.21 m³/s) June 22, gage height, 1.85 ft (0.564 m); minimum, 2.0 ft³/s (0.057 m³/s) Feb. 13-16.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	3.1	3.1	2.4	2.4	3.8	2.4	29	39	53	14	5.0
2	3.1	3.1	3.1	2.4	2.2	3.8	2.4	30	39	53	13	5.0
3	3.1	3.1	3.3	2.4	2.4	3.8	2.4	32	37	53	13	5.0
4	2.9	3.3	3.3	2.4	2.2	3.5	2.4	35	36	53	13	4.7
5	2.8	3.3	3.1	2.4	2.2	3.5	2.4	40	36	51	12	4.7
6	2.8	3.3	3.1	2.4	2.2	3.3	2.4	46	35	50	12	4.7
7	2.8	3.1	3.1	2.4	2.2	3.3	2.4	50	33	46	12	4.4
8	2.8	3.1	3.1	2.6	2.2	3.1	2.4	51	33	43	11	4.4
9	2.8	3.1	3.1	2.4	2.2	3.1	2.4	51	35	42	11	4.4
10	2.8	3.1	3.1	2.4	2.2	3.1	2.4	48	39	39	11	4.4
11	2.7	3.1	2.8	2.4	2.2	3.1	2.4	48	43	37	10	4.4
12	2.7	3.1	2.8	3.3	2.2	2.8	2.2	45	46	35	10	4.4
13	2.6	3.1	2.8	3.3	2.2	2.8	2.6	42	48	33	9.5	4.7
14	2.6	2.8	2.8	3.3	2.0	2.8	3.8	40	48	31	9.0	4.4
15	2.7	2.8	2.8	3.3	2.0	2.8	4.7	37	50	30	8.5	4.1
16	2.6	3.1	2.8	3.3	2.2	2.8	5.3	36	50	28	8.5	4.1
17	2.6	3.3	2.8	3.1	2.4	2.8	6.4	35	50	26	8.1	4.1
18	2.8	3.1	2.8	2.8	2.6	2.6	8.5	35	55	25	8.1	4.1
19	3.3	3.1	2.6	2.7	2.8	2.6	11	36	59	23	7.6	4.1
20	2.6	2.8	2.6	2.6	2.8	2.6	13	40	68	22	7.2	4.1
21	2.6	3.1	2.6	2.6	2.8	2.6	16	46	70	21	6.8	4.1
22	2.6	3.1	2.6	2.4	2.8	2.6	16	55	73	19	6.8	3.8
23	2.8	3.1	2.6	2.4	2.6	2.6	18	57	68	19	6.4	3.8
24	2.8	3.1	2.6	2.4	2.6	2.6	21	55	61	18	6.4	3.9
25	3.5	3.1	2.6	2.4	2.8	2.6	20	48	59	17	6.0	3.9
26	3.3	3.1	2.4	2.4	3.1	2.4	21	45	59	17	5.6	3.8
27	3.3	3.1	2.4	2.4	3.3	2.4	23	43	57	16	5.6	3.8
28	3.3	3.1	2.4	2.4	3.5	2.4	28	39	53	16	5.6	3.8
29	3.3	3.1	2.4	2.4	3.8	2.4	33	36	51	15	5.3	3.8
30	3.1	3.1	2.4	2.6	---	2.4	31	36	51	15	5.3	3.8
31	3.3	---	2.4	2.6	---	2.4	---	37	---	15	5.3	---
TOTAL	90.1	92.9	86.4	81.3	73.1	89.4	310.9	1303	1481	961	273.6	127.7
MEAN	2.91	3.10	2.79	2.62	2.52	2.88	10.4	42.0	49.4	31.0	8.83	4.26
MAX	3.5	3.3	3.3	3.3	3.8	3.8	33	57	73	53	14	5.0
MIN	2.6	2.8	2.4	2.4	2.0	2.4	2.2	29	33	15	5.3	3.8
CFSM	.42	.44	.40	.37	.36	.41	1.49	6.00	7.06	4.43	1.26	.61
IN.	.48	.49	.46	.43	.39	.48	1.65	6.92	7.87	5.11	1.45	.68
AC-FT	179	184	171	161	145	177	617	2580	2940	1910	543	253
CAL YR 1979	TOTAL</											

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LOCATION.--Lat 44°25'10", long 118°54'10", in SE¼SE¼ sec.19, T.13 S., R.32 E., Grant County, Hydrologic Unit 17070201, on left bank 800 ft (244 m) downstream from Dog Creek, 2.5 mi (4.0) east of John Day, and at mile 251.0 (403.9 km).

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,130.56 ft (954.195 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some regulation from irrigation ditches upstream. Many diversions above station for irrigation.

AVERAGE DISCHARGE.--12 years, 193 ft³/s (5.466 m³/s), 139,800 acre-ft/yr (172 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,830 ft³/s (165 m³/s) June 9, 1969, gage height, 10.80 ft (3.292 m), from floodmark; minimum, 3.5 ft³/s (0.099 m³/s) Aug. 26-28, 1969.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s (22.7 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)		Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)	
June 1	2030	874	24.8	5.60	1.707	June 14	0900	*1,270	36.0	*6.12	1.865

Minimum, 13 ft³/s (0.37 m³/s) Aug. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	109	113	106	196	246	179	419	588	245	61	43
2	66	106	145	102	201	232	169	391	704	285	55	55
3	66	104	200	103	316	226	169	404	633	352	55	53
4	66	113	173	105	207	236	165	389	611	305	55	45
5	63	124	159	100	159	236	190	424	620	275	53	40
6	69	117	142	80	184	240	211	496	594	255	50	39
7	69	111	134	95	197	211	191	475	493	240	39	40
8	67	106	129	112	177	195	191	443	430	240	39	39
9	66	103	128	116	152	183	207	513	419	216	36	32
10	65	101	126	109	142	174	218	464	445	174	32	36
11	66	98	115	113	138	179	208	390	461	155	24	50
12	74	96	120	363	134	171	216	332	511	151	18	48
13	78	96	113	467	128	170	241	285	478	134	18	185
14	77	95	113	408	126	174	298	307	953	134	19	144
15	88	95	111	369	129	179	325	307	722	131	23	99
16	94	102	108	273	144	166	319	293	614	121	20	79
17	96	169	115	284	184	167	342	272	571	112	16	77
18	101	155	113	204	358	180	365	248	550	110	19	84
19	123	124	110	161	372	182	388	246	540	107	26	96
20	150	107	110	158	461	192	420	250	518	112	30	86
21	125	106	111	164	310	213	467	269	493	104	29	90
22	115	111	110	149	280	271	463	341	469	96	26	84
23	115	114	93	141	315	284	500	344	450	91	25	86
24	112	140	112	138	275	218	492	383	402	88	25	85
25	130	144	113	132	235	198	460	404	353	77	27	85
26	134	129	104	119	285	201	439	545	362	79	25	80
27	119	111	95	88	268	210	434	435	375	79	29	79
28	118	96	96	69	277	194	481	353	315	86	32	70
29	111	94	99	75	264	194	566	338	278	77	32	68
30	109	104	96	81	---	186	504	398	250	68	36	61
31	115	---	103	119	---	181	---	442	---	64	37	---
TOTAL	2912	3380	3709	5103	6614	6289	9818	11598	15202	4763	1011	2158
MEAN	93.9	115	120	165	228	203	327	374	507	154	32.6	71.9
MAX	150	169	200	467	461	284	566	545	953	352	61	185
MIN	63	94	93	69	126	166	165	246	250	64	16	32
AC-FT	5780	6700	7360	10120	13120	12470	19470	23000	30150	9450	2010	4280

CAL	YR	1979	TOTAL	74301	MEAN	204	MAX	1920	MIN	18	AC-FT	147400
WTR	YR	1980	TOTAL	72557	MEAN	198	MAX	953	MIN	16	AC-FT	143900

LOCATION.—Lat 44°31'15", long 119°37'30", in SW¼ sec.17, T.12 S., R.26 E., Grant County, Hydrologic Unit 17070201, on right bank 0.7 mi (1.1 km) upstream from Rock Creek, 5.5 mi (8.8 km) northwest of Davville, and at mile 205.1 (330.0 km).

PERIOD OF RECORD.--April 1926 to current year. Monthly discharge only April 1926, published in WSP 1318.

REVISED RECORDS.--WSP 1218: 1950. WSP 1348: Drainage area. WSP 1448: 1926, 1928, 1932(M), 1936.

GAGE.--Water-stage recorder. Datum of gage is 2,229.84 ft (679.655 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 11, 1926, nonrecording gage and Oct. 11, 1926, to Sept. 30, 1930, water-stage recorder at same site at datum 2.50 ft (0.762 m) higher. Oct. 1, 1930, to Aug. 28, 1970, at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records excellent. No regulation. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--54 years. 468 ft³/s (13.25 m³/s), 339,100 acre-ft/yr (418 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,170 ft³/s (231 m³/s) Dec. 22, 1964, gage height, 14.97 ft (4.563 m); minimum, 1.0 ft³/s (0.028 m³/s) for several days in August and September 1930. Aug. 8, 9, 1936. Sept. 9, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft³/s (51.0 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)		Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)	
Jan. 14	0700	2.020	57.2	8.04	2.451	June 14	2000	*2.180	61.7	*8.30	2.530

Minimum, 41 ft³/s (1.16 m³/s) Aug. 24 to Sept. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	219	263	245	357	1080	623	1100	1040	502	78	41
2	104	217	266	250	403	1010	599	1000	1310	488	77	41
3	105	213	400	245	668	991	583	986	1220	583	66	41
4	108	219	431	243	587	991	575	941	1240	549	54	41
5	118	238	400	247	460	986	599	932	1160	519	50	41
6	116	247	359	288	447	1030	686	1000	1310	488	43	41
7	111	236	358	310	470	963	645	1000	1210	444	42	41
8	114	241	327	228	441	901	619	936	1090	418	42	42
9	106	232	322	261	406	846	645	1110	995	409	42	42
10	106	228	322	278	388	804	700	1110	968	362	41	43
11	104	221	297	275	376	804	691	1080	977	327	41	42
12	112	217	288	223	368	773	700	968	1070	310	41	42
13	117	211	290	527	357	739	783	873	1170	292	41	82
14	117	211	283	1820	357	758	972	825	1560	261	41	195
15	131	209	278	1560	351	783	1110	884	1900	250	41	186
16	144	211	268	1280	368	705	1120	819	1560	238	41	166
17	148	247	263	972	454	705	1160	763	1370	225	41	146
18	149	327	268	884	1030	710	1270	700	1270	217	41	143
19	184	292	263	734	1190	710	1370	650	1180	213	41	161
20	221	259	261	545	1390	700	1440	615	1100	207	41	175
21	217	234	263	457	1120	734	1470	591	995	195	42	178
22	203	243	263	488	981	719	1440	628	932	178	42	173
23	205	259	254	477	972	936	1430	659	950	164	42	168
24	215	261	223	403	963	783	1450	663	897	148	42	163
25	213	300	259	385	888	714	1370	758	794	136	41	166
26	234	292	261	340	1110	700	1250	910	714	122	41	159
27	236	261	243	230	1240	719	1160	1020	809	109	41	156
28	228	211	209	182	1210	672	1160	945	700	95	41	151
29	221	221	213	199	1170	677	1270	914	615	91	41	138
30	215	247	234	232	---	654	1220	936	553	83	41	131
31	221	---	232	300	---	628	---	1030	---	77	41	---
TOTAL	4925	7224	8841	15108	20522	24925	30110	27346	32659	8700	1400	3335
MEAN	159	241	285	487	708	804	1004	882	1089	281	45.2	111
MAX	236	327	431	1820	1390	1080	1470	1110	1900	583	78	195
MIN	102	209	209	182	351	628	575	591	553	77	41	41
AC=FT	9770	14330	17540	29970	40710	49440	59720	54240	64780	17260	2780	6610

CAL YR 1979	TOTAL	217206	MEAN	595	MAX	3840	MIN	11	AC-FT	430800
WTR YR 1980	TOTAL	185095	MEAN	506	MAX	1900	MIN	41	AC-FT	367100

14042500 CAMAS CREEK NEAR UKIAH, OR

LOCATION.--Lat 45°09'25", long 118°49'10", in SE¼SE¼ sec.3, T.5 S., R.32 E., Umatilla County, Hydrologic Unit 17070202, on right bank 1.2 mi (1.9 km) upstream from Cable Creek, 5.8 mi (9.3 km) east of Ukiah, and at mile 18.7 (30.1 km).

DRAINAGE AREA.--121 mi² (313 km²).

PERIOD OF RECORD.--May 1914 to September 1917, November 1919 to July 1920, November 1920 to June 1924, March 1932 to June 1940 (fragmentary), November 1940 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as "above Cable Creek, near Ukiah" 1914-17, 1919-24.

REVISED RECORDS.--WSP 1448: 1916, 1920, 1922(M), 1924.

GAGE.--Water-stage recorder. Datum of gage is 3,588.61 ft (1,093.808 m) National Geodetic Vertical Datum of 1929 (levels by State Highway Department). May 1, 1914, to June 30, 1924, nonrecording gage and Mar. 1, 1932, to July 2, 1940, water-stage recorder at site 1.2 mi (1.9 km) downstream at different datum.

REMARKS.--Records good except those for November to February, which are fair. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--44 years (water years 1915-17, 1922-23, 1942-80), 95.0 ft³/s (2.690 m³/s), 68,830 acre-ft/yr (84.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,840 ft³/s (109 m³/s) Jan. 30, 1965, gage height, 5.21 ft (1.588 m); maximum gage height, 5.24 ft (1.597 m) Feb. 3, 1963 (ice jam); minimum discharge recorded, 1.0 ft³/s (0.028 m³/s) Aug. 9, 1932, June 24 to July 2, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 494 ft³/s (14.0 m³/s) Apr. 14, gage height, 2.20 ft (0.671 m); maximum gage height, 2.50 ft (0.762 m) Jan. 29, result of ice jam; no peak above base of 550 ft³/s (15.6 m³/s); minimum daily discharge, 3.4 ft³/s (0.096 m³/s) Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	7.6	14	16	24	182	86	223	319	50	8.5	6.0
2	4.3	7.2	16	15	26	164	79	205	380	45	8.1	7.2
3	4.0	7.2	17	14	27	164	81	195	323	44	8.1	7.2
4	4.0	8.5	19	15	23	189	99	182	280	40	7.6	6.0
5	4.0	11	22	25	23	192	153	179	272	38	7.6	5.6
6	4.0	9.5	20	21	25	173	199	199	319	38	7.6	5.3
7	4.0	8.5	19	13	24	167	170	170	342	33	7.2	5.3
8	4.0	7.6	20	12	25	158	173	144	306	33	7.2	5.3
9	3.8	7.6	20	16	24	144	306	185	256	33	6.8	5.3
10	4.0	7.6	19	17	23	136	342	219	219	28	6.8	5.3
11	4.0	6.6	18	13	22	155	293	219	189	25	6.4	6.0
12	4.0	6.0	17	19	22	136	332	202	199	23	6.4	6.8
13	4.0	6.6	18	84	21	129	395	182	202	21	6.0	15
14	4.3	6.6	17	92	20	150	449	179	284	21	6.0	12
15	6.7	6.6	19	80	17	144	432	167	301	19	6.0	8.5
16	6.1	7.4	18	60	21	129	390	167	268	18	6.0	7.2
17	5.7	10	19	54	34	129	380	150	241	16	6.0	6.8
18	5.6	13	20	40	129	129	385	136	202	15	6.8	7.2
19	13	12	19	30	124	124	380	126	167	15	7.6	9.5
20	12	6.6	18	26	179	124	375	117	144	14	6.8	8.5
21	11	5.0	19	29	142	112	356	110	121	13	6.4	9.0
22	9.5	6.8	17	31	114	112	332	107	114	12	6.0	8.1
23	8.5	7.2	14	32	101	129	306	96	136	12	6.0	7.2
24	9.0	9.8	12	34	96	126	276	88	107	11	5.6	7.2
25	11	9.4	20	24	94	121	245	90	92	11	5.3	6.8
26	11	8.6	12	17	142	119	226	150	90	10	5.3	6.4
27	10	6.6	10	11	209	117	219	219	86	9.5	5.0	6.4
28	9.5	5.0	7.4	9.0	233	103	237	328	72	9.5	5.3	6.4
29	9.0	3.4	11	9.6	212	105	351	319	63	9.0	5.3	6.0
30	8.1	12	10	10	---	94	276	293	57	8.5	5.3	6.0
31	8.5	---	12	11	---	88	---	268	---	8.5	6.0	---
TOTAL	210.5	237.5	513.4	879.6	2176	4244	8323	5614	6151	683.0	201.0	215.5
MEAN	6.79	7.92	16.6	28.4	75.0	137	277	181	205	22.0	6.48	7.18
MAX	13	13	22	92	233	192	449	328	380	50	8.5	15
MIN	3.8	3.4	7.4	9.0	17	88	79	88	57	8.5	5.0	5.3
AC-FT	418	471	1020	1740	4320	8420	16510	11140	12200	1350	399	427
CAL YR 1979 TOTAL	40093.4			110		906		79530				
WTR YR 1980 TOTAL	29448.5			80.5		449		58410				

JOHN DAY RIVER BASIN

14044000 MIDDLE FORK JOHN DAY RIVER AT RITTER, OR

LOCATION.--Lat 44°53'20", long 119°08'25", in SW¼ sec.8, T.8 S., R.30 E., Grant County, Hydrologic Unit 17070203, on left bank 0.2 mi (0.3 km) south of Ritter, 0.8 mi (1.3 km) downstream from Twelvemile Creek, and at mile 14.9 (24.0 km).

DRAINAGE AREA.--515 mi² (1,334 km²).

PERIOD OF RECORD.--October 1929 to current year.

REVISED RECORDS.--WSP 739: 1931. WSP 1218: 1950. WSP 1448: 1930-32, 1937, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,544.56 ft (775.582 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--51 years, 243 ft³/s (6.882 m³/s), 176,100 acre-ft/yr (217 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,730 ft³/s (134 m³/s) Jan. 30, 1965, gage height, 8.39 ft (2.557 m), from rating curve extended above 2,200 ft³/s (62.3 m³/s); maximum gage height, 9.13 ft (2.783 m) Feb. 1, 1963, ice jam; minimum discharge, 0.90 ft³/s (0.025 m³/s) Aug. 19, 20, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,000 ft³/s (28.3 m³/s) and maximum discharge, 1,090 ft³/s (30.9 m³/s) June 14, gage height, 4.97 ft (1.515 m); minimum discharge, 10 ft³/s (0.28 m³/s) Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	55	66	86	109	447	270	642	642	213	50	37
2	35	53	71	78	123	414	247	653	725	216	51	37
3	33	54	92	72	123	402	244	669	632	231	48	38
4	33	58	97	74	128	486	244	642	637	208	48	37
5	32	67	106	143	123	581	302	669	606	191	46	34
6	32	66	95	113	112	561	375	720	627	182	46	32
7	32	63	92	68	112	482	328	669	581	162	44	31
8	32	59	96	61	113	410	306	601	546	154	43	30
9	31	58	96	85	109	367	345	697	523	173	42	29
10	30	54	95	91	103	338	414	637	509	146	41	31
11	29	52	68	65	103	386	379	601	509	129	41	35
12	29	47	64	120	101	363	394	527	532	121	40	38
13	30	52	76	477	95	331	477	509	532	115	38	61
14	31	51	74	576	97	338	621	509	821	110	38	78
15	36	52	78	447	92	382	664	532	840	107	38	55
16	41	54	76	312	99	335	642	490	703	100	39	46
17	39	78	79	284	136	325	686	451	637	93	39	42
18	40	104	83	211	349	321	772	438	586	90	39	42
19	50	78	79	139	426	321	840	430	532	87	44	50
20	64	53	78	121	541	318	881	438	486	82	44	54
21	54	33	79	146	379	342	881	460	447	79	40	58
22	50	57	80	129	302	371	860	490	410	74	38	57
23	47	57	57	113	290	455	860	438	418	68	36	51
24	57	80	48	107	290	394	860	402	375	65	34	46
25	60	75	96	107	273	345	772	394	335	63	32	44
26	78	71	66	99	394	349	725	513	318	60	31	43
27	66	49	52	63	504	349	708	737	328	54	31	41
28	62	32	35	46	532	299	737	714	284	53	31	40
29	59	18	62	44	518	315	847	616	255	56	31	39
30	55	75	57	52	---	296	731	566	231	55	32	39
31	56	---	64	52	---	275	---	586	---	52	37	---
TOTAL	1358	1755	2357	4581	6676	11698	17412	17440	15607	3589	1232	1295
MEAN	43.8	58.5	76.0	148	230	377	580	563	520	116	39.7	43.2
MAX	78	104	106	576	541	581	881	737	840	231	51	78
MIN	29	18	35	44	92	275	244	394	231	52	31	29
AC-FT	2690	3480	4680	9090	13240	23200	34540	34590	30960	7120	2440	2570
CAL YR 1979 TOTAL	111568			306	1680	18	AC-FT 221300					
WTR YR 1980 TOTAL	85000			232	881	18	AC-FT 168600					

14046000 NORTH FORK JOHN DAY RIVER AT MONUMENT, OR

LOCATION.--Lat 44°48'50", long 119°25'50", in SE¼ sec.2, T.9 S., R.27 E., Grant County, Hydrologic Unit 17070202, on right bank just downstream from entrance to canyon, 0.7 mi (1.1 km) downstream from Cottonwood Creek, 0.8 mi (1.3 km) west of Monument, and at mile 15.3 (24.6 km).

DRAINAGE AREA.--2,520 mi² (6,530 km²), approximately.

PERIOD OF RECORD.--March 1925 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 754: 1932(M). WSP 1448: 1927, 1931(M), 1949.

GAGE.--Water-stage recorder. Datum of gage is 1,959.64 ft (597.298 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 24, 1925, nonrecording gage and Nov. 24, 1925, to Oct. 16, 1928, water-stage recorder at datum 1.10 ft (0.335 m) higher. Oct. 17, 1928, to Sept. 30, 1930, water-stage recorder at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records excellent except those for period of no gage-height record, June 16 to July 28, which are fair. Very slight regulation by small reservoirs upstream. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--55 years, 1,230 ft³/s (34.83 m³/s), 891,100 acre-ft/yr (1.10 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft³/s (946 m³/s) Jan. 30, 1965, gage height, 18.45 ft (5.624 m), from rating curve extended above 17,000 ft³/s (481 m³/s); minimum, 6 ft³/s (0.17 m³/s) sometime during period Nov. 2-13, 1936 (result of freezeup); minimum daily, 17 ft³/s (0.48 m³/s) Dec. 12, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,300 ft³/s (150 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)		Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)	
Jan. 15	1100	5,610	159	7.70	2.347	June 14	0230	5,320	151	7.55	2.301
Apr. 29	1430	*5,840	165	*7.82	2.384						

Minimum discharge, 94 ft³/s (2.66 m³/s) Oct. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	221	352	312	490	2600	1280	3840	3330	1150	229	137
2	106	214	327	397	660	2400	1190	3780	4160	1200	225	142
3	101	200	527	402	780	2300	1140	3870	3720	1300	214	148
4	101	221	691	368	980	2200	1130	3670	3560	1200	204	151
5	101	237	820	363	870	2400	1250	3660	3400	1100	193	142
6	99	257	657	508	740	2600	1690	4210	3650	1050	190	129
7	99	249	588	914	720	2400	1540	3910	3530	940	187	122
8	99	233	582	575	700	2200	1440	3350	3190	1000	180	117
9	96	218	569	600	606	2000	1620	3910	2940	980	177	113
10	96	207	558	651	552	1900	2230	3850	2760	900	171	113
11	96	180	483	651	521	1800	2020	3820	2750	760	165	117
12	96	153	385	651	490	1900	2070	3350	3290	680	156	129
13	96	145	431	1110	460	1800	2460	3230	3270	640	151	165
14	99	165	420	4040	466	1790	3170	3190	4750	600	142	312
15	113	151	420	4930	420	2020	3600	3320	3820	560	142	297
16	124	187	397	4430	442	1720	3540	2990	3600	520	142	218
17	145	284	380	3030	858	1720	3700	2760	3400	480	142	180
18	148	437	391	2370	1500	1690	4070	2510	3200	460	140	165
19	193	391	426	2070	2300	1790	4530	2400	3000	440	151	168
20	266	270	426	1460	2600	1720	4810	2370	2700	430	174	200
21	279	177	414	1040	2300	1750	4920	2380	2500	410	162	200
22	225	132	420	922	2000	1810	4810	2560	2300	360	148	211
23	214	229	391	1100	1800	2430	4830	2370	2200	340	137	200
24	221	312	293	898	1900	2020	4860	2090	2000	310	132	180
25	249	363	262	768	1700	1760	4330	2030	1800	290	124	168
26	284	347	437	746	2300	1680	4040	2210	1900	270	122	162
27	347	293	358	711	2900	1700	3960	2850	1800	260	117	153
28	270	159	221	370	2850	1520	4080	3490	1600	250	115	148
29	249	140	184	390	2800	1480	5250	3540	1500	248	115	142
30	233	137	241	410	---	1390	4610	3300	1300	262	120	140
31	229	---	327	430	---	1320	---	3330	---	241	137	---
TOTAL	5182	6909	13378	37617	37705	59810	94170	98140	86920	19631	4904	4969
MEAN	167	230	432	1213	1300	1929	3139	3166	2897	633	158	166
MAX	347	437	820	4930	2900	2600	5250	4210	4750	1300	229	312
MIN	96	132	184	312	420	1320	1130	2030	1300	241	115	113
AC-FT	10280	13700	26540	74610	74790	118600	186800	194700	172400	38940	9730	9860
CAL YR 1979 TOTAL	612596			1678	MAX	11500	MIN 92	AC-FT	1215000			
WTR YR 1980 TOTAL	469335			MEAN 1282	MAX	5250	MIN 96	AC-FT	930900			

14046500 JOHN DAY RIVER AT SERVICE CREEK, OR

LOCATION.--Lat 44°47'38", long 120°00'20", in NW¼NE¼ sec.18, T.9 S., R.23 E., Wheeler County, Hydrologic Unit 17070204, on left bank 0.2 mi (0.3 km) downstream from bridge on State Highway 207, 0.8 mi (1.3 km) downstream from Service Creek, 0.5 mi (0.8 km) southwest of town of Service Creek, and at mile 156.7 (252.1 km).

DRAINAGE AREA.--5,090 mi² (13,200 km²), approximately.

PERIOD OF RECORD.--March 1925 to September 1926, October 1929 to current year. Monthly discharge only March 1925 to September 1926, published in WSP 1318.

GAGE.--Water-stage recorder. Datum of gage is 1,632.42 ft (497.562 m) National Geodetic Vertical Datum of 1929. See WSP 1738 for history of changes prior to Feb. 24, 1957.

REMARKS.--Records excellent. Very slight regulation by several small reservoirs above station. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--52 years, 1,833 ft³/s (51.91 m³/s), 1,328,000 acre-ft/yr (1.64 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,200 ft³/s (1,140 m³/s) Dec. 23, 1964, gage height, 17.85 ft (5.441 m), from rating curve extended above 14,000 ft³/s (396 m³/s) on basis of slope-area measurement of peak flow; minimum, 6.0 ft³/s (0.17 m³/s) Aug. 23, 24, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 7,300 ft³/s (207 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Jan. 14	1000	*8,380 237	a*8.46 2.579	June 15	0330	7,400 210	8.00 2.438

Minimum, 109 ft³/s (3.09 m³/s) Aug. 28.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	202	527	527	649	886	4310	2140	5250	4330	1810	314	156
2	220	511	718	738	1180	3830	2100	4760	5160	1680	293	153
3	213	503	759	718	1280	3620	1960	4890	5120	1780	279	147
4	213	503	1230	688	1780	3650	1910	4690	4850	1870	257	156
5	217	527	1370	738	1530	3850	1940	4590	4670	1700	236	162
6	220	560	1320	1210	1410	4030	2360	4900	4850	1630	220	156
7	224	577	1130	1080	1410	3850	2500	5180	4830	1550	217	144
8	217	560	1070	790	1350	3500	2280	4480	4570	1400	209	135
9	217	543	1060	932	1230	3230	2280	4660	4140	1460	195	135
10	205	527	1040	991	1150	2980	2870	5080	3880	1400	191	138
11	205	511	1010	864	1100	2950	2970	5140	3720	1190	171	150
12	205	473	832	1010	1060	3080	2820	4620	3850	1060	159	156
13	217	444	801	5970	1020	2790	3130	4330	4620	991	153	174
14	232	430	811	7040	991	2710	3880	4160	4570	920	156	257
15	249	444	811	6040	979	2980	4670	4310	6770	843	138	535
16	270	444	790	4330	943	2790	4800	4080	5660	811	132	473
17	289	535	759	3530	1010	2590	4870	3770	4990	749	135	390
18	325	708	749	3030	2020	2640	5310	3430	4550	688	132	336
19	372	853	770	2260	3550	2680	5870	3220	4160	659	135	319
20	444	728	780	1710	3990	2670	6260	3080	3790	631	135	342
21	569	595	770	1650	3990	2710	6440	3020	3480	612	162	397
22	543	496	770	1840	3150	2730	6420	3110	3180	577	165	403
23	488	481	738	1550	2890	3320	6320	3180	3180	519	156	410
24	496	621	631	1400	2890	3150	6420	2900	3110	488	147	384
25	519	718	603	1360	2750	2820	6020	2820	2780	444	138	359
26	543	801	759	1280	3480	2590	5470	2930	2550	423	127	348
27	612	749	698	979	5230	2620	5230	3740	2580	397	116	336
28	631	603	511	595	5010	2550	5230	4290	2480	365	111	319
29	560	430	473	659	4870	2330	6060	4530	2180	348	114	308
30	543	481	527	649	---	2350	6300	4310	1990	330	116	289
31	527	---	631	708	---	2240	---	4350	---	325	127	---
TOTAL	10987	16883	25448	56988	64129	94140	126830	127800	120590	29650	5336	8167
MEAN	354	563	821	1838	2211	3037	4228	4123	4020	956	172	272
MAX	631	853	1370	7040	5230	4310	6440	5250	6770	1870	314	535
MIN	202	430	473	595	886	2240	1910	2820	1990	325	111	135
AC-FT	21790	33490	50480	113000	127200	186700	251600	253500	239200	58810	10580	16200
CAL YR 1979	TOTAL	886453	MEAN	2429	MAX	15700	MIN	95	AC-FT	1758000		
WTR YR 1980	TOTAL	686948	MEAN	1877	MAX	7040	MIN	111	AC-FT	1363000		

14047390 ROCK CREEK ABOVE WHYTE PARK, NEAR CONDON, OR

LOCATION.--Lat 45°15'53", long 120°01'15", in NE¼ sec.36, T.3 S., R.22 E., Gilliam County, Hydrologic Unit 17070204, on left bank 0.2 mi (0.3 km) upstream from Whyte Park, 8.0 mi (12.9 km) northeast of Condon, and at mile 40.8 (65.6 km).

DRAINAGE AREA.--297 mi² (769 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,714.50 ft (522.580 m) National Geodetic Vertical Datum of 1929 (Soil Conservation Service temporary bench mark).

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--5 years, 38.6 ft³/s (1.093 m³/s), 27,970 acre-ft/yr (34.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,800 ft³/s (51.0 m³/s) Feb. 6, 1979, gage height, 8.51 ft (2.594 m) in gage well, 9.4 ft (2.87 m), from outside gage; minimum, 0.08 ft³/s (0.002 m³/s) Aug. 17, 19, 20, 22, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 220 ft³/s (6.23 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Jan. 12	2000	*798 22.6	*7.18a 2.188	May 5	1600	383 10.8	6.40a 1.951
Feb. 18	1200	405 11.5	6.45 1.966	June 16	1830	387 11.0	6.41a 1.954
Feb. 26	2030	336 9.52	6.29 1.917				

Minimum, 0.48 ft³/s (0.014 m³/s) Oct. 8-10.

a floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	6.0	31	14	35	155	88	28	11	10	1.5	2.1
2	.68	6.0	47	13	52	158	78	26	16	9.4	1.5	2.1
3	.68	6.4	92	14	70	178	74	21	15	9.9	1.5	2.1
4	.58	6.4	135	16	92	172	69	20	13	9.4	1.5	2.1
5	.58	4.4	150	34	74	166	70	30	11	9.4	1.5	2.1
6	.58	2.2	97	64	76	155	80	34	9.9	8.2	1.5	1.8
7	.58	2.2	80	52	78	175	70	30	7.6	6.5	1.5	1.5
8	.48	2.2	67	43	72	169	62	27	11	5.9	1.5	1.5
9	.48	4.4	58	42	62	160	67	24	14	6.5	1.3	1.5
10	.58	9.6	54	38	59	149	72	29	14	5.5	1.3	1.5
11	.68	10	37	48	56	172	64	35	14	5.0	1.3	1.5
12	.68	9.6	39	175	53	149	59	29	14	4.6	1.3	2.1
13	.58	10	36	422	47	138	56	22	14	4.2	1.3	2.4
14	.68	9.0	31	410	40	146	53	25	14	3.4	1.1	2.4
15	.80	9.0	27	283	42	146	51	30	14	3.4	1.1	2.1
16	.80	9.6	26	225	43	119	48	33	28	3.0	1.1	1.8
17	.68	12	24	207	48	119	46	31	29	2.7	1.1	1.8
18	.68	22	24	149	240	117	41	26	17	2.4	1.1	1.8
19	2.8	42	26	117	201	117	39	23	13	2.4	1.3	1.8
20	7.9	43	24	105	188	110	41	19	11	2.4	1.3	1.8
21	13	37	23	107	175	122	44	17	10	2.4	1.1	1.8
22	9.0	36	21	88	160	143	44	14	10	2.4	1.1	2.1
23	7.4	39	15	78	155	181	43	20	13	2.1	1.1	2.1
24	7.4	43	15	76	158	152	39	18	13	2.1	1.1	2.1
25	9.0	56	21	72	163	132	35	14	12	2.1	1.1	2.1
26	9.6	109	15	56	236	124	33	15	15	2.1	1.1	1.8
27	7.4	60	11	27	279	119	31	33	20	1.8	1.1	1.8
28	6.4	30	12	28	221	100	29	44	17	1.8	1.1	1.8
29	6.2	28	13	28	178	96	31	33	13	1.8	1.3	1.8
30	6.2	29	13	28	---	90	31	17	11	1.5	1.5	1.8
31	6.2	---	13	32	---	92	---	17	---	1.5	2.1	---
TOTAL	109.98	693.0	1277	3091	3353	4321	1588	784	424.5	135.8	40.3	57.0
MEAN	3.55	23.1	41.2	99.7	116	139	52.9	25.3	14.2	4.38	1.30	1.90
MAX	13	109	150	422	279	181	88	44	29	10	2.1	2.4
MIN	.48	2.2	11	13	35	90	29	14	7.6	1.5	1.1	1.5
AC-FT	218	1370	2530	6130	6650	8570	3150	1560	842	269	80	113

CAL YR 1979	TOTAL	25638.14	MEAN	70.2	MAX	716	MIN	.48	AC-FT	50850
WTR YR 1980	TOTAL	15874.58	MEAN	43.4	MAX	422	MIN	.48	AC-FT	31490

JOHN DAY RIVER BASIN

14047390 ROCK CREEK ABOVE WHYTE PARK, NEAR CONDON, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May, June 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	SILICA, DIS- SOLVED (MG/L AS SI02)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY (MG/L AS CAC03)
MAY											
25...	1315	15	12.0	8.5	253	36	24	8.8	18	3.4	110
JUN											
02...	1300	18	13.0	8.4	254	36	24	8.7	18	3.4	120
09...	1400	15	17.5	8.5	255	35	23	8.4	18	3.6	120
13...	1255	16	15.0	8.3	254	35	23	8.4	18	3.4	110

DATE	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)
MAY											
25...	7.1	10	.2	.48	.04	1.4	.010	.06	1.5	.080	.080
JUN											
02...	7.0	4.5	.2	.53	.01	.80	.000	.01	.81	.070	.090
09...	4.8	4.2	.2	.40	.03	.73	.060	.04	.83	.060	.090
13...	5.7	4.3	.2	.49	.13	.62	.000	.15	.77	.000	.070

DATE	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED (MG/L AS C)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L CAC03)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	TUR- BID- ITY (NTU)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAY										
25...	4.4	.3	96	0	172	174	21	--	--	--
JUN										
02...	8.3	.2	96	0	179	174	2.4	9	.43	75
09...	9.9	.3	92	0	168	170	2.8	11	.45	73
13...	9.2	.3	92	0	166	165	1.5	7	.30	69

JOHN DAY RIVER BASIN

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14047390 ROCK CREEK ABOVE WHYTE PARK, NEAR CONDON, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, DIS- SOLVED (UG/L AS B)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
MAY 25...	2	1	40	<100	--	--	0	0	0	0
JUN 02...	1	1	40	<100	40	60	<1	1	10	10
09...	2	2	40	<100	30	50	<1	0	0	10
13...	2	2	30	<100	40	50	<1	0	0	10

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)
MAY 25...	0	0	3	5	100	210	1	2	10	10
JUN 02...	<3	0	<10	8	17	220	0	7	8	20
09...	<3	0	<10	3	14	270	0	4	10	20
13...	<3	0	<10	3	11	200	0	10	6	20

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SILVER, DIS- SOLVED (UG/L AS AG)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ANTI- MONY, DIS- SOLVED (UG/L AS SB)	ANTI- MONY, TOTAL RECOV- ERABLE (UG/L AS SB)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)
MAY 25...	1	3	0	0	<3	20	--	--	--	--
JUN 02...	2	7	0	0	6	40	0	0	40	30
09...	0	0	0	0	<3	30	0	0	20	290
13...	1	4	0	0	<3	30	0	0	20	120

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	LITHIUM TOTAL RECOV- ERABLE (UG/L AS LI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	MERCURY DIS- SOLVED (UG/L AS HG)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
MAY 25...	--	--	0	0	--	--	--	--	--
JUN 02...	<4	0	0	0	--	--	<1	110	11
09...	<4	0	0	0	.0	.1	<1	110	12
13...	<4	0	0	0	.0	.1	<1	110	14

14048000 JOHN DAY RIVER AT McDONALD FERRY, OR
(National stream-quality accounting network station)

LOCATION.--Lat 45°35'16", long 120°24'30", in NE¼NW¼ sec.11, T.1 N., R.19 E., Sherman County, Hydrologic Unit 17070204, on left bank at McDonald Ferry, 0.8 mi (1.3 km) downstream from Rock Creek, 10 mi (16 km) east of Klondike, and at mile 20.9 (33.6 km).

DRAINAGE AREA.--7,580 mi² (19,600 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1904 to current year. Prior to Oct. 1, 1930, published as "at McDonald."

REVISED RECORDS.--WSP 1094: 1894(M), 1932(M). WSP 1448: 1908-9, 1912, 1916, 1920(M), 1922, 1932.

GAGE.--Water-stage recorder. Datum of gage is 392.27 ft (119.564 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 30, 1930, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records excellent. No regulation. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--75 years (water years 1906-80), 2,013 ft³/s (57.01 m³/s), 1,458,000 acre-ft/yr (1.80 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,800 ft³/s (1,210 m³/s) Dec. 24, 1964, gage height, 13.59 ft (4.142 m), from floodmark, from rating curve extended above 11,000 ft³/s (312 m³/s) on basis of slope-area measurement of peak flow; no flow for part of Sept. 2, 1966, Aug. 15 to Sept. 16, 1973, Aug. 13, 14, 19-25, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1894 reached a stage of 12.8 ft (3.90 m), from floodmarks, discharge, 39,100 ft³/s (1,110 m³/s), from rating curve extended above 22,000 ft³/s (623 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,900 ft³/s (195 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Jan. 15	0700	*10,200 289	*7.11 2.167	June 16	0230	7,340 208	6.28 1.914
Apr. 30	2100	7,290 206	6.26 1.908				

Minimum, 113 ft³/s (3.20 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	597	597	597	581	5790	2540	6560	4400	2000	323	129
2	171	589	589	724	816	5420	2430	5510	4400	1820	311	124
3	190	589	845	733	1520	4960	2380	4940	5190	1650	306	129
4	205	597	1110	826	1830	4570	2190	5010	5230	1670	294	137
5	220	573	1300	854	2040	4340	2130	4830	4900	1790	288	154
6	215	565	1580	903	2270	4360	2120	4790	4750	1710	272	149
7	220	581	1610	933	1910	4550	2330	4990	4880	1610	235	141
8	225	605	1420	1400	1790	4640	2760	5350	4920	1560	240	158
9	230	630	1280	1110	1760	4510	2520	4680	4660	1440	235	171
10	230	613	1230	845	1640	4220	2430	4770	4240	1300	235	162
11	225	605	1200	1040	1520	3910	2860	5390	3950	1390	225	158
12	230	589	1140	2510	1470	3710	3210	5420	3790	1260	225	145
13	225	573	1110	3750	1410	3690	2980	4900	3870	1090	220	145
14	225	542	964	5790	1380	3590	3200	4570	4640	1010	205	171
15	235	511	944	9000	1290	3420	3890	4430	4640	933	190	225
16	256	519	944	7660	1260	3380	4770	4510	6890	874	176	225
17	277	534	933	5790	1260	3440	4940	4360	5870	807	162	392
18	300	534	913	4720	2350	3210	4940	4030	5170	770	158	511
19	347	605	884	4090	2710	3160	5440	3670	4680	716	141	460
20	405	779	874	3180	4170	3110	6060	3400	4280	672	129	405
21	489	884	884	2520	4470	3140	6530	3210	3910	647	124	366
22	511	797	893	2210	4810	3140	6740	3120	3570	613	133	366
23	630	698	884	2350	4110	3180	6710	3140	3310	581	124	399
24	647	663	874	2190	3650	3610	6610	3310	3180	557	124	432
25	622	647	845	1940	3510	3770	6680	3050	3330	504	154	432
26	605	816	760	1860	3710	3360	6260	2960	2980	460	154	426
27	622	893	707	1870	4470	3050	5680	3050	2710	439	137	386
28	638	913	835	1490	6130	3020	5420	3750	2590	412	129	373
29	698	845	797	913	6110	2960	5680	4340	2610	386	121	360
30	742	733	655	672	---	2690	6360	4620	2270	360	129	354
31	647	---	581	605	---	2690	---	4450	---	335	124	---
TOTAL	11606	19619	30182	75075	75947	116590	128790	135110	125810	31366	6023	8185
MEAN	374	654	974	2422	2619	3761	4293	4358	4194	1012	194	273
MAX	742	913	1610	9000	6130	5790	6740	6560	6890	2000	323	511
MIN	124	511	581	597	581	2690	2120	2960	2270	335	121	124
AC-FT	23020	38910	59870	148900	150600	231300	255500	268000	249500	62210	11950	16230

CAL YR 1979	TOTAL	1019012	MEAN	2792	MAX	18000	MIN	78	AC-FT	2021000
WTR YR 1980	TOTAL	764303	MEAN	2088	MAX	9000	MIN	121	AC-FT	1516000

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1911-12, 1960-68, 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1975 to current year.

WATER TEMPERATURES: October 1962 to September 1968, October 1975 to current year.

SEDIMENT CONCENTRATIONS: October 1962 to September 1968.

SEDIMENT DISCHARGE: October 1962 to September 1968.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 438 micromhos July 1, 1978; minimum, 70 micromhos Apr. 3, 1978.

WATER TEMPERATURES: Maximum, 33.0°C Aug. 12, 1977; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 346 micromhos Oct. 23; minimum, 91 micromhos Jan. 16.

WATER TEMPERATURES: Maximum, 30.5°C July 28; minimum, 0.0°C on many days in January and February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	OXYGEN, DIS- SOLVED (MG/L)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	SILICA, DIS- SOLVED (MG/L AS SiO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT												
09...	1200	230	17.5	8.1	10.4	330	K19	K36	14	25	14	25
NOV												
14...	1200	497	5.0	7.9	12.6	280	K7	K8	21	26	11	15
DEC												
18...	1530	903	3.1	8.2	12.0	234	70	58	27	22	9.6	13
FEB												
29...	1600	6080	9.0	8.2	10.6	155	490	410	30	14	5.6	6.9
APR												
17...	1800	4960	14.2	7.1	11.0	130	133	K26	29	12	5.0	5.7
MAY												
13...	0001	4700	17.2	7.3	10.0	146	80	68	27	12	4.9	5.0
JUN												
11...	1100	3990	17.9	7.9	10.0	136	K42	75	28	12	5.4	5.8
JUL												
15...	1200	944	22.4	8.3	8.9	200	K47	K31	29	20	8.5	11
AUG												
07...	1700	245	25.4	9.0	10.0	270	K2	<0	15	22	11	16
SEP												
23...	1300	405	17.0	8.9	11.5	320	K7	K10	21	26	12	22
DATE		POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUC- RIDE, DIS- SOLVED (MG/L AS F)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
OCT												
09...	3.1	150	23	4.5	.2	.46	.03	.70	.060	.00	.76	.010
NOV												
14...	2.0	140	15	3.0	.1	.40	.05	.47	.030	.05	.55	.010
DEC												
18...	1.8	110	6.4	3.0	.1	.35	.09	.51	.000	.10	.61	.010
FEB												
29...	1.3	67	1.5	.5	.1	.46	.37	1.3	.120	.28	1.7	.050
APR												
17...	1.5	54	2.9	1.2	.1	.52	.18	.54	.000	.08	.62	.050
MAY												
13...	1.3	52	1.7	.8	.1	.37	.08	.75	.040	1.3	2.1	.040
JUN												
11...	1.5	66	1.0	.5	.1	.33	.01	.49	.030	.02	.54	.050
JUL												
15...	2.2	95	6.0	1.7	.3	.99	.02	--	.030	.00	--	.040
AUG												
07...	3.1	130	15	3.6	.2	.41	.00	.63	.000	.00	.63	.010
SEP												
23...	2.5	150	18	3.9	.3	.53	.00	.59	.000	.05	.64	.020

JOHN DAY RIVER BASIN

14048000 JOHN DAY RIVER AT McDONALD FERRY, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED (MG/L AS C)	CARBON, ORGANIC TOTAL (MG/L AS C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	TUR- BID- ITY (NTU)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 09...	.020	4.1	.2	--	120	0	210	199	4.4	10	6.2	94
NOV 14...	.020	--	--	9.9	110	0	181	178	5.1	16	21	95
DEC 18...	.030	--	--	6.4	94	0	159	149	7.4	17	41	94
FEB 29...	.570	5.4	--	--	58	0	95	102	110	793	13000	66
APR 17...	.210	6.1	9.0	--	51	0	114	91	36	332	4450	56
MAY 13...	.100	--	--	5.6	50	0	87	84	9.0	140	1780	64
JUN 11...	.070	--	--	4.9	52	0	98	94	8.8	42	452	--
JUL 15...	.060	5.1	--	--	85	0	133	136	3.6	13	33	89
AUG 07...	.010	--	--	4.1	100	0	166	164	1.1	3	2.0	70
SEP 23...	.030	--	--	4.5	110	0	201	196	2.3	8	8.7	88

DATE	IRON, DIS- SOLVED (UG/L AS FE)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	ARSENIC DIS- SOLVED (UG/L AS AS)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)
OCT 09...	10	280	6	20	0	1	20	--	<1	0
FEB 29...	550	25000	20	690	1	1	20	300	<1	0
APR 17...	100	6500	4	170	1	1	10	200	2	1
JUL 15...	30	530	<1	20	2	2	20	<100	<1	1

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	SILVER, DIS- SOLVED (UG/L AS AG)
OCT 09...	0	--	<3	0	6	7	0	1	0
FEB 29...	0	20	<3	13	2	48	0	25	0
APR 17...	0	10	<3	5	4	12	2	2	0
JUL 15...	0	0	<3	0	3	24	1	190	0

DATE	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SELE- NIUM, TOTAL (UG/L AS SE)	MERCURY DIS- SOLVED (UG/L AS HG)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
OCT 09...	0	4	0	0	0	--	--	0	4
FEB 29...	0	10	90	0	0	--	--	0	17
APR 17...	0	<3	30	0	0	.0	.0	3	14
JUL 15...	0	<3	30	0	0	.0	.1	2	4

JOHN DAY RIVER BASIN

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14048000 JOHN DAY RIVER AT McDONALD FERRY, OR--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ALDRIN, TOTAL (UG/L)	LINDANE TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 29...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 07...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	METH- OXY- CHLOR, TOTAL (UG/L)	PCB TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 29...	ND	ND	ND	ND	ND	ND	--	--	--	ND	ND
AUG 07...	ND	ND	ND	ND	ND	ND	--	--	--	ND	ND

14048000 JOHN DAY RIVER AT McDONALD FERRY, OR--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	NOV 14, 79 1200	FEB 29, 80 1600	APR 17, 80 1800	MAY 13, 80 0000
TOTAL CELLS/ML	720	700	910	290
DIVERSITY: DIVISION	1.6	1.1	0.3	0.0
..CLASS	1.6	1.1	0.3	0.0
..ORDER	1.9	1.2	1.1	0.3
...FAMILY	2.3	3.2	2.6	1.5
....GENUS	2.3	3.5	2.7	1.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
....COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
....HYDRODICTYACEAE								
....PECIASTRUM	110#	16	--	-	--	-	--	-
....OOCYSTACEAE								
....ANKISTRODESMUS	29	4	--	-	--	-	--	-
....GLCEOACTINIUM	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-
....SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	40	6	26	3	--	-
....TETRASTRUM	--	-	--	-	--	-	--	-
..TETRASPORALES								
...COCCOMYXACEAE								
....ELAKATCTHRIX	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	43	6	--	-	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	14	2	--	-	13	1	--	-
CHRYSOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
....COSCINODISCACEAE								
....CYCLOTELLA	--	-	5	1	--	-	13	5
....MELOSIRA	--	-	--	-	240#	27	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	13	1	--	-
....COCCONEIS	--	-	10	1	--	-	--	-
....RHODICOSPHEA	--	-	5	1	--	-	--	-
....CYMBELLACEAE								
....CYMBELLA	--	-	25	4	--	-	--	-
....EPITHEMIA	--	-	35	5	--	-	--	-
....RHOPALDIA	--	-	5	1	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	71	10	13	1	--	-
....EUNOTIACEAE								
....EUNOTIA	--	-	5	1	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	50	7	130	14	170#	59
....SYNEDRA	29	4	55	8	13	1	13	5
...GOMPHONEMACEAE								
....GOMPHONEMA	--	-	30	4	90	10	--	-
...NAVICULACEAE								
....NAVICULA	14	2	100	14	140#	15	39	14
....PINNULARIA	--	-	--	-	13	1	--	-
...NITZSCHACEAE								
....NITZSCHIA	240#	34	86	12	220#	24	51#	18
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
....CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROCOCCOCCALES								
....CHROCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-	--	-
...HORMOGONIALES								
....NOSTOCACEAE								
....ANABAENA	--	-	100	14	--	-	--	-
....OSCILLATORIACEAE								
....OSCILLATORIA	230#	32	76	11	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR--Continued
 PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JUN 11,80 1100	AUG 7,80 1700	AUG 15,80 1200
TOTAL CELLS/ML	220	690	2500
DIVERSITY: DIVISION	1.0	1.2	1.6
..CLASS	1.0	1.2	1.6
..ORDER	1.0	1.5	2.0
...FAMILY	1.9	1.9	2.5
....GENUS	1.9	2.5	2.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	130	5
...HYDRODICTYACEAE						
....PEDIATRUM	--	-	--	-	--	-
...COCYSTACEAE						
....ANKISTRODESMUS	26	12	64	9	150	6
....GLOEDACTINIUM	--	-	--	-	52	2
....COCYSTIS	--	-	--	-	13	1
....SELENASTRUM	--	-	220#	31	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	--	-	100	4
....SCENEDESMUS	--	-	77	11	210	8
....TETRASTRUM	--	-	--	-	52	2
..TETRASPORALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	--	-	26	1
..VCLVOCALLES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	51	7	39	2
..ZYGNEMATALES						
...DESMIDIACEAE						
....CLOSTERIUM	--	-	--	-	--	-
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINOIDISCEAE						
....CYCLOTELLA	--	-	--	-	770#	31
....MELCIRA	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	13	1
...COCONEIS	--	-	--	-	--	-
...RHOICOSPHEIA	--	-	--	-	--	-
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-
....RHOPALOCIA	--	-	--	-	--	-
...DIATOMACEAE						
....DIATOMA	--	-	--	-	--	-
...EUNOTIACEAE						
....EUNOTIA	--	-	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	--	-
...SYNEDRA	--	-	--	-	--	-
...GOMPHONEMACEAE						
....GOMPHONEMA	13	6	--	-	--	-
...NAVICULACEAE						
....NAVICULA	39#	18	13	2	26	1
...PINNULARIA	--	-	--	-	--	-
...NITZSCHACEAE						
....NITZSCHIA	120#	53	--	-	150	6
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROMONAS	--	-	13	2	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	210#	30	--	-
....ANACYSTIS	26	12	51	7	13	1
...HORMOGONIALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	770#	31

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

JOHN DAY RIVER BASIN

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	326	291	265	243		167	201	111	140	175	267	
2	327	282	260	237		167	201	109	139	182	270	
3	329	279	261	237		171	205	116	136	184	272	
4	332	267	255	246		179	207	121	127	187	276	
5	332	273	252	252		180	209	118	125	189	279	
6	336	278	274	246		180	212	117	128	187	281	
7	340	281	265	238		179	215	118	131	185	283	
8	340	286	240	225		179	213	113	133	188	287	
9	331	289	212	222		181	199	109	135	197	287	
10	330	290	204	218		182	186	116	136	200	286	
11	329	292	208	194		186	190	120	139	203	287	
12	330	291	218	171		190	189	128	139	205	287	
13	329	290	221	---		193	165	130	139	205	288	
14	328	289	223	---		191	163	134	138	207	289	
15	332	287	224	106		190	163	140	137	209	293	
16	338	283	221	92		194	149	141	142	216	296	
17	340	285	225	97		195	136	138	141	223	298	
18	342	288	229	106		189	135	139	144	228	298	
19	340	290	234	117		191	134	142	144	233	299	
20	342	293	231	125		195	129	144	144	234	---	
21	338	299	232	131		195	122	147	145	236	---	
22	341	294	235	141		193	119	147	146	237	---	
23	344	284	234	154		196	116	146	148	240	---	
24	343	267	233	167		197	116	142	149	242	---	
25	336	257	230	172		192	116	138	151	246	---	
26	324	247	226	165		181	114	139	150	247	---	
27	315	255	226	159		185	115	147	158	249	---	
28	307	271	227	---		192	119	153	167	252	---	
29	290	284	229	---		196	122	153	171	256	---	
30	293	278	231	---		196	138	150	174	260	---	
31	294	---	234	---		197	---	140	---	264	---	
MEAN	329	281	234	178		187	160	132	143	218	285	

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	19.0	16.0	9.5	7.5	1.0	1.0	3.5	2.5	.0	.0	9.0	7.5
2	19.0	16.0	8.0	7.5	2.5	1.0	3.0	2.5	.5	.0	8.5	7.5
3	18.0	14.5	8.0	7.5	4.0	2.5	3.5	3.0	.0	.0	8.5	7.0
4	18.0	14.0	9.0	8.0	5.5	4.0	3.0	2.5	1.0	.0	9.5	8.0
5	19.5	15.0	9.5	9.0	5.5	5.0	3.5	1.5	.5	.5	8.5	7.0
6	18.5	15.5	10.0	8.5	5.5	5.0	2.0	.5	2.0	.0	7.5	6.0
7	19.0	16.0	9.0	8.0	5.5	4.5	.5	.0	3.5	1.0	8.0	6.0
8	18.5	15.0	8.5	7.0	5.5	4.5	.0	.0	3.0	3.0	8.5	7.0
9	17.5	14.5	9.0	7.5	6.5	5.0	.0	.0	3.5	3.0	9.0	7.0
10	17.0	13.0	8.5	7.5	5.5	3.5	.0	.0	4.0	3.5	9.5	7.5
11	17.0	13.0	8.0	7.0	3.5	3.0	.0	.0	3.5	3.5	9.5	8.0
12	17.0	13.5	7.0	6.5	4.0	3.0	3.0	.0	3.5	3.0	8.5	7.0
13	16.0	13.5	6.5	5.5	3.5	2.5	4.0	2.5	3.0	2.0	8.5	6.5
14	16.5	14.5	5.5	4.5	5.0	3.5	5.0	4.0	2.0	1.0	8.5	8.0
15	18.0	15.0	4.5	4.5	5.5	4.0	4.5	4.0	1.5	1.0	8.5	7.0
16	16.5	14.5	4.5	4.0	3.5	2.5	4.0	4.0	1.5	1.0	9.0	6.5
17	15.5	13.0	6.0	4.0	2.5	2.5	4.0	3.5	2.5	1.5	8.5	7.5
18	13.5	12.5	7.0	5.0	3.0	2.5	3.5	2.0	3.5	2.5	9.0	7.0
19	13.0	11.5	6.0	4.5	4.0	3.0	2.0	1.0	5.0	3.0	10.0	7.5
20	11.5	10.0	4.5	3.5	4.0	3.5	1.0	.5	6.5	4.5	10.0	8.5
21	11.0	9.0	4.5	4.0	4.5	4.0	1.5	1.0	7.0	5.5	10.5	8.0
22	11.0	10.5	4.0	3.0	4.0	2.5	1.0	.5	5.5	5.0	10.0	8.0
23	12.5	11.0	3.5	2.5	2.5	1.5	1.5	.5	6.0	5.0	9.5	7.5
24	11.5	11.0	4.0	3.0	3.0	2.0	2.0	1.5	6.5	5.5	10.0	6.5
25	13.0	11.0	4.0	3.0	3.0	2.5	3.0	1.0	6.5	6.0	10.0	7.5
26	13.0	11.0	4.5	3.0	3.0	2.5	1.5	.0	7.0	6.5	10.5	8.5
27	13.5	11.5	3.0	2.0	2.5	2.5	.0	.0	8.0	7.0	10.5	7.0
28	12.0	10.0	2.0	1.0	2.5	2.0	.0	.0	9.5	8.0	10.0	8.0
29	11.0	9.0	1.5	.5	2.5	2.5	.0	.0	9.0	8.5	9.0	7.5
30	10.0	9.5	2.0	1.0	2.5	2.0	.0	.0	---	---	9.5	6.5
31	11.0	9.0	---	---	2.5	2.0	.0	.0	---	---	9.5	7.0
MONTH	19.5	9.0	10.0	.5	6.5	1.0	5.0	.0	9.5	.0	10.5	6.0
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	9.0	7.0	15.5	12.5	18.0	16.5	24.5	20.0	25.0	20.5	20.0	15.5
2	8.5	6.5	16.0	13.5	17.0	14.5	24.0	21.0	24.0	20.0	21.0	18.5
3	9.5	6.5	16.5	13.5	16.0	13.5	21.5	20.0	24.0	18.0	20.0	15.5
4	11.5	8.0	19.0	15.5	16.5	13.5	21.0	19.5	24.5	20.0	22.5	16.5
5	12.0	10.0	19.5	17.0	16.5	12.5	22.0	18.0	22.0	18.0	24.5	19.0
6	11.0	9.0	18.0	16.0	17.0	13.5	24.0	19.0	23.5	17.0	24.0	20.5
7	11.0	8.0	18.0	15.5	18.0	15.0	25.0	21.0	25.5	20.0	23.0	17.0
8	11.0	9.5	17.0	15.0	19.0	16.0	26.0	22.0	25.0	21.0	22.0	17.0
9	12.5	9.5	15.0	13.5	19.0	16.5	25.0	21.5	27.0	21.0	22.0	18.0
10	13.0	10.5	14.0	13.5	20.5	17.0	23.5	19.5	27.0	22.0	23.5	19.0
11	13.5	10.0	15.5	13.0	20.5	17.0	23.0	21.0	27.5	23.5	22.0	15.5
12	14.5	11.0	16.0	13.5	18.5	17.0	24.5	20.0	27.0	21.0	20.0	14.5
13	15.5	12.0	17.0	13.5	17.0	14.5	25.0	20.5	27.5	21.5	17.0	14.0
14	15.0	13.5	16.0	15.0	17.0	15.0	23.5	20.5	25.0	19.5	19.5	12.5
15	15.5	12.5	15.5	13.0	18.0	13.0	25.0	19.5	22.5	18.0	21.5	12.0
16	15.5	12.5	16.0	13.0	19.0	16.5	24.0	21.5	23.5	17.0	21.5	13.5
17	14.0	13.0	17.5	14.0	19.5	16.5	25.5	20.0	21.5	17.0	20.5	13.5
18	15.0	12.5	18.5	15.5	21.0	17.5	25.5	21.5	20.5	16.5	18.5	13.0
19	15.5	13.5	20.0	16.5	22.0	17.0	25.5	19.5	22.5	17.0	17.5	16.0
20	14.5	13.0	20.5	17.5	23.0	20.0	27.5	22.0	22.0	18.0	17.0	15.0
21	13.0	12.5	21.5	17.5	22.5	20.5	29.0	24.0	23.5	18.0	17.0	13.5
22	13.0	12.0	20.0	17.0	21.0	19.5	28.5	25.0	24.5	18.0	17.0	13.5
23	14.0	11.5	18.5	16.0	21.0	18.5	26.0	22.5	24.0	18.0	18.0	15.0
24	14.0	11.5	17.5	15.0	20.5	18.5	27.0	21.0	24.0	18.0	19.0	16.0
25	14.5	11.5	15.0	13.0	19.0	17.5	27.5	22.5	24.0	18.5	18.5	16.0
26	16.0	13.0	13.0	11.5	19.0	16.5	29.0	23.5	24.0	19.0	19.0	16.0
27	17.5	14.0	13.5	11.0	20.5	16.5	30.0	24.5	21.5	18.0	19.5	16.5
28	17.5	16.0	15.5	12.0	22.0	18.5	30.5	25.5	20.5	18.0	19.5	15.0
29	16.0	14.0	17.0	13.5	22.0	17.5	27.5	23.0	20.5	15.0	19.5	13.0
30	15.0	13.0	18.5	15.0	23.5	19.0	26.5	22.0	18.5	16.5	18.5	12.5
31	---	---	19.5	16.5	---	---	26.0	22.0	21.0	16.0	---	---
MONTH	17.5	6.5	21.5	11.0	23.5	12.5	30.5	18.0	27.5	15.0	24.5	12.0

LOCATION.--Lat 43°48'51", long 121°46'33", in NW¼ sec.28, T.20 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, in Deschutes National Forest, on left bank at flow line of Crane Prairie Reservoir, 20 ft (6 m) downstream from Snow Creek, 300 ft (91 m) upstream from highway bridge, and 17 mi (27 km) northwest of La Pine.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only October 1937, published in WSP 1318. Published as "near
Lapine" 1937-64.

GAGE.—Water-stage recorder. Altitude of gage is 4,445 ft (1,355 m), from elevation of Crane Prairie Reservoir when slack water extended to gage. Prior to Sept. 10, 1938, nonrecording gage at site 450 ft (137 m) downstream at different datum.

AVERAGE DISCHARGE.—43 years, 151 ft³/s (4.276 m³/s), 109,400 acre-ft/yr (135 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480 ft³/s (13.6 m³/s) Aug. 19, 1974, gage height, 3.17 ft (0.966 m); maximum gage height, 4.12 ft (1.256 m) Jan. 21, 1943 (ice jam); minimum discharge, 40 ft³/s (1.13 m³/s) sometime during period Dec. 22, 1959, to Mar. 2, 1960, result of freezeup; minimum daily, 55 ft³/s (1.56 m³/s) for many days April to June 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 142 ft³/s (4.02 m³/s) Oct. 19, gage height, 1.45 ft (0.442 m); maximum gage height, 2.07 ft (0.631 m) Jan. 30, backwater from ice; minimum discharge, 76 ft³/s (2.15 m³/s) Apr. 14.

CAL	YR 1979	TOTAL	37236	MEAN	102	MAX	145	MIN	70	AC-FT	73860
WTR	YR 1980	TOTAL	36930	MEAN	101	MAX	140	MIN	82	AC-FT	73250

DESCHUTES RIVER BASIN

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14050500 CULTUS RIVER ABOVE CULTUS CREEK, NEAR LA PINE, OR

LOCATION.--Lat 43°49'06", long 121°47'40", near line between secs.20 and 29, T.20 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, Deschutes National Forest, on left bank at highway culvert, 2 mi (3 km) upstream from Cultus Creek, and 18 mi (29 km) northwest of La Pine.

DRAINAGE AREA.--16.5 mi² (42.7 km²), hydrologic drainage boundry uncertain owing to ground-water exchange.

PERIOD OF RECORD.--October 1922 to September 1925, October 1937 to current year. Monthly discharge only October 1937, published in WSP 1318. Prior to Oct. 1, 1964, published as "near Lapine."

REVISED RECORDS.--WSP 1448: 1923-25, 1947.

GAGE.--Water-stage recorder and cement bag control. Altitude of gage is 4,450 ft (1,356 m), by barometer. Oct 1, 1922, to Sept. 30, 1925, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum.

REMARKS.--Records good. No regulation or diversions above station.

AVERAGE DISCHARGE.--46 years, 62.6 ft³/s (1.773 m³/s), 45,350 acre-ft/yr (55.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 178 ft³/s (5.04 m³/s) May 31, 1956, gage height, 1.04 ft (0.317 m); maximum gage height, 1.32 ft (0.402 m) May 16, 1972 (backwater from Crane Prairie Reservoir); minimum discharge, 26 ft³/s (0.74 m³/s) May 26-31, Nov. 23 to Dec. 4, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 57 ft³/s (1.61 m³/s) July 8-11, 22-26, July 30 to Aug. 9; maximum gage height, 0.70 ft (0.213 m) July 22-26, July 30 to Aug. 9, Aug. 11; minimum daily discharge, 40 ft³/s (1.13 m³/s) Jan. 9-14, Jan. 27 to Feb. 25, but may have been less during period of ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	50	46	41	40	41	43	50	50	56	57	54
2	51	50	46	41	40	42	43	50	50	56	57	54
3	50	50	47	41	40	43	43	51	52	56	57	54
4	50	50	47	41	40	43	44	54	52	56	57	53
5	50	50	47	41	40	43	44	54	52	56	57	52
6	49	49	47	41	40	43	44	54	52	56	57	52
7	49	49	47	41	40	43	44	54	52	56	57	52
8	50	49	47	41	40	43	44	54	54	57	57	52
9	50	49	47	40	40	43	44	54	54	57	56	52
10	50	49	47	40	40	43	44	54	54	57	54	54
11	49	49	47	40	40	43	44	53	54	57	54	54
12	49	49	46	40	40	43	44	52	54	56	54	54
13	49	50	46	40	40	43	44	52	54	56	54	54
14	49	50	46	40	40	43	45	52	54	56	54	53
15	49	49	46	43	40	43	46	52	54	56	54	52
16	49	50	46	43	40	43	46	52	54	56	54	52
17	49	49	46	43	40	43	46	51	54	56	54	52
18	49	49	46	43	40	43	47	51	54	56	54	52
19	50	49	46	42	40	43	46	52	56	56	54	52
20	49	49	44	41	40	43	46	52	56	56	54	54
21	49	49	44	41	40	43	46	52	56	56	54	54
22	49	49	43	41	40	43	46	52	54	56	54	54
23	50	47	43	41	40	43	47	52	54	57	54	53
24	50	47	43	41	40	44	47	52	54	56	54	52
25	50	47	43	41	40	44	47	52	56	56	54	52
26	49	47	43	41	41	44	47	52	54	57	52	52
27	49	46	42	40	41	43	47	52	54	56	52	52
28	49	46	41	40	41	43	47	52	54	56	52	52
29	49	46	41	40	41	43	49	52	56	56	52	52
30	50	46	41	40	---	43	49	52	56	56	52	52
31	50	---	41	40	---	43	---	52	---	57	54	---
TOTAL	1536	1458	1392	1269	1164	1333	1363	1620	1614	1743	1690	1583
MEAN	49.5	48.6	44.9	40.9	40.1	43.0	45.4	52.3	53.8	56.2	54.5	52.8
MAX	52	50	47	43	41	44	49	54	56	57	57	54
MIN	49	46	41	40	40	41	43	50	50	56	52	52
AC-FT	3050	2890	2760	2520	2310	2640	2700	3210	3200	3460	3350	3140

CAL YR 1979 TOTAL 17282 MEAN 47.3 MAX 61 MIN 38 AC-FT 34280
WTR YR 1980 TOTAL 17765 MEAN 48.5 MAX 57 MIN 40 AC-FT 35240

14051000 CULTUS CREEK ABOVE CRANE PRAIRIE RESERVOIR, NEAR LA PINE, OR

LOCATION.--Lat 43°49'17", long 121°49'22", in SW¼ sec.19, T.20 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, on left bank 1,000 ft (305 m) upstream from highway bridge, 1.0 mi (1.6 km) downstream from Cultus Lake, and 19 mi (31 km) northwest of La Pine.

DRAINAGE AREA.--33.2 mi² (86.0 km²), hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--March to September 1924 (published as "above Crane Prairie, near Lapine"), October 1937 to current year. Monthly discharge only October 1937 to September 1949, published in WSP 1318. Records for October 1923 to February 1924, published in WSP 594, have been found to be unreliable and should not be used. Published as "near Lapine" 1937-64.

REVISED RECORDS.--WSP 1568: 1957. WRD Oreg. 1973: 1972. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Altitude of gage is 4,545 ft (1,385 m), by barometer. Mar. 1 to Sept. 30, 1924, nonrecording gage at site 100 ft (30 m) upstream at different datum.

REMARKS.--Records good. Some regulation by fish screens at Cultus Lake since 1962. No diversion above station.

AVERAGE DISCHARGE.--43 years (water years 1938-80), 22.5 ft³/s (0.637 m³/s), 16,300 acre-ft/yr (20.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 336 ft³/s (9.52 m³/s) Dec. 25, 1964, gage height, 4.15 ft (1.265 m), from floodmark, from rating curve extended above 90 ft³/s (2.55 m³/s); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 55 ft³/s (1.56 m³/s) Jan. 17, 18, gage height, 2.11 ft (0.643 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.23	1.8	4.3	30	19	11	28	37	24	6.7	.00
2	.00	.20	2.7	4.0	30	18	11	30	37	24	6.3	.00
3	.00	.20	3.5	4.0	29	18	11	32	37	23	5.6	.00
4	.00	.30	4.5	4.5	29	18	11	34	36	22	5.2	.00
5	.00	.30	5.2	4.5	28	19	11	37	35	20	4.9	.00
6	.00	.30	5.2	4.0	28	18	12	38	35	20	4.5	.00
7	.00	.25	5.2	3.6	27	18	13	40	35	20	4.2	.00
8	.00	.25	5.6	3.8	26	18	13	41	35	19	3.8	.00
9	.00	.20	5.6	4.0	25	18	14	42	35	19	3.8	.00
10	.00	.20	5.9	4.2	24	17	14	43	35	18	3.5	.00
11	.00	.15	5.6	25	23	17	14	43	34	18	3.2	.00
12	.00	.20	5.2	13	23	17	13	42	34	17	2.9	.00
13	.00	.20	5.2	23	22	17	13	42	34	16	2.9	.00
14	.00	.15	5.1	36	21	18	13	43	33	16	2.7	.00
15	.00	.15	5.2	43	21	19	13	42	32	15	2.4	.00
16	.00	.25	5.2	50	21	19	13	42	32	15	2.0	.00
17	.00	.30	5.2	54	21	19	13	42	31	14	1.8	.00
18	.00	.50	5.0	54	20	18	12	42	31	13	1.8	.00
19	.13	.65	4.8	53	20	18	13	42	31	13	1.4	.00
20	.00	.50	4.5	51	20	17	14	42	31	12	1.4	.00
21	.00	.65	4.2	49	20	16	15	42	30	11	1.2	.00
22	.00	.50	3.9	47	20	16	15	42	29	11	.97	.00
23	.04	.65	3.7	45	20	15	16	42	29	10	.83	.00
24	.00	2.2	3.7	43	19	15	17	42	28	9.7	.75	.00
25	.07	1.7	3.5	41	19	14	18	41	28	9.2	.57	.00
26	.00	1.0	3.0	39	19	14	19	40	27	8.8	.40	.00
27	.00	1.0	3.0	34	19	14	21	40	26	8.3	.30	.00
28	.00	1.0	3.0	32	19	13	23	40	26	8.5	.30	.00
29	.00	1.0	3.2	31	19	13	25	39	25	7.9	.20	.00
30	.02	1.1	3.5	31	---	12	26	38	25	7.1	.05	.00
31	.23	---	4.0	30	---	11	---	37	---	6.7	.00	---
TOTAL	.49	16.28	134.9	864.9	662	513	447	1230	953	456.0	76.57	.00
MEAN	.016	.54	4.35	27.9	22.8	16.5	14.9	39.7	31.8	14.7	2.47	.000
MAX	.23	2.2	5.9	54	30	19	26	43	37	24	6.7	.00
MIN	.00	.15	1.8	3.6	19	11	11	28	25	6.7	.00	.00
AC-FT	1.0	32	268	1720	1310	1020	887	2440	1890	904	152	.00
CAL YR 1979	TOTAL	4788.08	MEAN 13.1	MAX 73	MIN .00	AC-FT 9500						
WTR YR 1980	TOTAL	5354.14	MEAN 14.6	MAX 54	MIN .00	AC-FT 10620						

DESCHUTES RIVER BASIN

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14052000 DEER CREEK ABOVE CRANE PRAIRIE RESERVOIR, NEAR LA PINE, OR

LOCATION.--Lat 43°48'48", long 121°50'18", in SE¼SW¼ sec.25, T.20 S., R.7 E., Deschutes County, Hydrologic Unit 17070301, on right bank 150 ft (46 m) downstream from highway bridge, 1.2 mi (1.9 km) downstream from Little Cultus Lake, and 19 mi (31 km) northwest of La Pine.

DRAINAGE AREA.--21.5 mi² (55.7 km²), hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--February to September 1924 (published as "above Crane Prairie, near Lapine"). October 1937 to current year. Monthly discharge only October 1937 to September 1949, published in WSP 1318. Records for October 1923 to January 1924, published in WSP 594, have been found to be unreliable and should not be used. Published as "near Lapine" 1937-64.

REVISED RECORDS.--See PERIOD OF RECORD.

GAGE.--Water-stage recorder and sharp-crested weir control. Altitude of gage is 4,520 ft (1,378 m), by barometer. Feb. 1 to Sept. 30, 1924, nonrecording gage at site 75 ft (23 m) upstream at various datums. Oct. 1, 1937, to Sept. 30, 1938, water-stage recorder at bridge 150 ft (46 m) upstream at different datum. Oct. 1, 1938, to Aug. 13, 1968, water-stage recorder and wooden weir control at present site and datum 0.60 ft (0.183 m) higher.

REMARKS.--Records fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--43 years (water years 1938-80), 7.43 ft³/s (0.210 m³/s), 5,380 acre-ft/yr (6.63 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 200 ft³/s (5.66 m³/s), estimated, Dec. 25, 1964; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 44 ft³/s (1.25 m³/s) Jan. 15, gage height, 2.36 ft (0.719 m); minimum observed, 0.02 ft³/s (0.001 m³/s) Aug. 21, Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.18	1.5	1.8	6.2	6.2	3.9	26	8.0	1.1	.15	.03
2	.09	.18	2.3	1.7	6.0	6.2	3.8	25	8.0	1.1	.15	.03
3	.09	.18	2.9	1.8	6.0	6.2	3.5	25	7.8	.96	.15	.03
4	.06	.21	3.5	1.8	6.0	7.0	3.5	25	7.5	.80	.12	.03
5	.06	.24	3.8	1.7	6.0	7.8	3.6	26	7.5	.75	.09	.03
6	.09	.24	3.3	1.8	5.8	7.5	5.0	28	7.5	.75	.09	.03
7	.09	.24	3.2	2.5	5.8	7.0	6.0	29	7.8	.70	.09	.03
8	.09	.27	2.7	3.5	5.8	6.7	5.8	28	7.5	.70	.09	.03
9	.09	.24	2.6	4.3	5.6	6.2	6.2	28	6.7	.65	.09	.03
10	.09	.24	3.3	13	5.6	5.8	6.5	27	5.8	.60	.09	.03
11	.12	.24	3.5	5.0	5.6	6.5	5.8	26	5.0	.55	.09	.03
12	.12	.21	2.9	12	5.6	7.0	5.6	22	4.4	.45	.09	.03
13	.12	.24	2.7	23	5.6	7.2	5.6	20	4.2	.40	.09	.03
14	.15	.21	2.6	35	5.6	8.3	6.0	19	3.9	.35	.09	.03
15	.12	.21	2.3	43	5.6	8.8	6.7	18	3.6	.27	.09	.03
16	.09	.30	2.2	43	5.4	8.0	7.2	17	3.5	.27	.06	.03
17	.09	.35	2.0	39	5.4	7.2	8.0	16	3.0	.21	.06	.03
18	.12	.55	1.9	30	5.4	7.0	9.1	15	2.7	.18	.06	.30
19	.45	.60	1.9	23	5.4	6.5	11	14	2.5	.18	.06	.24
20	.24	.80	1.9	19	5.4	6.2	13	13	2.3	.15	.03	.27
21	.18	1.3	1.8	16	5.4	6.0	15	13	2.0	.15	.03	.24
22	.18	.96	1.7	14	5.4	5.6	16	12	1.8	.15	.03	.09
23	.24	1.0	1.7	12	5.2	5.0	16	13	1.7	.15	.03	.03
24	.24	5.0	1.6	11	4.8	4.6	18	12	1.8	.18	.03	.03
25	.27	4.0	1.5	9.7	4.6	4.2	19	12	2.0	.15	.03	.03
26	.21	3.5	1.5	8.8	5.2	4.4	20	12	1.7	.15	.03	.06
27	.15	2.0	1.5	8.0	5.6	4.6	21	12	1.6	.15	.03	.09
28	.15	1.5	1.5	7.5	6.5	4.2	23	11	1.5	.15	.03	.12
29	.12	1.5	1.5	7.0	6.7	4.1	26	10	1.4	.15	.03	.12
30	.12	1.5	1.5	6.6	---	4.1	26	9.4	1.3	.15	.03	.12
31	.18	---	1.7	6.4	---	3.9	---	8.5	---	.15	.03	---
TOTAL	4.47	28.19	70.5	412.9	163.2	190.0	325.8	571.9	126.0	12.80	2.16	2.25
MEAN	.14	.94	2.27	13.3	5.63	6.13	10.9	18.4	4.20	.41	.070	.075
MAX	.45	5.0	3.8	43	6.7	8.8	26	29	8.0	1.1	.15	.30
MIN	.06	.18	1.5	1.7	4.6	3.9	3.5	8.5	1.3	.15	.03	.03
AC-FT	8.9	56	140	819	324	377	646	1130	250	25	4.3	4.5

CAL YR 1979 TOTAL 1991.61 MEAN 5.46 MAX 48 MIN .06 AC-FT 3950
WTR YR 1980 TOTAL 1910.17 MEAN 5.22 MAX 43 MIN .03 AC-FT 3790

DESCHUTES RIVER BASIN

14052500 QUINN RIVER NEAR LA PINE, OR

LOCATION.--Lat 43°47'03", long 121°50'06", in SW¼NW¼ sec.1, T.21 S., R.7 E., Deschutes County, Hydrologic Unit 17070302, Deschutes National Forest, on left bank at flow line of Crane Prairie Reservoir, 150 ft (46 m) downstream from springs at head of river, and 18 mi ((29 km) northwest of La Pine.

DRAINAGE AREA.--Indeterminate, normal flow is entirely from springs 150 ft (46 m) upstream.

PERIOD OF RECORD.--June 1922 to September 1925, October 1937 to current year. Published as "above Crane Prairie Reservoir near Lapine" 1922-25, and as "near Lapine" 1937-64. Monthly discharge only October 1937, published in WSP 1318.

REVISED RECORDS.--WSP 1448: 1939, 1941.

GAGE.--Water-stage recorder and log control. Datum of gage is 4,442.1 ft (1,353.95 m) National Geodetic Vertical Datum of 1929, based on elevation of Crane Prairie Reservoir when slack water reached station. June 1, 1922, to Sept. 30, 1925, nonrecording gage at site 150 ft (46 m) downstream at different datum.

REMARKS.--Records excellent. No regulation or diversion above station.

AVERAGE DISCHARGE.--46 years, 23.9 ft³/s (0.677 m³/s), 17,320 acre-ft/yr (21.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59 ft³/s (1.67 m³/s) July 4, 1949, gage height, 1.97 ft (0.600 m); maximum gage height, 3.92 ft (1.195 m) June 25, 1943 (backwater from Crane Prairie Reservoir); practically no flow Nov. 14, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24 ft³/s (0.68 m³/s) June 15-17, 19-25, 27-29, July 2, 3, gage height, 1.70 ft (0.518 m); minimum recorded, 6.7 ft³/s (0.19 m³/s) Dec. 31, Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	11	9.3	7.4	9.8	15	15	18	20	23	21	18
2	15	11	9.2	7.4	9.8	15	15	18	20	23	21	18
3	15	11	9.2	8.0	9.8	15	16	18	20	24	21	18
4	14	11	9.1	8.0	9.8	15	16	18	20	23	21	17
5	14	11	9.0	7.4	11	15	16	18	20	21	21	17
6	14	11	9.0	8.0	9.8	15	16	18	21	21	21	17
7	14	11	8.9	8.0	11	15	16	18	21	23	21	17
8	13	11	8.9	8.0	11	15	16	17	21	21	21	17
9	13	11	8.9	8.9	11	15	16	18	23	21	21	17
10	13	11	8.0	8.0	11	17	16	18	23	21	21	18
11	13	11	8.0	8.9	12	17	16	18	23	21	21	17
12	13	10	8.0	8.0	12	17	16	18	23	21	21	17
13	13	10	8.0	8.9	12	17	17	18	23	20	21	17
14	13	10	8.0	8.9	12	17	17	18	23	20	20	16
15	13	10	7.4	9.8	13	16	15	18	23	20	20	16
16	13	10	7.4	11	13	15	17	18	24	20	20	17
17	13	10	7.4	11	13	16	17	18	23	20	20	17
18	13	10	8.0	11	13	16	18	19	23	21	20	16
19	13	10	7.4	11	13	16	18	18	24	21	19	16
20	13	10	8.0	11	13	16	18	18	24	21	19	16
21	13	9.9	8.0	11	14	17	18	18	24	21	20	15
22	13	9.9	8.0	11	15	17	19	17	24	21	19	15
23	13	9.8	8.9	11	14	17	19	18	24	21	19	15
24	13	9.7	8.0	11	15	17	19	18	24	21	19	15
25	12	9.7	7.4	11	15	17	19	18	23	21	19	15
26	11	9.6	7.4	9.8	15	17	19	19	23	21	19	15
27	11	9.5	8.0	9.8	15	16	18	19	23	21	18	15
28	11	9.5	7.4	9.8	16	16	18	19	24	21	18	14
29	11	9.4	7.4	8.9	16	16	18	18	24	20	18	14
30	11	9.3	7.4	8.9	---	16	18	18	23	21	18	14
31	11	---	6.7	8.9	---	15	---	19	---	21	18	---
TOTAL	400	307.3	251.7	289.7	365.0	496	512	561	678	656	616	486
MEAN	12.9	10.2	8.12	9.35	12.6	16.0	17.1	18.1	22.6	21.2	19.9	16.2
MAX	15	11	9.3	11	16	17	19	19	24	24	21	18
MIN	11	9.3	6.7	7.4	9.8	15	15	17	20	20	18	14
AC-FT	793	610	499	575	724	984	1020	1110	1340	1300	1220	964
CAL YR 1979	TOTAL	5480.8	MEAN 15.0	MAX 24	MIN 6.7	AC-FT 10870						
WTR YR 1980	TOTAL	5618.7	MEAN 15.4	MAX 24	MIN 6.7	AC-FT 11140						

DESCHUTES RIVER BASIN

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14053500 CRANE PRAIRIE RESERVOIR NEAR LA PINE, OR

LOCATION.--Lat 43°45'20", long 121°47'00", in SW¼NW¼ sec.16, T.21 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, in Deschutes National Forest, on control structure at Crane Prairie Dam on Deschutes River, 15.0 mi (24.1 km) northwest of La Pine, and at mile 238.3 (383.4 km).

DRAINAGE AREA.--254 mi² (658 km²), hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--November 1922 to November 1935, April to December 1936, April 1937 to current year. Prior to Oct. 1, 1964, published as "near Lapine."

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1318: 1925, 1940-41, 1950. WSP 1448: 1925(M,m), 1940(m), 1950(m).

GAGE.--Water-stage recorder. Datum of gage is 4,400.0 ft (1,341.120 m) National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service); gage readings have been reduced to elevations NGVD. Prior to July 13, 1940, nonrecording gage, at site 150 ft (45.7 m) upstream at same datum. July 13, 1940, to Sept. 15, 1966, nonrecording gage, at present site and datum.

REMARKS.--Reservoir originally formed by earthfill dam completed in 1922, reconstructed as rock-faced, earthfill dam in 1940. Capacity, 55,340 acre-ft (68.2 hm³) between elevation 4,424.0 ft (1,348.44 m) lip of fish-screen structure and 4,445.0 ft (1,354.84 m) crest of spillway. Some dead storage in isolated pools in reservoir at stages below 4,428 ft (1,349.7 m) and natural flow passing through reservoir when outlet gates are open prevents withdrawal of remaining storage to elevation of sill of gates. Crater Creek Canal diverts water to Tumalo Creek basin from tributaries of Soda Creek above station. Released water diverted from Deschutes River near Bend for irrigation near Bend and Redmond.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 60,500 acre-ft (74.6 hm³) June 5-7, 1943, elevation, 4,446.0 ft (1,355.14 m); no usable contents at times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 32,870 acre-ft (40.5 hm³) Feb. 22, elevation, 4,440.05 ft (1,353.327 m); minimum, 9,470 acre-ft (11.7 hm³) Sept. 30, elevation, 4,433.49 ft (1,351.328 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	4,434.05	11,100	-
Oct. 31.....	4,434.56	12,720	+1,620
Nov. 30.....	4,435.01	14,140	+1,420
Dec. 31.....	4,436.06	17,690	+3,550
CAL YR 1979.....	-	-	-11,570
Jan. 31.....	4,438.80	27,840	+10,150
Feb. 29.....	4,439.95	32,460	+4,620
Mar. 31.....	4,439.46	30,470	-1,990
Apr. 30.....	4,439.26	29,660	-810
May 31.....	4,438.01	24,770	-4,890
June 30.....	4,436.87	20,560	-4,210
July 31.....	4,436.44	19,040	-1,520
Aug. 31.....	4,435.76	16,670	-2,370
Sept. 30.....	4,433.49	9,470	-7,200
WTR YR 1980.....	-	-	-1,630

DESCHUTES RIVER BASIN

14054000 DESCHUTES RIVER BELOW CRANE PRAIRIE RESERVOIR, NEAR LA PINE, OR

LOCATION.--Lat 43°45'13", long 121°46'57", in SW¼NW¼ sec.16, T.21 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, Deschutes National Forest, on left bank 0.1 mi (0.2 km) downstream from Crane Prairie Dam, 15 mi (24 km) northwest of La Pine, and at mile 238.2 (383.3 km).

DRAINAGE AREA.--254 mi² (658 km²), hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--August 1907 to November 1908 and August 1912 to September 1913 (fragmentary), October 1913 to September 1917, February 1922 to current year. Monthly discharge only for some periods, published in WSP 1318. Prior to October 1949, published as "at Crane Prairie, near Lapine." Published as "near Lapine" 1949-64.

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1318: 1929(M).

GAGE.--Water-stage recorder. Datum of gage is 4,419.78 ft (1,347.149 m) National Geodetic Vertical Datum of 1929 (Pacific Power & Light Co. bench mark). Aug. 15, 1907, to Sept. 30, 1917, and Feb. 23 to June 8, 1922, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datums. June 9, 1922, to May 9, 1932, nonrecording gage or water-stage recorder at present site and datum.

REMARKS.--Records excellent. Flow regulated since 1922 by Crane Prairie Reservoir (see station 14053500). No diversion above station.

AVERAGE DISCHARGE.--62 years, 211 ft³/s (5.976 m³/s), 152,900 acre-ft/yr (189 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,170 ft³/s (33.1 m³/s) July 28, 1947, gage height, 3.34 ft (1.018 m); no flow Nov. 15, 1978, when gates in Crane Prairie Dam were closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 447 ft³/s (12.7 m³/s) Oct. 1, 2, gage height, 1.92 ft (0.585 m); minimum, 2.6 ft³/s (0.074 m³/s) May 21, when gates in Crane Prairie Dam were closed.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	447	148	145	42	42	168	167	166	268	182	173	229
2	383	148	143	42	42	168	168	240	269	182	171	226
3	255	148	142	42	42	168	167	278	272	182	172	226
4	255	148	142	42	43	168	166	278	272	182	173	284
5	252	147	142	42	43	168	166	275	272	182	171	324
6	252	147	145	42	42	168	166	275	272	182	173	321
7	252	147	145	42	42	168	166	275	272	182	174	321
8	252	147	145	42	42	168	166	275	268	179	174	317
9	187	147	145	42	42	168	166	275	268	179	174	317
10	148	147	145	42	42	168	166	275	268	179	174	317
11	148	145	145	42	42	168	166	275	271	179	174	320
12	148	145	145	42	42	168	166	275	275	179	174	332
13	148	145	145	43	42	168	166	275	275	179	176	329
14	148	144	143	43	42	168	166	275	275	179	176	328
15	148	142	142	42	42	168	166	275	275	177	177	328
16	148	142	142	43	42	168	166	275	275	177	177	325
17	148	142	142	43	42	167	166	275	275	177	177	324
18	148	142	108	43	42	166	166	275	275	177	199	324
19	148	142	37	43	42	166	166	273	275	177	236	322
20	148	142	37	43	43	166	166	256	272	177	236	321
21	148	145	37	43	43	166	166	232	272	177	236	321
22	148	143	37	43	91	166	166	278	272	174	236	320
23	148	143	37	43	168	166	166	277	242	174	235	317
24	148	145	37	43	168	166	166	275	185	174	234	317
25	148	145	37	43	168	166	166	275	185	174	235	317
26	148	145	37	42	168	166	166	275	185	174	233	314
27	148	145	37	42	168	167	166	275	185	174	233	314
28	148	145	38	42	168	168	166	275	185	174	233	316
29	148	145	40	42	168	168	166	273	185	174	232	321
30	148	145	40	42	---	168	166	272	185	174	230	321
31	148	---	40	42	---	168	---	268	---	173	230	---
TOTAL	5791	4351	3042	1314	2153	5188	4984	8316	7525	5505	6198	9313
MEAN	187	145	98.1	42.4	74.2	167	166	268	251	178	200	310
MAX	447	148	145	43	168	168	168	278	275	182	236	332
MIN	148	142	37	42	42	166	166	166	185	173	171	226
AC-FT	11490	8630	6030	2610	4270	10290	9890	16490	14930	10920	12290	18470
CAL YR 1979	TOTAL	62340	MEAN 171	MAX 455	MIN 37	AC-FT	123700					
WTR YR 1980	TOTAL	63680	MEAN 174	MAX 447	MIN 37	AC-FT	126300					

NOTE.--No gage-height record June 25 to July 29.

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LOCATION.--Lat 43°42'57", long 121°48'10", in NE¼SW¼ sec.29, T.21 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, in Deschutes National Forest, on right bank at highway crossing and 15 mi (24 km) northwest of La Pine.

PERIOD OF RECORD.--May 1922 to September 1925, July 1938 to current year. Monthly discharge only July 1938 to September 1949, published in WSP 1318. Prior to Oct. 1, 1964, published as "near Lapine."

GAGE.—Water-stage recorder. Altitude of gage is 4,370 ft (1,332 m), from topographic map. May 24, 1922, to Sept. 30, 1925, nonrecording gage, and July 1, 1938, to Nov. 1, 1945, water-stage recorder at site 0.4 mi (0.6 km) downstream at different datums. Nov. 2, 1945, to Aug. 25, 1971, water-stage recorder at site 0.8 mi (1.3 km) upstream at datum of 4,372.94 ft (1,332.872 m) National Geodetic Vertical Datum of 1929.

AVERAGE DISCHARGE.--45 years, 38.6 ft³/s (1.093 m³/s), 27,970 acre-ft/yr (34.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 104 ft³/s (2.95 m³/s) Aug. 4, 1956, gage height, 1.64 ft (0.500 m); maximum gage height, 3.50 ft (1.067 m) Jan. 30, 1980, backwater from ice; minimum discharge, 16 ft³/s (0.453 m³/s) July 22-25, 1941, and at times December 1941 to March 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 36 ft³/s (1.02 m³/s) July 12, 13, gage height, 0.53 ft (0.162 m); maximum gage height, 3.50 ft (1.067 m) Jan. 30, backwater from ice; minimum daily discharge, 22 ft³/s (0.62 m³/s) Jan. 29, 30.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	29	28	25	24	26	25	26	26	26	30	29
2	30	29	29	25	24	26	25	26	26	27	30	28
3	30	29	29	25	24	26	25	26	26	27	30	28
4	30	29	28	25	24	26	25	26	26	27	31	28
5	30	29	28	26	24	26	26	26	26	27	31	28
6	30	29	27	26	24	26	26	26	26	27	31	28
7	30	29	27	25	24	26	26	26	26	27	31	28
8	30	29	27	25	24	26	26	25	26	28	31	28
9	30	29	27	25	24	25	27	25	26	28	31	28
10	30	29	27	25	24	25	28	26	25	28	31	28
11	30	29	27	25	24	25	27	26	25	28	31	28
12	30	29	26	30	24	25	27	26	25	28	30	28
13	30	29	26	34	24	25	27	26	25	28	30	28
14	30	29	26	30	24	25	27	26	25	28	30	28
15	30	29	26	27	24	25	27	26	25	28	30	28
16	30	29	26	27	24	25	27	26	26	28	30	28
17	30	29	26	26	24	25	27	26	26	28	30	28
18	30	29	26	26	24	25	27	26	26	28	30	28
19	32	29	26	25	24	25	27	26	26	29	30	28
20	31	29	26	25	24	25	27	26	26	29	29	28
21	30	29	26	25	24	25	28	26	26	29	30	28
22	30	29	26	25	24	25	26	26	26	29	30	28
23	30	29	26	25	24	25	26	26	26	29	30	28
24	30	29	26	25	25	25	26	26	26	30	29	28
25	31	29	26	25	26	25	26	26	26	30	29	28
26	30	29	26	24	26	25	26	26	26	30	29	29
27	30	28	26	24	26	25	26	26	26	30	29	29
28	29	28	26	23	26	25	26	26	26	30	29	29
29	29	28	26	22	26	25	26	26	26	30	29	29
30	30	28	25	22	---	25	26	26	26	30	29	28
31	30	---	25	23	---	25	---	26	---	30	29	---
TOTAL	932	866	822	790	707	783	791	804	774	881	929	845
MEAN	30.1	28.9	26.5	25.5	24.4	25.3	26.4	25.9	25.8	28.4	30.0	28.2
MAX	32	29	29	34	26	26	28	26	26	30	31	29
MIN	29	28	25	22	24	25	25	25	25	26	29	28
AC-FT	1850	1720	1630	1570	1400	1550	1570	1590	1540	1750	1840	1680
CAL WTR YR 1980	TOTAL	9462	MEAN	25.9	MAX	32	MIN	22	AC-FT	18770		
	TOTAL	9924	MEAN	27.1	MAX	34	MIN	22	AC-FT	19680		

DESCHUTES RIVER BASIN

14056000 WICKIUP RESERVOIR NEAR LA PINE, OR

LOCATION.--Lat 43°41'02", long 121°41'20", in SW¼NE¼ sec. 7, T.22 S., R.9 E., Deschutes County, Hydrologic Unit 17070301, in Deschutes National Forest, in gate-chamber structure at Wickiup Dam on Deschutes River, 9.0 mi (14.5 km) west of La Pine, and at mile 226.8 (364.9 km).

DRAINAGE AREA.--482 mi² (1,250 km²), hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--December 1942 to current year. Prior to Oct. 1, 1964, published as "near Lapine."

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service). Prior to Jan. 15, 1945, nonrecording gage at nearby sites at same datum.

REMARKS.--Reservoir is formed by rock-faced, earthfill dam completed in 1949. Some storage began in December 1942, capacity, 182,100 acre-ft (225 hm³) between elevations 4,265.0 ft (1,299.97 m), no storage, and 4,336.0 ft (1,321.61 m) crest of spillway, with earth plug to elevation 4,339.0 ft (1,322.53 m). Crater Creek Canal diverts water above station to Tumalo Creek basin. Released water is diverted from Deschutes River at Bend for irrigation near Madras.

COOPERATION.--Daily elevations furnished by North Unit Irrigation District, and capacity table furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 204,000 acre-ft (252 hm³) Apr. 8, 1974, elevation, 4,338.01 ft (1,322.225 m); minimum observed since reservoir first filled in March 1949, 534 acre-ft (0.66 hm³), revised on basis of computer expanded capacity table dated June 1970, Oct. 18, 1952, elevation, 4,270.86 ft (1,301.758 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 188,700 acre-ft (233 hm³) Apr. 14, 15, elevation, 4,336.62 ft (1,321.802 m); minimum observed, 27,030 acre-ft (33.3 hm³) Sept. 16, elevation, 4,299.14 ft (1,310.378 m).

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	4,300.44	29,260	-
Oct. 31.....	4,309.96	48,600	+19,340
Nov. 30.....	4,321.89	82,740	+34,140
Dec. 31.....	4,327.33	109,700	+26,960
CAL YR 1979.....	-	-	-24,300
Jan. 31.....	4,330.74	133,800	+24,100
Feb. 29.....	4,333.20	154,700	+20,900
Mar. 31.....	4,335.65	178,500	+23,800
Apr. 30.....	4,336.01	182,200	+3,700
May 31.....	4,333.21	154,800	-27,400
June 30.....	4,329.06	121,200	-33,600
July 31.....	4,317.99	69,870	-51,330
Aug. 31.....	4,303.78	35,530	-34,340
Sept. 30.....	4,300.29	29,000	-6,530
WTR YR 1980.....	-	-	-260

14056500 DESCHUTES RIVER BELOW WICKIUP RESERVOIR, NEAR LA PINE, OR

LOCATION.--Lat 43°41'10", long 121°41'13", in NW¼ sec.7, T.22 S., R.9 E., Deschutes County, Hydrologic Unit 17070301, on left bank 1,000 ft (305 m) downstream from Wickiup Dam, 9 mi (14 km) west of La Pine, and at mile 226.4 (364.3 km).

DRAINAGE AREA.--483 mi² (1,251 km²), hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--June 1938 to current year. Monthly discharge only June 1938, published in WSP 1318. Published as "near Lapine" 1938-64.

REVISED RECORDS.--WSP 1448: 1944(m), 1947-51(m).

GAGE.--Water-stage recorder. Datum of gage is 4,257.41 ft (1,297.659 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation).

REMARKS.--Records good. Flow regulated by Crane Prairie Reservoir (see station 14053500), and since 1942 by Wickiup Reservoir (see station 14056500). Some leakage from Crane Prairie and Wickiup Reservoirs does not pass station. Some spill bypassed station in 1955. Crater Creek canal diverts water above station to Tumalo Creek basin.

AVERAGE DISCHARGE.--42 years, 744 ft³/s (21.07 m³/s), 539,000 acre-ft/yr (665 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,280 ft³/s (64.6 m³/s) July 28 to Aug. 1, 1956, July 31, Aug. 1, 2, 1962; minimum, 1.9 ft³/s (0.054 m³/s) Nov. 10, 1973; minimum daily, 10 ft³/s (0.28 m³/s) Jan. 17, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,900 ft³/s (53.8 m³/s) July 22, 23; maximum gage height, 6.75 ft (2.057 m) July 22-24, 26; minimum discharge, 16 ft³/s (0.45 m³/s) Jan. 15, 24, 26-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	710	19	28	19	19	24	29	1390	1340	1330	1600	1380
2	714	19	27	18	20	24	31	1300	1430	1510	1580	1350
3	805	19	28	18	22	24	29	1210	1430	1550	1570	1330
4	861	18	29	18	22	24	31	1180	1450	1540	1530	1330
5	865	20	29	18	23	25	31	1170	1460	1540	1520	1340
6	921	20	29	18	22	25	31	1090	1460	1530	1570	1340
7	949	20	31	19	20	25	31	953	1440	1550	1570	1340
8	1000	20	31	19	22	24	44	953	1320	1570	1580	1240
9	1030	22	32	19	22	23	78	953	1330	1560	1590	1200
10	1070	22	32	18	22	23	133	742	1330	1560	1580	1200
11	1090	22	34	19	22	24	205	591	1340	1570	1580	1190
12	1090	22	34	22	20	24	202	591	1230	1570	1580	1190
13	581	22	34	22	22	24	205	658	1040	1560	1570	1130
14	388	22	34	17	23	24	349	714	989	1560	1530	1090
15	433	22	34	17	22	24	602	714	969	1570	1510	1080
16	412	22	34	17	23	24	602	714	1050	1630	1480	973
17	415	23	34	17	23	25	609	773	1240	1710	1460	921
18	388	23	25	17	23	25	654	897	1410	1770	1420	865
19	41	24	19	17	23	25	675	1200	1550	1810	1370	837
20	38	24	19	17	23	27	675	1390	1620	1810	1360	841
21	39	25	19	17	22	28	675	1490	1660	1830	1390	833
22	39	25	19	17	23	27	675	1490	1660	1860	1400	833
23	39	25	20	17	23	27	675	1490	1660	1900	1400	837
24	41	27	19	17	23	27	672	1480	1590	1890	1400	837
25	31	27	19	17	23	28	668	1480	1200	1890	1390	857
26	18	28	20	16	23	28	668	1280	945	1890	1390	901
27	18	28	19	16	23	29	665	1080	953	1880	1390	901
28	19	28	18	16	23	28	780	1000	1010	1800	1390	901
29	19	29	18	16	23	29	1030	977	1050	1740	1390	901
30	18	29	18	17	---	29	1410	1010	1170	1660	1390	767
31	18	---	18	18	---	29	---	1140	---	1620	1390	---
TOTAL	14100	696	804	550	644	796	13164	33100	39326	51760	45870	31735
MEAN	455	23.2	25.9	17.7	22.2	25.7	439	1068	1311	1670	1480	1058
MAX	1090	29	34	22	23	29	1410	1490	1660	1900	1600	1380
MIN	18	18	18	16	19	23	29	591	945	1330	1360	767
AC-FT	27970	1380	1590	1090	1280	1580	26110	65650	78000	102700	90980	62950
CAL YR 1979	TOTAL	247767	MEAN 679	MAX 2090	MIN 18-	AC-FT 491400						
WTR YR 1980	TOTAL	232545	MEAN 635	MAX 1900	MIN 16	AC-FT 461300						

DESCHUTES RIVER BASIN

14057500 FALL RIVER NEAR LA PINE, OR

LOCATION.--Lat 43°47'48", long 121°34'18", in NW¼SE¼ sec.31, T.20 S., R.10 E., Deschutes County, Hydrologic Unit 17070301, on left bank 50 ft (15 m) downstream from pond spillway at State fish hatchery, 9 mi (14 km) northwest of La Pine, and at mile 4.8 (7.7 km).

DRAINAGE AREA.--45.1 mi² (116.8 km²), hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--July 1938 to current year. Records for May to September 1912 at site 3 mi (4.8 km) downstream not equivalent owing to difference in drainage area. Prior to Oct. 1, 1964, published as "near Lapine."

REVISED RECORDS.--WSP 984: 1938-42(M,m).

GAGE.--Water-stage recorder. Altitude of gage is 4,220 ft (1,286 m), by barometer.

REMARKS.--Records good. Diversion only to ponds at fish hatchery 50 ft (15 m) above station, from which water returns to river above station. Stream is spring fed and momentary extremes are caused by operation of fish hatchery.

AVERAGE DISCHARGE.--42 years, 151 ft³/s (4.276 m³/s), 109,400 acre-ft/yr (135 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 254 ft³/s (7.19 m³/s) June 5, 1965, gage height, 2.02 ft (0.616 m); minimum, 67 ft³/s (1.90 m³/s) sometime during period Sept. 20-30, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum discharge recorded, 147 ft³/s (4.16 m³/s) Dec. 11, gage height, 1.37 ft (0.418 m); minimum recorded, 85 ft³/s (2.41 m³/s) Mar. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	114	112	114	112	102	100	105	99	99	112	104
2	114	114	114	114	112	102	100	105	96	100	112	104
3	114	112	114	114	112	102	102	105	96	99	113	104
4	112	112	114	114	112	102	102	105	96	101	113	104
5	112	112	112	114	112	101	103	104	97	101	112	104
6	112	112	112	112	112	101	104	103	97	101	114	104
7	112	112	112	112	111	101	103	102	97	103	112	102
8	112	112	112	114	110	100	103	103	98	103	112	102
9	112	111	112	114	109	98	104	104	97	103	112	102
10	112	111	112	114	109	99	102	105	97	104	112	102
11	112	111	111	114	109	99	102	104	97	104	112	102
12	112	111	111	121	107	98	103	102	96	104	111	102
13	112	111	111	121	107	99	104	102	96	106	111	102
14	114	111	112	117	107	100	104	102	97	106	111	102
15	114	111	112	116	108	99	104	102	97	107	111	102
16	112	112	112	116	107	98	104	102	96	108	109	102
17	112	112	112	116	107	99	106	102	96	108	107	101
18	114	111	112	114	108	99	106	102	96	108	107	102
19	116	111	114	114	108	101	106	101	96	109	107	101
20	114	111	116	114	107	101	108	102	96	110	107	101
21	114	111	116	114	106	100	107	102	96	110	107	99
22	114	111	114	114	106	100	108	102	96	111	107	99
23	114	112	116	114	106	100	107	102	94	111	107	99
24	114	114	116	114	106	100	107	102	94	110	107	99
25	114	112	114	112	104	101	107	102	95	112	106	99
26	114	112	114	112	104	101	107	100	94	112	106	99
27	112	111	114	112	104	100	107	100	95	111	106	99
28	112	111	114	112	104	100	105	100	96	112	106	99
29	112	111	114	112	103	100	104	99	97	112	106	99
30	114	112	114	112	---	99	105	99	98	112	106	99
31	114	---	114	112	---	100	---	99	---	113	106	---
TOTAL	3506	3351	3509	3539	3129	3102	3134	3169	2888	3310	3387	3039
MEAN	113	112	113	114	108	100	104	102	96.3	107	109	101
MAX	116	114	116	121	112	102	108	105	99	113	114	104
MIN	112	111	111	112	103	98	100	99	94	99	106	99
AC-FT	6950	6650	6960	7020	6210	6150	6220	6290	5730	6570	6720	6030
CAL YR 1979	TOTAL	42109	MEAN 115	MAX 121	MIN 111	AC-FT 83520						
WTR YR 1980	TOTAL	39063	MEAN 107	MAX 121	MIN 94	AC-FT 77480						

DESCHUTES RIVER BASIN

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14059500 CRESCENT LAKE NEAR CRESCENT, OR

LOCATION.--Lat 43°30'05", long 121°58'20", in SW¼ sec.11, T.24 S., R.6 E., Klamath County, Hydrologic Unit 17070302, Deschutes National Forest, on outlet works at dam on Crescent Creek, 0.8 mi (1.3 km) south of town of Crescent Lake, 14.0 mi (22.5 km) west of Crescent, and at mile 30.0 (48.3 km).

DRAINAGE AREA.--60.7 mi² (157 km²), hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--August 1922 to current year.

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1318: 1922-31. WSP 1448: 1923-31(M,m).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service). Prior to Oct. 1, 1956, nonrecording gage at nearby site at datum 4,825.16 ft (1,470.709 m), National Geodetic Vertical Datum of 1929. Oct. 1, 1956, to Sept. 12, 1956, nonrecording gage, at present site and datum.

REMARKS.--Reservoir originally formed by dam of earth and logs completed in 1922, reconstructed as earthfill dam in 1956. Capacity, 117,200 acre-ft (145 hm³) between elevations 4,821.5 ft (1,469.59 m), sill of outlet gate and 4,853.0 ft (1,479.19 m), crest of spillway. Maximum allowable storage, 86,050 acre-ft (106 hm³) elevation, 4,845.32 ft (1,476.854 m). Dead storage about 500,000 acre-ft (616 hm³) Oregon Game Commission survey. Records given herein represent usable contents. Water surface probably cannot be lowered below elevation 4,823.4 ft (1,470.17 m) owing to natural flow through reservoir. Released water is diverted from Deschutes River at Bend for irrigation near Tumalo.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 93,010 acre-ft (115 hm³) June 6, 1975, elevation, 4,847.09 ft (1,477.393 m); minimum observed, 9,640 acre-ft (11.9 hm³) Oct. 21, 1931, elevation, 4,827.91 ft (1,471.547 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 33,290 acre-ft (41.0 hm³) May 10, elevation, 4,831.39 ft (1,472.608 m); minimum observed, 12,050 acre-ft (14.9 hm³) Sept. 19, elevation, 4,825.40 ft (1,470.782 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30.....	4,826.50	15,900	-
Oct. 31.....	4,827.34	18,840	+2,940
Nov. 30.....	4,827.93	20,920	+2,080
Dec. 31.....	4,828.53	23,050	+2,130
CAL YR 1979.....	-	-	-15,340
Jan. 31.....	4,829.83	27,670	+4,620
Feb. 29.....	4,830.28	29,290	+1,620
Mar. 31.....	4,830.54	30,220	+930
Apr. 30.....	4,831.13	32,350	+2,130
May 31.....	4,831.04	32,020	-330
June 30.....	4,830.56	30,300	-1,720
July 31.....	4,828.83	24,120	-6,180
Aug. 31.....	4,826.33	15,300	-8,820
Sept.30.....	-	a13,240	-2,060
WTR YR 1980.....	-	-	-2,660

a Contents estimated.

DESCHUTES RIVER BASIN

14060000 CRESCENT CREEK AT CRESCENT LAKE, NEAR CRESCENT, OR

LOCATION.--Lat 43°30'11", long 121°58'20", in SE¼SW¼ sec.11, T.24 S., R.6 E., Klamath County, Hydrologic Unit 17070302, Deschutes National Forest, on left bank 400 ft (122 m) downstream from Crescent Lake Dam, 0.5 mi (0.8 km) south of town of Crescent Lake, 14 mi (23 km) west of Crescent, and at mile 29.9 (48.1 km).

DRAINAGE AREA.--60.7 mi² (157.2 km²), hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--January to September 1911 (gage heights and discharge measurements only), January 1912 to July 1915, July to September 1927, May 1928 to current year. Published as Crescent Lake outlet near Crescent January 1911 to September 1912, and as Crescent Creek at outlet of Crescent Lake, near Crescent October 1913 to July 1915.

REVISED RECORDS.--WSP 1218: Drainage area.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 4,819.96 ft (1,469.124 m) National Geodetic Vertical Datum of 1929. See WSP 1935 for history of changes prior to Sept. 11, 1956.

REMARKS.--Records good. Flow regulated since 1922 by Crescent Lake (see station 14059500). No diversion above station.

AVERAGE DISCHARGE.--54 years (water years 1913-14, 1929-80), 58.0 ft³/s (1.643 m³/s), 42,020 acre-ft/yr (51.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 313 ft³/s (8.86 m³/s) July 9, 1929, Aug. 9, 1936; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 225 ft³/s (6.37 m³/s) Aug. 19, gage height, 2.62 ft (0.799 m); no flow Oct. 30 to Nov. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	.00	4.9	4.9	6.1	6.1	6.1	6.9	74	73	186	87
2	22	.00	4.9	4.9	6.1	6.1	6.1	6.9	73	72	178	101
3	3.8	.00	4.9	4.9	6.1	6.1	6.1	6.9	73	72	161	102
4	3.3	.00	4.9	4.9	6.1	6.1	6.1	6.9	73	72	123	93
5	3.3	.00	4.9	4.9	6.1	6.1	6.2	36	73	72	107	100
6	3.0	.00	4.9	4.9	6.1	6.1	6.5	74	73	72	100	97
7	2.8	.00	4.9	4.9	6.1	6.1	6.3	76	73	72	96	86
8	2.8	.00	4.5	4.9	6.1	6.1	6.5	76	73	72	93	102
9	2.8	.00	4.5	4.9	6.1	6.1	6.5	76	73	71	90	114
10	2.8	.00	4.5	4.9	6.1	6.1	6.5	76	73	72	84	108
11	2.8	.00	4.5	4.9	6.1	6.1	6.4	76	73	72	78	103
12	3.0	.00	4.5	5.3	6.1	6.1	6.5	76	73	72	139	100
13	2.8	1.8	4.5	5.3	6.1	6.1	6.5	76	73	72	186	85
14	2.5	3.5	4.5	5.3	6.1	6.1	6.5	76	73	72	174	71
15	2.0	3.0	4.5	5.3	6.1	6.1	6.5	75	73	81	153	62
16	2.3	2.5	4.5	5.3	6.1	6.1	6.5	75	73	91	151	57
17	2.3	2.5	4.5	5.3	6.1	6.1	6.5	75	73	91	140	51
18	2.5	2.5	4.5	5.3	6.1	6.1	6.5	75	73	91	142	46
19	3.0	2.5	4.5	5.3	6.1	6.1	6.5	75	73	91	158	46
20	2.8	2.5	4.5	5.3	6.1	6.1	6.5	75	73	91	168	40
21	3.3	2.5	4.5	5.3	6.1	6.1	6.5	75	73	135	156	38
22	3.8	2.5	4.9	5.3	6.1	6.1	6.5	75	73	165	157	35
23	2.8	2.5	4.9	5.3	6.1	6.1	6.5	75	73	164	145	34
24	3.0	2.5	4.9	5.3	6.1	6.1	6.5	74	73	162	130	31
25	3.3	2.5	4.9	5.3	6.1	6.1	6.5	74	73	160	139	28
26	3.2	8.4	4.9	5.3	6.1	6.1	6.5	74	73	158	133	24
27	3.2	13	4.9	5.3	6.1	6.1	6.8	74	73	155	134	20
28	3.2	9.4	4.9	5.3	6.1	6.1	6.9	74	73	151	124	16
29	1.6	5.3	4.9	5.3	6.1	6.1	6.9	74	73	147	115	15
30	.00	4.9	4.9	5.3	---	6.1	6.9	74	73	162	102	14
31	.00	---	4.9	5.3	---	6.1	---	73	---	192	93	---
TOTAL	149.00	74.10	146.3	159.9	176.9	189.1	194.3	2011.6	2191	3295	4135	1906
MEAN	4.81	2.47	4.72	5.16	6.10	6.10	6.48	64.9	73.0	106	133	63.5
MAX	49	13	4.9	5.3	6.1	6.1	6.9	76	74	192	186	114
MIN	.00	.00	4.5	4.9	6.1	6.1	6.1	6.9	73	71	78	14
AC-FT	296	147	290	317	351	375	385	3990	4350	6540	8200	3780
CAL YR 1979	TOTAL	19914.30	MEAN	54.6	MAX	288	MIN	.00	AC-FT	39500		
WTR YR 1980	TOTAL	14628.20	MEAN	40.0	MAX	192	MIN	.00	AC-FT	29020		

14063000 LITTLE DESCHUTES RIVER NEAR LA PINE, OR

LOCATION.--Lat 43°41'21", long 121°30'06", in SW¼SW¼ sec.2, T.22 S., R.10 E., Deschutes County, Hydrologic Unit 17070302, on right bank 10 ft (3 m) downstream from highway bridge at former town of Rosland, 1.1 mi (1.8 km) north of La Pine, and at mile 26.8 (43.1 km).

DRAINAGE AREA.--859 mi² (2,225 km²), hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--September 1910 to January 1911, March, April, August 1911, March to September 1912, June to October 1913, June to November 1918, August to October 1920, May 1924 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as Deschutes River near Lapine 1910-12, as East Fork Deschutes River near Lapine 1913-20, and as Little Deschutes River near Lapine 1924-64.

REVISED RECORDS.--WSP 1218: 1950.

GAGE.--Water-stage recorder. Datum of gage is 4,192.18 ft (1,277.968 m) National Geodetic Vertical Datum of 1929. Sept. 1, 1910, to Aug. 31, 1911, nonrecording gage at present site at different datum. Mar. 1 to Sept. 30, 1912, nonrecording gage at site 1.2 mi (1.9 km) downstream at different datum. June 1, 1913, to Sept. 28, 1928, nonrecording gage and Sept. 29, 1928, to Sept. 30, 1931, water-stage recorder at present site at different datums.

REMARKS.--Records good except those for Jan. 14 to Feb. 20, which are fair. Flow regulated since 1922 by Crescent Lake (see station 14063000). Many diversions for irrigation above station.

AVERAGE DISCHARGE.--56 years (water years 1925-80), 205 ft³/s (5.806 m³/s), 148,500 acre-ft/yr (183 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,660 ft³/s (104 m³/s) Dec. 25, 1964, gage height, 8.18 ft (2.493 m); minimum, 8 ft³/s (0.23 m³/s) Sept. 2, 3, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 576 ft³/s (16.3 m³/s) Jan. 16, gage height, 6.08 ft (1.853 m); minimum, 33 ft³/s (0.93 m³/s) Oct. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	89	100	99	190	219	143	221	194	144	193	112
2	85	93	105	103	210	203	141	225	191	143	203	104
3	83	89	142	103	230	193	139	223	198	141	198	103
4	61	89	197	96	240	195	136	219	206	140	191	121
5	46	90	212	93	250	200	139	215	210	137	159	110
6	41	94	201	93	253	199	147	219	211	138	134	105
7	42	91	166	118	253	191	158	268	209	138	120	111
8	40	85	140	126	253	181	154	286	204	132	112	98
9	38	78	125	118	255	176	157	296	194	126	108	92
10	36	73	118	114	230	172	181	315	184	123	104	119
11	34	69	105	90	209	169	198	336	178	121	98	124
12	34	67	100	162	209	173	175	339	179	118	91	119
13	34	62	106	366	209	171	168	318	183	116	91	119
14	37	56	109	462	210	180	168	303	187	113	171	116
15	42	57	114	507	207	194	170	283	186	111	191	109
16	44	62	102	559	209	184	172	270	178	109	171	94
17	44	80	99	566	211	171	168	258	171	113	169	84
18	44	95	96	520	210	171	167	245	166	106	163	88
19	56	92	95	470	211	166	171	237	161	105	156	95
20	85	82	94	450	209	165	163	232	157	104	172	83
21	115	67	95	430	199	184	187	229	156	103	177	82
22	104	61	88	370	184	171	218	230	157	107	174	76
23	91	74	84	248	172	156	222	236	164	159	164	72
24	96	78	94	200	165	159	219	245	172	174	171	68
25	105	103	87	170	166	153	217	250	181	180	150	69
26	118	126	75	170	183	151	213	246	189	181	140	60
27	126	131	70	170	217	152	210	242	184	180	151	55
28	114	123	70	170	229	150	207	235	173	178	140	50
29	92	121	75	170	231	145	212	222	158	173	143	47
30	86	104	83	170	---	145	219	209	148	167	132	44
31	86	---	96	170	---	144	---	201	---	162	123	---
TOTAL	2148	2581	3443	7653	6204	5383	5339	7853	5429	4242	4660	2729
MEAN	69.3	86.0	111	247	214	174	178	253	181	137	150	91.0
MAX	126	131	212	566	255	219	222	339	211	181	203	124
MIN	34	56	70	90	165	144	136	201	148	103	91	44
AC-FT	4260	5120	6830	15180	12310	10680	10590	15580	10770	8410	9240	5410

CAL YR 1979 TOTAL 59059 MEAN 162 MAX 345 MIN 34 AC-FT 117100
WTR YR 1980 TOTAL 57664 MEAN 158 MAX 566 MIN 34 AC-FT 114400

DESCHUTES RIVER BASIN

14064500 DESCHUTES RIVER AT BENHAM FALLS, NEAR BEND, OR

LOCATION.--Lat 43°55'49", long 121°24'39", in SW¼NE¼ sec.16, T.19 S., R.11 E., Deschutes County, Hydrologic Unit 17070301, Deschutes National Forest, on right bank 0.5 mi (0.8 km) upstream from Benham Falls, 10 mi (16 km) southwest of Bend, and at mile 181.4 (291.9 km).

DRAINAGE AREA.--1,759 mi² (4,556 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1906 to September 1913, April to September 1914, August to December 1920, April to September 1921, February 1924 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as "at West's ranch, near Lava" April 1906 to February 1909, April to September 1914. Records for January 1905 to March 1906 and October 1913 to September 1914, published under present name in WSP 370 and 394, have been found to be unreliable and should not be used.

REVISED RECORDS.--See PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 4,142.10 ft (1,262.512 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). See WSP 1738 for history of changes prior to Nov. 20, 1958.

REMARKS.--Water-discharge records excellent. Flow regulated by Crane Prairie Reservoir, Crescent Lake, and Wickiup Reservoir (see elsewhere in this report). Many diversions for irrigation above station.

AVERAGE DISCHARGE.--63 years (water years 1907-13, 1925-80), 1,414 ft³/s (40.04 m³/s), 1,024,000 acre-ft/yr (1.26 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 ft³/s (142 m³/s), estimated, Nov. 27, 1909 (gage height not determined); minimum, 363 ft³/s (10.3 m³/s) Jan. 20, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,430 ft³/s (68.8 m³/s) July 26-29; maximum gage height, 5.79 ft (1.765 m) July 27, 28; minimum discharge, 448 ft³/s (12.7 m³/s) Jan. 27, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1280	567	564	546	530	679	605	1940	1740	1750	2210	1850
2	1260	560	570	539	588	675	609	1970	1890	1880	2190	1840
3	1240	564	592	553	620	661	602	1890	2000	2010	2180	1820
4	1300	567	598	556	644	651	605	1820	2010	2080	2170	1790
5	1360	564	644	564	672	658	605	1800	2030	2090	2150	1780
6	1340	556	648	553	690	661	612	1780	2040	2090	2100	1790
7	1370	556	662	539	708	658	623	1710	2060	2090	2100	1790
8	1400	556	640	542	693	651	633	1610	2040	2090	2090	1780
9	1420	546	616	556	693	640	640	1640	1940	2100	2080	1730
10	1460	539	595	553	686	630	665	1670	1920	2100	2080	1660
11	1480	536	553	500	654	626	712	1530	1920	2100	2070	1660
12	1510	532	542	598	644	626	824	1370	1920	2110	2060	1670
13	1500	525	560	736	626	626	816	1370	1810	2110	2050	1670
14	1140	522	550	852	609	640	808	1400	1660	2110	2040	1630
15	878	518	542	900	598	644	914	1440	1610	2100	2030	1570
16	882	525	550	932	595	651	1150	1430	1590	2100	2030	1560
17	860	536	553	964	602	644	1170	1410	1660	2140	2020	1480
18	860	539	553	972	598	630	1180	1450	1820	2190	1980	1430
19	892	550	553	977	612	626	1220	1550	1940	2250	1950	1380
20	693	553	546	946	637	626	1250	1780	2080	2300	1890	1340
21	584	539	542	804	654	623	1270	1950	2130	2300	1880	1330
22	602	532	536	740	654	633	1270	2050	2190	2310	1890	1320
23	609	522	518	708	644	633	1290	2070	2200	2330	1910	1310
24	602	542	508	700	630	616	1290	2080	2210	2390	1900	1310
25	619	546	542	693	626	616	1290	2090	2150	2420	1900	1300
26	602	546	522	644	630	616	1290	2090	1880	2430	1880	1310
27	595	525	504	483	644	612	1290	1940	1660	2430	1870	1340
28	592	532	497	480	661	609	1290	1740	1600	2430	1880	1340
29	588	564	522	480	679	609	1390	1650	1630	2400	1870	1330
30	574	560	518	480	---	602	1630	1610	1660	2330	1860	1330
31	578	---	532	480	---	602	---	1640	---	2280	1860	---
TOTAL	30670	16319	17372	20570	18521	19674	29543	53470	56990	67840	62170	46440
MEAN	989	544	560	664	639	635	985	1725	1900	2188	2005	1548
MAX	1510	567	662	977	708	679	1630	2090	2210	2430	2210	1850
MIN	574	518	497	480	530	602	602	1370	1590	1750	1860	1300
AC-FT	60830	32370	34460	40800	36740	39020	58600	106100	113000	134600	123300	92110
CAL YR 1979	TOTAL	460144	MEAN	1261	MAX	2520	MIN	497	AC-FT	912700		
WTR YR 1980	TOTAL	439579	MEAN	1201	MAX	2430	MIN	480	AC-FT	871900		

DESCHUTES RIVER BASIN

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14064500 DESCHUTES RIVER AT BENHAM FALLS, NEAR BEND, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: November 1967 to February 1980 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 17.0°C on several days in 1968, 1971, 1974, and 1979; minimum, 0.0°C Jan. 23, 26, 1969, Jan. 9, 10, 1973, Feb. 5-8, 1976.

EXTREMES FOR CURRENT PERIOD.--October 1979 to February 1980.

WATER TEMPERATURES: Maximum, not determined; minimum, 0.5°C Jan. 19, 20.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	12.0	11.0	6.0	5.5	4.0	3.5	4.0	3.5	3.0	2.0		
2	11.5	11.0	6.0	5.5	4.5	3.0	4.0	3.5	3.0	3.0		
3	11.5	11.0	6.0	5.5	4.5	4.5	4.0	4.0	3.0	3.0		
4	11.5	11.0	6.0	5.5	4.5	4.0	4.0	4.0	3.0	2.0		
5	11.5	11.0	6.0	5.5	4.5	4.0	4.0	4.0	3.0	2.0		
6	12.0	11.5	6.5	6.0	4.0	3.5	4.0	3.5	3.0	2.0		
7	12.0	11.5	6.5	6.0	4.0	3.5	3.5	3.0	3.0	2.0		
8	12.0	11.5	6.5	6.0	4.0	3.5	3.5	3.0	3.5	2.0		
9	11.5	10.5	6.0	5.5	4.0	3.5	3.0	3.0	3.0	2.0		
10	11.0	10.0	5.5	5.0	4.0	3.5	3.0	2.0	3.0	2.0		
11	11.0	10.0	5.5	4.5	4.0	3.0	3.0	2.0	---	---		
12	11.0	10.5	5.0	4.5	3.5	3.0	3.0	3.0	---	---		
13	11.0	10.5	5.0	4.5	3.5	3.0	3.0	3.0	---	---		
14	11.0	10.5	5.0	4.5	4.0	3.5	3.0	3.0	---	---		
15	10.5	9.5	5.0	4.5	4.0	3.5	3.0	1.5	---	---		
16	10.0	9.5	5.0	4.5	3.5	3.5	2.0	1.5	---	---		
17	10.0	9.5	5.0	4.5	3.5	3.5	2.0	1.5	---	---		
18	9.5	9.0	5.0	5.0	3.5	3.5	1.5	1.0	---	---		
19	9.0	8.0	5.0	4.5	4.0	3.5	1.0	.5	---	---		
20	8.0	6.5	5.0	4.0	4.0	4.0	1.5	.5	---	---		
21	6.5	5.5	4.5	3.5	4.0	4.0	2.0	1.5	---	---		
22	6.0	5.5	4.0	3.5	4.0	3.5	2.0	1.5	---	---		
23	6.5	6.0	4.0	3.5	3.5	3.0	2.0	1.5	---	---		
24	6.5	6.0	4.0	3.5	3.5	3.0	3.0	2.0	---	---		
25	7.0	6.5	4.0	3.5	3.5	3.0	3.0	2.0	---	---		
26	7.0	6.5	4.0	3.5	3.5	3.0	2.0	1.5	---	---		
27	8.0	7.0	4.0	3.5	3.0	2.0	1.5	1.0	---	---		
28	7.0	6.5	4.0	3.5	3.0	2.0	1.5	1.5	---	---		
29	7.0	6.0	4.0	3.5	3.0	3.0	2.0	1.0	---	---		
30	6.5	6.0	4.0	3.5	3.5	3.0	2.0	1.5	---	---		
31	6.0	5.5	---	---	3.5	3.5	2.0	2.0	---	---		
MONTH	12.0	5.5	6.5	3.5	4.5	2.0	4.0	.5	3.5	2.0		

DESCHUTES RIVER BASIN

DIVERSIONS FROM DESCHUTES RIVER NEAR BEND, OR

The following six canals, all in Deschutes County, Hydrologic Unit 17070301, are the only diversions from Deschutes River between gaging stations at Benham Falls and below Bend.

14065500 ARNOLD CANAL NEAR BEND diverts at mile 174.5 (280.8 km) from right bank at head of Lava Island, in SW $\frac{1}{4}$ sec.27, T.18 S., R.11 E., water used for irrigation southeast of Bend. Records available, October 1912 to current year.

14066500 CENTRAL OREGON CANAL ABOVE PILOT BUTTE CANAL, NEAR BEND diverts at mile 169.5 (272.7 km) from right bank in NE $\frac{1}{4}$ sec.13, T.18 S., R.11 E., water used for irrigation east of Bend. Records available, October 1932 to current year.

14068500 DESCHUTES COUNTY MUNICIPAL IMPROVEMENT DISTRICT CANAL AT BEND diverts at mile 165.8 (266.8 km) from left bank in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.29, T.17 S., R.12 E., at Bend, water stored in Crescent Lake for Tumalo project is diverted by this canal and supplements flow in Tumalo project feed canal for irrigation near Tumalo. Records available, May 1923 to current year.

14069000 NORTH UNIT MAIN CANAL NEAR BEND diverts at mile 164.8 (265.2 km) from right bank in NE $\frac{1}{4}$ sec.29, T.17 S., R.12 E., water used for irrigation near Madras. Records available, October 1945 to current year.

14069500 NORTH CANAL NEAR BEND diverts at mile 164.8 (265.2 km) from right bank in NE $\frac{1}{4}$ sec.29, T.17 S., R.12 E., water used for irrigation north of Bend, mostly near Redmond. Records available, June 1913 to current year.

14070000 SWALLEY CANAL NEAR BEND diverts at mile 164.8 (265.2 km) from right bank in NE $\frac{1}{4}$ sec.29, T.17 S., R.12 E., water used for irrigation north of Bend. Records available 1913, to current year.

Records of monthly discharge of these canals, published as a group, are available from October 1926 to current year; records for each canal published separately prior to 1926.

DIVERSIONS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 to SEPTEMBER 1980

MONTH	DESCHUTES COUNTY						TOTAL
	ARNOLD CANAL	CENTRAL OREGON CANAL	MUNICIPAL IMPROVEMENT DISTRICT CANAL	NORTH UNIT MAIN CANAL	NORTH CANAL	SWALLEY CANAL	
OCTOBER.....	2,800	8,540	19	20,890	7,570	3,260	43,080
NOVEMBER.....	597	2,020	0	0	1,560	498	4,680
DECEMBER.....	537	2,060	0	0	1,700	629	4,930
JANUARY.....	192	2,020	0	0	1,520	371	4,100
FEBRUARY.....	454	2,260	0	0	1,700	496	4,910
MARCH.....	605	2,190	0	0	1,800	492	5,090
APRIL.....	1,370	13,070	0	12,050	11,380	2,920	40,790
MAY.....	5,400	31,560	173	25,570	28,180	5,860	96,740
JUNE.....	6,240	30,670	1,970	29,150	28,090	6,720	102,800
JULY.....	7,210	32,820	5,150	39,800	30,570	6,490	122,000
AUGUST.....	6,900	34,860	8,560	23,980	31,820	7,160	113,300
SEPTEMBER.....	5,580	28,430	2,480	17,320	26,780	5,700	86,290
WTR YR 1980.....	37,890	190,500	18,350	168,800	172,700	40,590	628,700

DESCHUTES RIVER BASIN

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14070500 DESCHUTES RIVER BELOW BEND, OR

LOCATION.--Lat 44°04'59", long 121°18'24", in SE¼SE¼ sec.20, T.17 S., R.12 E., Deschutes County, Hydrologic Unit 17070301, on right bank 0.4 mi (0.6 km) downstream from North Canal, 0.5 mi (0.8 km) north of Bend city limits, and at mile 164.4 (264.5 km).

DRAINAGE AREA.--1,899 mi² (4,918 km²).

PERIOD OF RECORD.--October 1914 to current year.

REVISED RECORDS.--WSP 1318: 1916-18(M), 1926(M), 1931(M).

GAGE.--Water-stage recorder. Datum of gage is 3,503.96 ft (1,068.007 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1931, water-stage recorder at site 200 ft (61 m) downstream at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good. Flow regulated by powerplant at Bend, Crescent Lake, Crane Prairie Reservoir, and Wickiup Reservoir (see elsewhere in this report). Six large canals and several small ditches divert water above station for irrigation.

AVERAGE DISCHARGE.--66 years, 507 ft³/s (14.36 m³/s), 367,300 acre-ft/yr (453 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,820 ft³/s (79.9 m³/s) Dec. 27, 1964, gage height, 4.90 ft (1.494 m); maximum gage height, 5.38 ft (1.640 m) Dec. 15, 1932 (backwater from ice); minimum discharge, 1.0 ft³/s (0.028 m³/s) Aug. 25, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge near this site since 1905, 4,820 ft³/s (137 m³/s) Nov. 27, 1909.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 980 ft³/s (27.8 m³/s) Jan. 18, gage height, 3.30 ft (1.006 m); maximum gage height, 3.59 ft (1.094 m) Jan. 30 (backwater from ice); minimum discharge, 12 ft³/s (0.34 m³/s) Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	516	505	480	450	624	390	47	34	34	30	25
2	31	510	510	480	486	618	303	44	35	34	29	38
3	31	516	534	475	363	455	360	45	35	34	30	26
4	32	522	534	490	311	333	490	44	34	38	28	26
5	32	582	534	505	351	342	475	42	34	41	28	26
6	32	505	546	495	370	342	485	42	35	38	28	25
7	31	505	558	475	420	385	490	41	35	39	29	25
8	31	505	564	365	624	588	505	42	35	34	28	27
9	31	500	429	225	588	582	516	42	34	35	30	26
10	32	495	263	259	435	420	303	42	33	35	29	25
11	32	425	255	222	351	346	59	44	34	34	29	24
12	32	480	240	263	328	328	124	41	34	32	29	23
13	31	475	282	435	324	307	107	41	34	31	29	24
14	37	475	351	546	395	360	63	39	57	34	29	25
15	31	455	229	636	546	522	68	38	35	34	29	24
16	31	425	236	732	540	528	119	38	35	34	30	25
17	28	259	222	837	546	505	59	38	34	33	30	25
18	31	41	274	879	510	470	52	38	34	33	29	26
19	187	27	405	880	505	490	52	36	34	33	28	26
20	684	31	400	860	522	505	50	39	35	33	28	25
21	500	79	415	739	546	500	50	36	41	32	31	25
22	495	395	440	660	558	534	50	38	38	32	28	25
23	505	390	435	618	564	564	48	38	38	36	28	24
24	500	445	440	600	582	552	47	38	54	38	28	26
25	500	445	475	594	570	546	45	38	97	38	28	26
26	495	440	475	550	576	546	45	38	44	38	28	24
27	495	460	450	430	582	540	45	36	36	34	28	23
28	522	465	440	430	594	540	45	36	34	34	28	24
29	540	500	445	430	624	540	47	35	34	33	27	24
30	534	505	460	430	---	534	50	36	33	31	27	26
31	534	---	470	430	---	528	---	34	---	32	25	---
TOTAL	7058	12373	12816	16450	14161	14974	5542	1226	1159	1071	885	763
MEAN	228	412	413	531	488	483	185	39.5	38.6	34.5	28.5	25.4
MAX	684	582	564	880	624	624	516	47	97	41	31	38
MIN	28	27	222	222	311	307	45	34	33	31	25	23
AC-FT	14000	24540	25420	32630	28090	29700	10990	2430	2300	2120	1760	1510
CAL YR 1979	TOTAL	92845	MEAN 254	MAX 704	MIN 23	AC-FT 184200						
WTR YR 1980	TOTAL	88478	MEAN 242	MAX 880	MIN 23	AC-FT 175500						

DESCHUTES RIVER BASIN

14073001 TUMALO CREEK NEAR BEND, OR

LOCATION.--Lat 44°05'16, long 121°22'18", in NW¼SE¼ sec.23, T.17S. R.11 E., Deschutes County, Hydrologic Unit 17070301, on left bank 0.25 mi (0.40 km) upstream from diversion to Tumalo feed canal, 3.0 mi (4.8 km) northwest of Bend, and at mile 3.1 (5.0 km).

DRAINAGE AREA.--47.3 mi² (123 km²).

PERIOD OF RECORD.--October 1913 to December 1921, February, April to November 1922, March 1923 to current year. Published as "below Bend" 1949-50.

REVISED RECORDS.--WSP 864: 1937. WSP 1218: Drainage area. WSP 1448: 1923(M), 1927-29(M), 1935(M), 1942(M). WDR OR-75-1: 1974(M).

GAGE.--Water-stage recorder. Datum of gage is 3,566.82 ft (1,087.167 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 27, 1915, nonrecording gage and Apr. 27, 1915, to Sept. 30, 1918, water-stage recorder or nonrecording gage at same site and datum.

REMARKS.--Records good. All records given herein include flow in Columbia Southern Canal, which diverts 8 mi (13 km) above station for irrigation of land near Tumalo. No flow in the canal Oct. 1 to Apr. 27, Sept. 9-30. Crater Creek Canal diverts flow of tributaries of Soda Creek into head of Tumalo Creek. Diversion above station for municipal supply of Bend since Dec. 15, 1926.

AVERAGE DISCHARGE.--62 years (water years 1914, 1917-21, 1924-35, 1937-80), 101 ft³/s (2.860 m³/s), 73,170 acre-ft/yr (90.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,140 ft³/s (32.3 m³/s) Nov. 9, 1968 (no flow in canal), from rating curve extended above 780 ft³/s (22.1 m³/s) on basis of slope-area measurement at 3.45 ft (1.052 m); minimum daily, 25 ft³/s (0.71 m³/s) Jan. 3, 1924.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 249 ft³/s (7.05 m³/s) May 22; minimum daily, 40 ft³/s (1.13 m³/s) Jan. 29, Sept. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	55	54	50	80	74	54	140	165	154	70	49
2	47	55	65	49	95	74	54	155	148	188	63	47
3	47	57	80	49	98	73	53	159	123	182	60	47
4	45	57	65	50	80	72	53	170	111	150	56	48
5	45	57	60	73	72	72	55	177	109	135	54	44
6	45	54	58	62	72	70	55	178	105	133	53	45
7	47	54	56	68	70	69	54	172	112	147	54	48
8	47	52	55	57	72	69	55	171	125	167	51	40
9	47	52	55	57	71	68	57	167	151	161	51	48
10	47	52	59	62	69	67	55	159	160	150	52	49
11	47	52	86	80	69	68	53	146	172	138	51	48
12	47	52	67	105	67	64	55	144	168	132	51	52
13	48	52	61	115	64	65	59	145	145	122	49	52
14	52	51	55	107	62	67	66	146	139	132	47	53
15	54	51	51	95	66	63	62	136	135	123	49	50
16	52	64	53	90	70	64	63	122	172	110	49	48
17	51	62	52	85	69	62	70	128	183	103	49	46
18	54	55	53	70	70	61	75	152	163	99	53	58
19	72	52	53	65	67	60	87	169	160	90	50	55
20	60	58	53	70	63	61	105	184	170	91	48	55
21	57	76	52	70	60	60	106	217	173	107	46	53
22	57	54	54	68	62	57	101	221	175	94	46	50
23	60	49	62	64	61	58	106	180	159	80	46	50
24	65	62	53	65	62	57	108	153	147	69	47	48
25	92	58	52	64	66	56	108	136	162	75	47	50
26	67	57	56	50	87	56	110	126	138	78	45	48
27	62	50	81	45	85	55	114	115	119	74	45	50
28	60	50	114	42	80	54	149	113	149	78	46	49
29	55	52	102	40	76	55	156	123	175	74	46	49
30	55	52	56	45	---	54	148	133	166	72	47	49
31	57	---	52	60	---	54	---	137	---	72	51	---
TOTAL	1688	1654	1925	2072	2085	1959	2446	4774	4479	3580	1572	1478
MEAN	54.5	55.1	62.1	66.8	71.9	63.2	81.5	154	149	115	50.7	49.3
MAX	92	76	114	115	98	74	156	221	183	188	70	58
MIN	45	49	51	40	60	54	53	113	105	69	45	40
AC-FT	3350	3280	3820	4110	4140	3890	4850	9470	8880	7100	3120	2930
CAL YR 1979	TOTAL	27630	MEAN 75.7	MAX 263	MIN 26	AC-FT 54800						
WTR YR 1980	TOTAL	29712	MEAN 81.2	MAX 221	MIN 40	AC-FT 58930						

DESCHUTES RIVER BASIN

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14075000 SQUAW CREEK NEAR SISTERS, OR

LOCATION.--Lat 44°14'02", long 121°33'57", in SE¼SW¼ sec.29, T.15 S., R.10 E., Deschutes County, Hydrologic Unit 17070301, on right bank 800 ft (244 m) upstream from intake of McAllister ditch, 4 mi (6 km) south of Sisters, and at mile 26.8 (43.1 km).

DRAINAGE AREA.--54.8 mi² (141.9 km²).

PERIOD OF RECORD.--July 1906 to October 1918, June to August 1919, October 1919 to September 1920, May 1921 to September 1924 (no winter records), April 1925 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1218: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,490 ft (1,064 m) by barometer. July 1, 1906, to May 29, 1913, nonrecording gage at site 1,000 ft (305 m) downstream at different datum, below intake of McAllister ditch (records include flow in McAllister ditch). May 30, 1913, to Sept. 2, 1915, nonrecording gage and Mar. 24, 1916, to Oct. 5, 1928, water-stage recorder at site 300 ft (91 m) downstream at different datum. Oct. 6, 1928, to Nov. 7, 1967, water-stage recorder at site 200 ft (61 m) downstream at datum 2.64 ft (0.805 m) lower.

REMARKS.--Records good. No regulation. A canal near mouth of Pole Creek, a tributary above station, diverts entire flow of that creek for irrigation of lands near Sisters.

AVERAGE DISCHARGE.--68 years (water years 1907-18, 1920, 1926-80), 105 ft³/s (2.974 m³/s), 76,070 acre-ft/yr (93.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge since 1909, 1,980 ft³/s (56.1 m³/s) Dec. 23, 1964, from rating curve extended above 280 ft³/s (7.93 m³/s) on basis of slope-area measurement of peak flow; a maximum gage height of 9.2 ft (2.80 m) from water-borne ice was observed on Jan. 11, 1979, and probably occurred on Jan. 10, 1979; previous maximum gage height, about 8.75 ft (2.667 m), over top of gage Nov. 22, 1909, site and datum then in use (discharge not determined); minimum discharge, 14 ft³/s (0.40 m³/s) Mar. 2, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 198 ft³/s (5.61 m³/s) Jan. 12, gage height, 2.38 ft (0.725 m), no peak above base of 470 ft³/s (13.3 m³/s); minimum, 45 ft³/s (1.27 m³/s) Jan. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	53	68	48	65	62	51	109	134	156	124	75
2	54	55	92	47	66	61	50	119	123	169	119	82
3	53	54	96	48	67	60	50	123	110	165	114	80
4	54	54	84	49	66	58	51	134	106	157	107	74
5	56	55	75	74	62	57	52	148	103	148	105	77
6	56	54	72	56	64	55	51	144	104	146	101	81
7	56	53	68	54	62	53	53	135	110	148	98	79
8	55	52	64	51	60	52	54	133	120	153	98	75
9	53	51	64	51	58	52	56	127	135	155	98	75
10	52	50	68	47	57	52	54	119	140	153	98	76
11	52	51	61	51	56	52	53	112	140	149	99	77
12	51	50	63	154	55	52	55	112	136	149	99	75
13	51	50	61	178	54	50	59	111	127	146	96	71
14	53	50	59	176	53	51	64	111	124	150	95	68
15	53	50	58	144	53	48	61	109	125	149	92	66
16	50	74	56	128	53	49	62	104	143	148	91	66
17	49	62	58	113	56	48	68	107	155	147	90	68
18	51	54	58	101	55	47	71	118	156	143	92	76
19	60	55	57	95	53	46	81	127	159	141	88	69
20	51	58	54	95	51	48	98	142	169	144	87	70
21	49	61	55	85	50	50	90	165	177	149	87	64
22	51	61	53	82	50	51	84	163	173	157	85	61
23	54	54	50	77	48	50	91	136	157	154	84	61
24	61	73	53	74	48	50	93	125	150	139	86	61
25	93	65	52	73	52	51	92	117	152	132	87	62
26	61	58	51	67	84	51	98	110	136	132	85	63
27	60	54	51	58	82	50	108	105	131	134	83	64
28	56	52	55	53	73	50	126	107	142	137	80	62
29	53	56	54	50	65	51	123	114	151	138	76	62
30	55	62	51	50	---	50	111	118	151	127	74	64
31	56	---	51	58	---	50	---	122	---	125	74	---
TOTAL	1713	1681	1912	2487	1718	1607	2210	3826	4139	4540	2892	2104
MEAN	55.3	56.0	61.7	80.2	59.2	51.8	73.7	123	138	146	93.3	70.1
MAX	93	74	96	178	84	62	126	165	177	169	124	82
MIN	49	50	50	47	48	46	50	104	103	125	74	61
AC-FT	3400	3330	3790	4930	3410	3190	4380	7590	8210	9010	5740	4170
CAL YR 1979	TOTAL	29453	MEAN 80.7	MAX 202	MIN 30	AC-FT 58420						
WTR YR 1980	TOTAL	30829	MEAN 84.2	MAX 178	MIN 46	AC-FT 61150						

DESCHUTES RIVER BASIN

14076500 DESCHUTES RIVER NEAR CUVLER, OR

LOCATION.--Lat 44°29'56", long 121°19'12", in NW¼SE¼ sec.29, T.12 S., R.12 E., Jefferson County, Hydrologic Unit 17070301, on right bank 2.5 mi (4.0 km) downstream from Squaw Creek, 6.0 mi (9.7 km) southwest of Culver, and at mile 120.6 (194.0 km).

DRAINAGE AREA.--2,705 mi² (7,006 km²).

PERIOD OF RECORD.--July 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,980 ft (603 m) National Geodetic Vertical Datum of 1929 (river-profile survey). July 14, 1952, to Sept. 30, 1961, at site 4.1 mi (6.6 km) downstream at different datum.

REMARKS.--Records excellent. Slight regulation by Crescent Lake and Crane Prairie and Wickiup Reservoirs (see elsewhere in this report). Many diversions for irrigation above station.

AVERAGE DISCHARGE.--28 years, 912 ft³/s (25.83 m³/s), 660,700 acre-ft/yr (815 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,680 ft³/s (189 m³/s) Dec. 24, 1964, gage height, 10.00 ft (3.048 m), from rating curve extended above 2,200 ft³/s (62.3 m³/s) on basis of slope-area measurement of peak flow; minimum, 418 ft³/s (11.8 m³/s) July 7, 8, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,640 ft³/s (46.4 m³/s) Jan. 20, gage height, 4.65 ft (1.417 m); minimum, 459 ft³/s (13.0 m³/s) July 17-19, Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	480	1060	1100	1060	1200	1230	1070	511	471	480	468	468
2	508	1050	1130	1070	1220	1230	862	505	480	474	465	471
3	486	1050	1180	1020	1160	1160	847	502	483	480	465	468
4	483	1090	1110	995	944	916	976	505	477	514	465	477
5	483	1130	1040	999	920	889	1010	530	474	483	468	471
6	483	1060	1080	1010	913	889	1020	553	477	480	465	471
7	489	1020	1080	983	897	881	1030	553	480	477	465	471
8	486	1020	1100	1030	1000	1000	1040	533	486	474	468	471
9	486	1020	1080	847	1090	1130	1050	533	483	477	468	468
10	486	1010	909	786	1070	1120	1080	527	480	480	468	474
11	486	987	794	824	874	920	760	511	486	471	468	474
12	489	909	862	1000	839	905	572	496	489	468	465	474
13	489	964	851	1220	866	885	605	496	489	468	465	477
14	493	964	964	1330	854	870	625	489	483	468	465	477
15	493	960	870	1270	1030	1020	579	486	483	465	465	477
16	499	944	831	1280	1130	1110	530	483	502	468	462	474
17	489	932	839	1380	1130	1120	605	480	480	465	465	471
18	493	775	816	1410	1150	1080	514	477	486	462	468	474
19	505	592	916	1430	1110	1060	530	474	486	462	468	471
20	763	595	1000	1510	1110	1080	524	477	477	468	468	471
21	1110	599	995	1480	1120	1090	540	489	483	468	465	471
22	1010	689	987	1310	1140	1080	540	508	489	471	465	471
23	1030	983	991	1260	1140	1140	524	527	499	474	468	471
24	1040	991	1020	1220	1130	1140	524	496	480	465	465	474
25	1040	1020	1040	1210	1130	1130	527	480	493	471	468	474
26	1060	1010	1070	1200	1140	1120	508	477	524	474	468	477
27	1030	1000	1050	1140	1160	1120	508	480	511	477	468	471
28	1020	1040	1030	1130	1220	1110	521	477	480	471	465	517
29	1060	1050	1040	1130	1220	1110	540	474	477	468	468	524
30	1070	1090	1060	1130	---	1090	511	471	483	468	474	524
31	1070	---	1050	1130	---	1070	---	474	---	465	471	---
TOTAL	21609	28604	30885	35794	30907	32695	21072	15474	14571	14656	14469	14324
MEAN	697	953	996	1155	1066	1055	702	499	486	473	467	477
MAX	1110	1130	1180	1510	1220	1230	1080	553	524	514	474	524
MIN	480	592	794	786	839	870	508	471	471	462	462	468
AC-FT	42860	56740	61260	71000	61300	64850	41800	30690	28900	29070	28700	28410
CAL YR 1979	TOTAL	282340	MEAN	774	MAX	1830	MIN	468	AC-FT	560000		
WTR YR 1980	TOTAL	275060	MEAN	752	MAX	1510	MIN	462	AC-FT	545600		

DESCHUTES RIVER BASIN

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14080250 BEAR CREEK NEAR PRINEVILLE, OR

LOCATION.--Lat 44°03'40", long 120°43'54", in SE¼ sec.30, T.17 S., R.17 E., Crook County, Hydrologic Unit 17070304, on left bank upstream side of State Highway 27 bridge over Bear Creek, 17 mi (27.4 km) south of Prineville.

DRAINAGE AREA.--205 mi² (531 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

REVISED RECORDS.--WDR OR-78-1: 1977.

GAGE.--Water-stage recorder. Altitude of gage is 3,280 ft (1,000 m), from topographic map.

REMARKS.--Water-discharge records good, except those for Feb. 27 to Apr. 29, which are fair. Flow regulated by reservoirs upstream. Diversions for irrigation above station.

AVERAGE DISCHARGE.--5 years, 7.97 ft³/s (0.226 m³/s), 5,770 acre-ft/yr (7.11 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 848 ft³/s (24.0 m³/s) Aug. 6, 1976, gage height, 7.01 ft (2.137 m); minimum, 0.16 ft³/s (0.005 m³/s) June 28 to July 1, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 172 ft³/s (4.87 m³/s) Jan. 12, gage height, 3.79 ft (1.155 m); minimum, 0.76 ft³/s (0.022 m³/s) Jan. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	5.1	3.6	3.1	1.7	17	7.9	5.1	1.6	6.2	1.3	1.8
2	1.4	5.1	3.6	3.1	2.9	15	8.4	3.9	1.6	6.2	1.2	1.9
3	1.3	5.1	3.6	2.9	22	15	7.9	3.3	1.6	7.1	1.2	1.9
4	1.4	5.1	4.3	2.9	19	17	7.9	2.5	1.6	7.1	1.2	2.1
5	1.3	5.5	4.3	3.1	12	16	8.4	2.3	1.7	6.7	1.2	1.9
6	1.3	5.8	3.9	2.2	12	16	7.9	2.3	1.6	6.2	1.3	1.8
7	1.4	5.5	3.9	1.9	12	16	6.7	2.3	1.6	3.9	1.3	1.7
8	1.4	5.5	3.9	2.9	9.3	15	7.1	2.1	1.6	2.7	1.3	1.7
9	1.3	5.5	3.9	2.9	7.9	15	8.8	2.1	1.6	2.3	1.2	1.7
10	1.4	5.1	3.3	2.1	7.1	15	10	2.2	1.6	2.7	1.2	1.7
11	1.4	4.7	1.9	1.8	6.2	16	11	2.3	1.6	3.3	1.2	4.7
12	1.7	4.3	3.3	55	5.8	16	10	2.3	7.9	3.3	1.2	2.5
13	1.8	4.3	2.9	51	5.1	15	9.3	2.3	20	2.5	1.4	12
14	1.9	4.3	2.9	26	4.7	14	15	5.8	19	1.5	2.3	7.5
15	2.1	3.6	2.9	21	3.9	13	17	8.8	17	1.6	1.8	5.5
16	2.5	5.1	2.9	16	4.3	11	16	7.5	16	1.7	1.9	3.3
17	2.5	6.7	2.9	14	5.5	11	16	5.5	15	1.6	1.7	2.3
18	2.5	6.7	3.1	7.9	15	11	17	3.6	12	1.5	1.8	4.7
19	4.7	5.5	3.1	4.7	15	11	15	2.7	10	1.6	1.8	5.8
20	4.7	4.3	3.1	5.8	17	11	14	2.5	6.7	1.6	1.7	6.7
21	5.1	3.6	3.1	8.4	14	12	12	2.1	6.2	1.8	1.7	6.7
22	4.7	4.7	2.2	7.5	9.7	12	12	1.9	6.7	1.8	1.5	6.2
23	5.1	3.9	1.5	6.7	8.4	11	11	1.8	7.1	1.8	1.4	6.2
24	5.1	5.5	3.1	6.2	7.9	11	10	1.8	6.7	1.8	1.2	5.8
25	5.5	5.1	2.9	4.7	8.8	10	9.7	1.8	7.9	1.8	1.2	5.5
26	5.1	4.3	2.5	3.6	31	10	9.3	1.9	11	1.7	1.3	5.1
27	4.7	2.9	1.6	1.4	64	11	8.4	2.5	11	1.6	1.4	4.7
28	4.7	2.1	1.4	1.3	36	11	7.9	2.9	9.3	1.6	1.6	3.6
29	4.7	2.5	2.2	1.5	21	11	6.2	2.7	7.9	1.7	1.7	2.7
30	5.1	3.3	3.1	1.6	---	11	5.1	2.3	7.1	1.7	1.8	2.9
31	5.1	---	3.1	1.6	---	8.8	---	1.9	---	1.4	1.8	---
TOTAL	94.3	140.7	94.0	274.8	389.2	404.8	312.9	95.0	222.2	90.0	45.8	122.6
MEAN	3.04	4.69	3.03	8.86	13.4	13.1	10.4	3.06	7.41	2.90	1.48	4.09
MAX	5.5	6.7	4.3	55	64	17	17	8.8	20	7.1	2.3	12
MIN	1.3	2.1	1.4	1.3	1.7	8.8	5.1	1.8	1.6	1.4	1.2	1.7
AC-FT	187	279	186	545	772	803	621	188	441	179	91	243
CAL YR 1979	TOTAL	6386.15	MEAN	17.5	MAX	278	MIN	.80	AC-FT	12670		
WTR YR 1980	TOTAL	2286.30	MEAN	6.25	MAX	64	MIN	1.2	AC-FT	4530		

DESCHUTES RIVER BASIN

14080250 BEAR CREEK NEAR PRINEVILLE, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1975 to September 1976.

SUSPENDED SEDIMENT DISCHARGE: October 1975 to current year.

REMARKS.--Random temperature measurements were made at time of sediment sampling and are available at the district office.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily, 35,000 mg/l Aug. 6, 1976; minimum daily, 15 mg/l Oct. 30 to Nov. 8, 1976.

SEDIMENT DISCHARGE: Maximum daily, 124,000 tons (112,000 tonnes) Apr. 27, 1978; minimum daily, 0 tons (0 tonnes) Oct. 1-8, 1977.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT DISCHARGE: Maximum daily, 820 tons (740 tonnes), estimated, Feb. 27; minimum daily, 0.06 tons (0.05 tonnes) Sept. 6.

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCENTRATION LOADS		MEAN CONCENTRATION LOADS		MEAN CONCENTRATION LOADS		MEAN CONCENTRATION LOADS		MEAN CONCENTRATION LOADS		MEAN CONCENTRATION LOADS	
	(MG/L)	(T/DAY)	(MG/L)	(T/DAY)	(MG/L)	(T/DAY)	(MG/L)	(T/DAY)	(MG/L)	(T/DAY)	(MG/L)	(T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	.30	---	1.8	95	.92	148	1.2	260	1.2	---	19	---
2	.30	---	1.8	90	.87	130	1.1	280	2.2	---	14	---
3	.30	---	1.8	90	.87	110	.86	---	35	---	14	---
4	.30	---	1.8	90	1.0	100	.78	---	25	---	19	---
5	.30	---	2.0	80	.93	90	.75	---	8.5	---	16	---
6	.30	---	2.2	70	.74	80	.48	---	8.5	---	16	---
7	.30	---	2.0	64	.67	80	.41	---	8.5	---	16	---
8	.30	---	2.0	75	.79	70	.55	345	8.7	---	14	---
9	.30	---	2.0	90	.95	70	.55	350	7.5	---	14	---
10	.30	---	1.8	102	.91	---	.50	350	6.7	---	14	---
11	.30	---	1.6	90	.46	---	.40	350	5.9	170	7.3	---
12	.40	---	1.4	120	1.1	---	480	340	5.3	180	7.8	---
13	.45	---	1.4	116	.91	---	330	330	4.5	180	7.3	---
14	.50	---	1.4	90	.70	---	54	310	3.9	180	6.8	---
15	.50	---	1.0	60	.47	---	32	290	3.0	180	6.3	---
16	.70	---	1.8	60	.47	---	16	275	3.2	180	5.3	---
17	.70	---	2.8	65	.51	220	8.3	260	3.9	184	5.5	---
18	.70	---	2.8	66	.55	220	4.7	---	14	190	5.6	---
19	1.5	---	2.0	68	.57	215	2.7	410	19	190	5.6	---
20	1.5	---	1.4	70	.58	210	2.4	---	19	190	5.6	---
21	1.8	---	1.0	70	.58	200	4.5	---	12	210	6.8	---
22	1.5	---	1.6	87	.52	180	3.6	---	4.6	230	7.4	---
23	1.8	---	1.2	70	.28	160	2.9	---	4.2	235	7.0	---
24	1.8	---	2.0	103	.86	140	2.3	---	3.7	230	6.8	---
25	2.0	---	1.8	90	.70	121	1.5	---	4.6	220	5.9	---
26	1.8	---	1.4	90	.61	115	1.1	---	84	215	5.8	---
27	1.5	---	.80	102	.44	111	.42	---	820	200	5.9	---
28	1.5	---	.50	90	.34	165	.58	---	120	190	5.6	---
29	1.5	---	.70	84	.70	220	.89	---	32	170	5.0	---
30	1.8	95	.85	110	.92	230	1.6	---	---	140	3.3	---
31	1.8	---	---	130	---	240	1.0	---	---	110	---	---
TOTAL	29.05	---	48.65	---	20.92	---	958.07	---	1278.6	---	278.6	---

DESCHUTES RIVER BASIN

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14080250 BEAR CREEK NEAR PRINEVILLE, OR--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCEN- TRATION LOADS		MEAN CONCEN- TRATION LOADS		MEAN CONCEN- TRATION LOADS		MEAN CONCEN- TRATION LOADS		MEAN CONCEN- TRATION LOADS		MEAN CONCEN- TRATION LOADS	
	(MG/L)	(T/DAY)	(MG/L)	(T/DAY)	(MG/L)	(T/DAY)	(MG/L)	(T/DAY)	(MG/L)	(T/DAY)	(MG/L)	(T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	125	2.7	50	.69	50	.22	90	1.5	45	.16	15	.07
2	145	3.3	45	.47	45	.19	110	1.8	50	.16	15	.08
3	150	3.2	40	.36	40	.17	120	2.3	50	.16	16	.08
4	150	3.2	45	.11	40	.17	95	1.8	55	.18	15	.08
5	150	3.4	50	.31	40	.18	65	1.2	60	.19	15	.08
6	150	3.2	60	.37	40	.17	65	1.1	65	.23	12	.06
7	125	2.3	80	.50	40	.17	70	.74	72	.25	15	.07
8	95	1.8	100	.57	60	.26	70	.51	60	.21	20	.09
9	110	2.6	80	.45	105	.45	65	.40	55	.18	20	.09
10	140	3.8	45	.27	85	.37	65	.47	50	.16	20	.09
11	165	4.9	35	.22	60	.26	65	.58	50	.16	---	1.6
12	190	5.1	35	.22	---	3.7	65	.58	50	.16	135	.90
13	---	5.2	40	.25	---	28	65	.44	50	.19	---	9.0
14	---	14	70	1.1	---	25	60	.24	40	.25	---	3.4
15	---	19	65	1.5	110	5.0	65	.28	40	.19	---	2.0
16	120	5.2	60	1.2	130	5.6	65	.30	40	.20	180	1.6
17	120	5.2	60	.89	105	4.2	70	.30	35	.16	---	.60
18	120	5.5	60	.58	80	2.6	70	.28	35	.17	---	1.6
19	120	4.9	60	.44	75	2.0	70	.30	30	.14	---	2.2
20	125	4.7	60	.40	75	1.4	70	.30	45	.21	90	1.6
21	110	3.6	50	.28	70	1.2	70	.34	60	.28	75	1.4
22	90	2.9	40	.20	70	1.3	65	.32	75	.30	60	1.0
23	90	2.7	45	.22	75	1.4	60	.29	65	.24	50	.80
24	85	2.3	55	.27	80	1.4	55	.27	60	.19	40	.60
25	80	2.1	75	.36	95	2.0	50	.24	55	.18	30	.40
26	80	2.0	90	.46	175	5.2	50	.23	50	.18	---	1.8
27	75	1.7	75	.51	150	4.4	50	.22	50	.19	---	1.6
28	75	1.6	50	.39	130	3.3	45	.19	45	.19	---	1.0
29	70	1.2	40	.29	105	2.2	45	.21	40	.21	---	.70
30	50	.70	36	.22	95	1.8	45	.21	30	.19	---	.80
31	---	---	40	.21	---	---	45	.17	15	.14	---	---
TOTAL	---	124.00	---	14.31	---	104.31	---	18.11	---	6.00	---	35.39

DESCHUTES RIVER BASIN

14080400 PRINEVILLE RESERVOIR NEAR PRINEVILLE, OR

LOCATION.--Lat 44°06'50", long 120°46'50", in SW¼NW¼ sec.11, T.17 S., R.16 E., Crook County, Hydrologic Unit 17070304, at right end of Prineville Dam on Crooked River, 13.8 mi (22.2 km) south of Prineville, and at mile 72.5 (116.7 km).

DRAINAGE AREA.--2,700 mi² (6,990 km²) approximately, of which 500 mi² (1,300 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service). Prior to Aug. 13, 1969, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam with ungated concrete spillway and concrete outlet tunnel controlled by two 4-ft (1.2 m) by 6-ft (1.8 m) regulating gates. Storage began in December 1960. Total capacity at elevation 3,234.80 ft (985.967 m), crest of spillway, is 154,700 acre-ft (191 hm³), of which 152,800 acre-ft (188 hm³) is active storage above 3,114.00 ft (949.147 m), proposed minimum pool. Reservoir used for flood control, irrigation, and recreation. Figures given herein represent active storage.

COOPERATION.--Gage inspected and capacity table furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 165,800 acre-ft (204 hm³) Dec. 27, 1964, elevation, 3,238.95 ft (987.232 m); minimum observed, 37,400 acre-ft (46.1 hm³) Oct. 31, Nov. 1, 1977, elevation, 3,177.40 ft (986.472 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 161,000 acre-ft (199 hm³) Apr. 21, elevation, 3,237.45 ft (986.775 m); minimum, 93,000 acre-ft (115 hm³) Oct. 17, 18, elevation, 3,211.26 ft (978.792 m).

Capacity table (elevation, in feet, and usable contents, in acre-feet)

3,175	34,600	3,210	90,400
3,180	40,600	3,215	101,100
3,185	47,400	3,220	112,600
3,190	54,700	3,230	138,700
3,195	62,600	3,235	153,400
3,200	71,200	3,239	165,900
3,205	80,400		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980 INSTANTANEOUS OBSERVATIONS AT 2400												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3213.20	3211.80	3214.50	---	---	3225.70	3232.95	3237.33	3234.98	3233.48	3228.22	3221.82
2	3213.10	3211.84	3214.55	---	---	3225.75	3233.15	3237.23	3234.82	3233.34	3228.02	3221.62
3	3213.00	3211.88	3214.70	---	---	3225.77	3233.32	3237.23	3234.72	3233.32	3227.82	3221.42
4	3212.90	3211.88	3214.98	---	---	3225.97	3233.55	3237.11	3234.62	3233.22	3227.60	3221.26
5	3212.75	3212.00	3215.30	---	---	3226.25	3233.80	3237.03	3234.96	3233.06	3227.49	3221.06
6	3212.65	3212.06	3215.60	---	---	3226.50	3234.00	3236.93	3234.48	3232.94	3227.28	3220.91
7	3212.50	3212.20	3215.90	---	---	3226.75	3234.28	3236.85	3234.46	3232.84	3227.10	3220.60
8	3212.30	3212.20	3216.10	---	---	3226.95	3234.50	3236.73	3234.40	3232.64	3226.84	3220.36
9	3212.20	3212.30	3216.18	---	---	3227.05	3234.78	3236.75	3234.35	3232.44	3226.64	3220.12
10	3212.05	3212.40	3216.42	---	---	3227.10	3235.12	3236.75	3234.25	3232.30	3226.44	3219.92
11	3212.00	3212.44	3216.54	3211.56	---	3227.28	3235.40	3236.75	3234.16	3232.16	3226.22	3219.70
12	3211.80	3212.58	3216.66	3212.25	---	3227.55	3235.60	3236.76	3234.10	3232.00	3226.02	3219.50
13	3211.60	3212.60	3216.76	3215.20	---	3228.00	3235.92	3236.73	3234.16	3231.84	3225.82	3219.30
14	3211.50	3212.68	---	3216.85	---	3228.45	3236.38	3236.73	3234.24	3231.64	3225.60	3219.16
15	3211.38	3212.70	---	3217.40	3214.98	3228.90	3236.40	3236.71	3234.36	3231.52	3225.30	3219.00
16	3211.30	3212.92	---	3217.00	3215.00	3229.25	3236.48	3236.63	3234.40	3231.40	3225.16	3218.88
17	3211.26	3213.08	---	3216.45	3215.28	3229.55	3236.65	3236.62	3234.40	3231.18	3224.96	3218.72
18	3211.26	3213.28	---	---	3217.00	3229.87	3236.92	3236.61	3234.40	3231.00	3224.70	3218.58
19	3211.30	3213.42	---	---	3218.15	3230.12	3237.20	3236.50	3234.40	3230.84	3224.54	3218.42
20	3211.32	3213.52	---	---	3219.26	3230.40	3237.40	3236.50	3234.40	3230.66	3224.40	3218.36
21	3211.40	3213.62	---	---	3219.65	3230.80	3237.40	3236.40	3234.30	3230.54	3224.24	3218.22
22	3211.40	3213.70	---	---	3219.78	3231.15	3237.34	3236.23	3234.20	3230.38	3224.02	3218.08
23	3211.48	3213.76	---	---	3219.72	3231.42	3237.26	3236.06	3234.15	3230.14	3223.76	3217.92
24	3211.52	3213.86	---	---	3219.60	3231.70	3237.30	3235.90	3234.02	3229.96	3223.48	3217.80
25	3211.56	3214.00	---	---	3219.65	3231.98	3237.32	3235.72	3233.98	3229.78	3223.26	3217.62
26	3211.60	3214.12	---	---	3221.55	3232.20	3237.34	3235.60	3233.92	3229.64	3223.10	3217.48
27	3211.66	3214.14	---	---	3224.00	3232.34	3237.36	3235.50	3233.84	3229.56	3222.86	3217.36
28	3211.68	3214.25	---	---	3225.05	3232.48	3237.34	3235.40	3233.82	3229.08	3222.64	3217.20
29	3211.74	3214.30	---	---	3225.55	3232.60	3237.33	3235.32	3233.68	3228.88	3222.46	3217.02
30	3211.72	3214.40	---	---	---	3232.80	3237.33	3235.20	3233.60	3228.62	3222.24	3216.88
31	3211.80	---	3213.95	3213.14	---	3232.85	---	3235.10	---	3228.42	3222.00	---
MEAN	3211.90	3213.00	---	---	---	3229.21	3235.90	3236.42	3234.27	3231.25	3225.17	3219.14
MAX	3213.20	3214.40	---	---	---	3232.85	3237.40	3237.33	3234.98	3233.48	3228.22	3221.82
MIN	3211.26	3211.80	---	---	---	3225.70	3232.95	3235.10	3233.60	3228.42	3222.00	3216.88
(†)	94140	99740	98750	97000	126580	146980	160630	153730	149210	134320	117480	105300
(‡)	-3050	+5600	-990	-1750	+29580	+20480	+13,650	-6900	-4520	-14890	-16840	-12180

† Contents in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

14080500 CROOKED RIVER NEAR PRINEVILLE, OR

LOCATION.--Lat 44°06'50", long 120°47'40", in SW¼NE¼ sec.10, T.17 S., R.16 E., Crook County, Hydrologic Unit 17070304, on right bank 0.4 mi (0.6 km) downstream from Prineville Dam, 13.6 mi (21.9 km) south of Prineville, and at mile 72.1 (116.0 km).

DRAINAGE AREA.--2,700 mi² (7,000 km²), approximately, of which 500 mi² (1,300 km²) is probably noncontributing.

PERIOD OF RECORD.--November 1908 to September 1914, March 1941 to current year. Published as "near Prineville" 1908-12, as "at Hoffman's ranch, near Prineville" 1913-14, and as "above Hoffman Dam, near Prineville" March 1941 to September 1960. The estimate of monthly mean discharge for October 1908, published in WSP 370, has been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1448: 1909-13, 1914(M), drainage area (at sites prior to Apr. 24, 1961). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 3,070.85 ft (935.995 m) National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to September 1914, nonrecording gage at several sites from 9 mi (14 km) to 23 mi (37 km) downstream at various datums. Mar. 26, 1941, to Apr. 23, 1961, water-stage recorder at site 5.5 mi (8.8 km) downstream at different datum.

REMARKS.--Records excellent. Flow completely regulated since December 1960 by Prineville Reservoir (see station 14080400). Diversions for irrigation above station. Discharge not adjusted for storage or release from Prineville Reservoir as evaporation from reservoir at times exceeds natural flow.

AVERAGE DISCHARGE.--24 years (water years 1910-14, 1942-60), 378 ft³/s (10.70 m³/s), 273,700 acre-ft/yr (337 hm³/yr); 20 years (water years 1961-80), 314 ft³/s (8.892 m³/s), 227,500 acre-ft/yr (281 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,410 ft³/s (238 m³/s) Mar. 26, 1952, gage height, 8.2 ft (2.50 m), from floodmark, site and datum then in use; no flow Aug. 13-21, 1959, Jan. 3-5, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,740 ft³/s (49.3 m³/s) Jan. 15, 16, gage height, 6.36 ft (1.939 m); minimum, 0.90 ft³/s (0.025 m³/s) Nov. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	164	48	8.0	366	160	1460	210	745	260	258	258	244
2	164	40	8.0	366	160	1450	212	648	258	258	258	244
3	164	45	8.0	366	160	1450	212	568	256	258	258	242
4	164	52	8.4	340	160	1270	160	556	256	258	258	242
5	164	24	8.4	311	160	1100	112	518	256	258	258	242
6	164	8.7	8.4	311	160	1100	112	486	256	258	258	242
7	164	8.7	8.4	311	160	1030	114	476	256	258	258	242
8	162	8.7	8.4	352	200	840	114	420	256	258	258	242
9	162	8.7	8.4	417	350	840	114	378	256	258	258	242
10	162	8.0	8.4	417	350	840	121	378	256	258	258	242
11	162	8.4	8.4	303	400	664	208	381	256	258	258	242
12	162	8.4	8.0	124	400	542	265	384	256	258	258	222
13	162	8.4	21	521	400	309	291	322	231	258	258	205
14	162	8.0	77	1260	350	139	690	349	210	258	256	205
15	162	8.0	110	1580	200	139	1240	437	210	258	256	205
16	84	8.4	111	1730	97	139	1140	402	210	258	256	205
17	37	8.4	130	1730	97	139	1160	372	210	258	256	205
18	37	8.0	251	1500	97	139	1190	360	210	256	256	205
19	37	8.4	338	1070	235	139	1230	335	210	253	253	187
20	37	8.0	338	1070	840	140	1260	296	210	253	253	178
21	37	8.0	352	1070	1120	140	1470	286	210	253	253	178
22	37	8.0	369	936	1120	140	1490	274	212	253	253	178
23	37	8.0	369	690	1120	140	1250	301	212	253	251	178
24	37	8.4	369	690	1120	140	1120	324	237	251	251	178
25	36	8.0	369	528	1110	140	1030	309	258	281	249	178
26	36	8.0	369	301	910	195	942	296	258	309	246	178
27	36	7.7	369	300	1280	293	930	288	258	309	246	178
28	36	8.0	366	300	1450	249	825	281	258	309	246	178
29	43	8.0	366	200	1450	210	750	276	258	309	244	178
30	56	8.0	366	200	---	210	755	269	258	309	244	178
31	56	---	366	160	---	210	---	263	---	276	244	---
TOTAL	3123	414.3	5505.2	19820	15816	15936	20717	11978	7198	8260	7867	6263
MEAN	101	13.8	178	639	545	514	691	386	240	266	254	209
MAX	164	52	369	1730	1450	1460	1490	745	260	309	258	244
MIN	36	7.7	8.0	124	97	139	112	263	210	251	244	178
AC-FT	6190	822	10920	39310	31370	31610	41090	23760	14280	16380	15600	12420
CAL YR 1979	TOTAL	188821.5	MEAN	517	MAX	3140	MIN	7.7	AC-FT	374500		
WTR YR 1980	TOTAL	122897.5	MEAN	336	MAX	1730	MIN	7.7	AC-FT	243800		

14087400 CROOKED RIVER BELOW OPAL SPRINGS, NEAR CULVER, OR

LOCATION.--Lat 44°29'33", long 121°17'50", in NW¼NE¼ sec.33, T.12 S., R.12 E., Jefferson County, Hydrologic Unit 17070305, on right bank 0.2 mi (0.3 km) downstream from Opal Springs, 4.8 mi (7.7 km) southwest of Culver, and at mile 6.7 (10.8 km).

DRAINAGE AREA.--4,300 mi² (11,100 km²), approximately, of which 500 mi² (1,300 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,953.60 ft (595.457 m) National Geodetic Vertical Datum of 1929 (Portland General Electric Co. bench mark).

REMARKS.--Records excellent. Flow regulated since December 1960 by Prineville Reservoir (see station 14080400) and Ochoco Reservoir, capacity, 47,500 acre-ft (58.6 hm³). Many diversions for irrigation above station. Practically all of the summer flow comes from Opal Springs and other springs within 15 mi (24 km) above station. Simultaneous records (1961-63) at former gaging station 5.6 mi (9.0 km) downstream indicated over 15 percent increase to summer flow from springs below this station.

AVERAGE DISCHARGE.--19 years, 1,553 ft³/s (43.98 m³/s), 1,125,000 acre-ft/yr (1.39 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,660 ft³/s (189 m³/s) Dec. 24, 1964, gage height, 9.36 ft (2.853 m); minimum, 906 ft³/s (25.7 m³/s) June 12, 1980, caused by refilling of small forebay upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,420 ft³/s (96.9 m³/s) Feb. 28, gage height, 5.67 ft (1.728 m); minimum, 906 ft³/s (25.7 m³/s) June 12, caused by refilling of small forebay upstream from gage; minimum daily, 1,100 ft³/s (31.2 m³/s) July 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1320	1290	1210	1610	1430	3370	1550	1790	1120	1230	1120	1170
2	1310	1290	1210	1600	1400	3350	1560	1780	1120	1220	1110	1160
3	1290	1280	1200	1610	1390	3330	1700	1700	1130	1200	1110	1160
4	1280	1270	1200	1610	1370	3160	1640	1600	1130	1190	1120	1160
5	1290	1270	1200	1590	1370	2800	1450	1650	1130	1200	1130	1160
6	1300	1280	1200	1550	1390	2700	1340	1650	1120	1210	1120	1150
7	1300	1260	1210	1550	1380	2700	1330	1580	1140	1210	1130	1160
8	1300	1230	1200	1550	1380	2560	1320	1450	1270	1190	1120	1160
9	1290	1230	1200	1590	1430	2400	1330	1330	1140	1150	1110	1160
10	1280	1220	1190	1660	1580	2380	1320	1310	1130	1140	1130	1160
11	1280	1220	1190	1670	1590	2370	1320	1460	1120	1120	1130	1160
12	1280	1220	1190	1660	1610	2160	1410	1430	1120	1110	1140	1170
13	1280	1220	1210	2150	1610	2080	1490	1340	1350	1110	1130	1210
14	1310	1210	1210	2390	1620	1700	1530	1370	1460	1110	1120	1180
15	1340	1210	1230	2900	1590	1480	2070	1300	1340	1120	1120	1180
16	1430	1230	1320	3120	1450	1430	2470	1430	1270	1110	1110	1200
17	1410	1240	1330	3200	1320	1420	2400	1380	1180	1100	1120	1190
18	1310	1230	1340	3150	1320	1410	2420	1290	1190	1100	1210	1190
19	1300	1230	1440	2750	1330	1400	2500	1280	1160	1110	1220	1250
20	1300	1220	1560	2430	1750	1390	2530	1270	1140	1120	1200	1300
21	1280	1220	1560	2420	2340	1390	2600	1200	1120	1110	1170	1210
22	1280	1230	1570	2410	2440	1470	2860	1160	1130	1120	1140	1200
23	1270	1230	1500	2210	2440	1490	2860	1130	1130	1120	1110	1210
24	1280	1230	1600	2030	2470	1490	2540	1120	1150	1110	1120	1220
25	1280	1230	1600	2020	2510	1480	2420	1170	1210	1120	1110	1200
26	1270	1220	1590	1810	2560	1470	2220	1210	1530	1110	1120	1190
27	1270	1210	1590	1560	3110	1530	2130	1300	1510	1140	1120	1190
28	1260	1200	1590	1490	3320	1640	2100	1290	1460	1150	1120	1190
29	1260	1200	1600	1510	3410	1590	1870	1270	1380	1170	1120	1180
30	1270	1200	1610	1360	---	1550	1780	1160	1330	1160	1140	1190
31	1280	---	1610	1400	---	1550	---	1150	---	1140	1150	---
TOTAL	40200	37020	42560	61560	53910	62240	58060	42550	36710	35500	35120	35610
MEAN	1297	1234	1373	1986	1859	2008	1935	1373	1224	1145	1133	1187
MAX	1430	1290	1610	3200	3410	3370	2860	1790	1530	1230	1220	1300
MIN	1260	1200	1190	1360	1320	1390	1320	1120	1120	1100	1110	1150
AC-FT	79740	73430	84420	122100	106900	123900	115200	84400	72810	70410	69660	70630
CAL YR 1979 TOTAL	635090		MEAN	1740	MAX	4840	MIN	1170	AC-FT	1260000		
WTR YR 1980 TOTAL	541040		MEAN	1478	MAX	3410	MIN	1100	AC-FT	1073000		

DESCHUTES RIVER BASIN

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14088000 LAKE CREEK NEAR SISTERS, OR

LOCATION.--Lat 44°25'35", long 121°43'30", in NE¼SW¼ sec.24, T.13 S., R.8 E., Deschutes County, Hydrologic Unit 17070301, on left bank 300 ft (91 m) downstream from Suttle Lake and 13 mi (21 km) northwest of Sisters.

DRAINAGE AREA.--22.2 mi² (57.5 km²).

PERIOD OF RECORD.--June to November 1911, March to September 1912, May to October 1913, April 1915 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1124: 1943, 1947. WSP 1218: Drainage area. WSP 1448: 1916(M), 1925.

GAGE.--Water-stage recorder. Datum of gage is 3,431.68 ft (1,045.976 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 1, 1916, nonrecording gage at two sites 400 ft (122 m) upstream at different datums. Apr. 1, 1916, to Oct. 12, 1928, nonrecording gage or water-stage recorder at site 640 ft (195 m) downstream at different datum. Oct. 13, 1928, to Aug. 13, 1967, water-stage recorder at site 600 ft (183 m) downstream at datum 1.61 ft (0.491 m) lower.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--65 years (water years 1916-80), 52.5 ft³/s (1.487 m³/s), 38,040 acre-ft/yr (46.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded discharge, 556 ft³/s (15.7 m³/s) Dec. 15, 1977, gage height, 4.78 ft (1.457 m), but may have been higher during period of no gage-height record Dec. 23, 1964; minimum, 1.0 ft³/s (0.028 m³/s) Nov. 4, 5, 1940; minimum daily, 8 ft³/s (0.23 m³/s) Nov. 5, 1940, Oct. 6, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 222 ft³/s (6.29 m³/s) Jan. 16, gage height, 3.65 ft (1.113 m); minimum recorded, 24 ft³/s (0.68 m³/s) Aug. 11, Sept. 13, 14, 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	25	31	39	57	54	45	74	43	32	27	26
2	25	25	39	37	63	55	45	74	44	32	26	26
3	25	25	38	37	64	56	44	71	43	31	25	26
4	25	25	44	37	65	56	44	70	42	30	26	26
5	25	25	41	50	68	59	46	69	42	32	26	26
6	25	25	41	43	76	58	49	68	41	32	25	26
7	25	25	41	44	71	56	48	66	41	33	26	26
8	25	25	42	51	67	56	47	66	42	35	27	25
9	25	25	46	53	65	55	50	65	41	33	27	25
10	25	25	46	58	64	54	51	65	39	31	28	26
11	25	25	43	54	61	56	47	63	39	31	27	26
12	25	25	42	80	59	56	46	61	38	30	25	26
13	25	25	42	96	57	60	46	58	38	30	25	26
14	25	27	41	139	56	62	48	56	38	29	27	25
15	25	29	40	192	55	60	48	56	37	29	27	26
16	25	31	39	211	54	55	48	55	38	29	26	26
17	25	32	39	183	54	53	50	51	38	28	26	26
18	25	34	39	153	56	53	51	50	37	28	26	27
19	25	31	39	132	57	51	45	50	37	28	26	26
20	25	30	39	120	56	51	47	49	37	28	26	27
21	25	29	39	110	55	51	58	48	36	28	25	26
22	25	31	38	99	56	50	62	47	35	28	26	26
23	26	31	41	90	55	48	64	47	35	27	27	25
24	28	36	41	82	54	47	66	46	34	27	27	25
25	28	35	39	78	53	47	68	47	35	27	26	25
26	28	35	37	64	54	49	71	45	34	27	27	26
27	27	32	36	55	52	50	73	45	34	27	26	25
28	26	31	36	50	54	48	75	45	34	28	26	24
29	25	30	36	50	54	47	74	45	33	27	25	24
30	25	30	35	50	---	46	73	43	31	26	26	25
31	25	---	36	50	---	45	---	43	---	27	26	---
TOTAL	788	859	1226	2587	1712	1644	1629	1738	1136	910	811	770
MEAN	25.4	28.6	39.5	83.5	59.0	53.0	54.3	56.1	37.9	29.4	26.2	25.7
MAX	28	36	46	211	76	62	75	74	44	35	28	27
MIN	25	25	31	37	52	45	44	43	31	26	25	24
AC-FT	1560	1700	2430	5130	3400	3260	3230	3450	2250	1800	1610	1530

CAL YR 1979 TOTAL 15552 MEAN 42.6 MAX 112 MIN 25 AC-FT 30850
WTR YR 1980 TOTAL 15810 MEAN 43.2 MAX 211 MIN 24 AC-FT 31360

NOTE.--No gage-height record Oct. 1 to Nov. 14.

DESCHUTES RIVER BASIN

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14092100 LAKE BILLY CHINOOK NEAR METOLIUS, OR

LOCATION.--Lat 44°36'14", long 121°16'40", in SW¼NE¼ sec.22, T.11 S., R.12 E., Jefferson County, Hydrologic Unit 17070301, Warm Springs Indian Reservation, near left end of Round Butte Dam on Deschutes River, 5.0 mi (8.0 km) west of Metolius, and at mile 110.6 (178.0 km).

DRAINAGE AREA.--7,490 mi² (19,400 km²), approximately.

PERIOD OF RECORD.--January 1964 to current year.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Portland General Electric Co.).

REMARKS.--Reservoir is formed by rock fill dam completed in June 1964 by Portland General Electric Co.; storage began Jan. 2, 1964. Total capacity is 534,700 acre-ft (659 hm³) at elevation 1,945.0 ft (592.84 m) proposed upper limit of operation, and usable capacity is 273,900 acre-ft (337 hm³) between elevations 1,860.0 ft (566.93 m), proposed lower limit of operation, and 1,945.0 ft (592.84 m). Reservoir used for power generation under FPC license 2030. Figures given herein represent total contents.

COOPERATION.--Gage readings and capacity tables furnished by Portland General Electric co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 538,700 acre-ft (664 hm³) July 15, 16, 1972, elevation, 1,946.00 ft (593.141 m); minimum observed since first filling, 431,100 acre-ft (531 hm³) Feb. 13, 1972, elevation, 1,917.13 ft (584.341 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 533,400 acre-ft (658 hm³) Oct. 9, elevation, 1,944.65 ft (592.729 m); minimum observed, 503,800 acre-ft (621 hm³) Jan. 31, elevation, 1,937.00 ft (590.398 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,943.93	530,500	-
Oct. 31.....	1,941.25	520,100	-10,400
Nov. 30.....	1,941.76	522,000	+1,900
Dec. 31.....	1,944.28	531,900	+9,900
CAL YR 1979.....	-	-	+34,200
Jan. 31.....	1,937.00	503,800	-28,100
Feb. 29.....	1,944.35	532,200	+28,400
Mar. 31.....	1,942.20	523,700	-8,500
Apr. 30.....	1,941.44	520,800	-2,900
May 31.....	1,943.93	530,500	+9,700
June 30.....	1,944.15	531,400	+900
July 31.....	1,944.56	533,000	+1,600
Aug. 31.....	1,944.20	531,600	-1,400
Sept. 30.....	1,944.42	532,400	+800
WTR YR 1980.....	-	-	+1,900

DESCHUTES RIVER BASIN

14092500 DESCHUTES RIVER NEAR MADRAS, OR

LOCATION.--Lat 44°43'34", long 121°14'45", in SE¼SW¼ sec.1, T.10 S., R.12 E., Jefferson County, Hydrologic Unit 17070306, on right bank 400 ft (122 m) downstream from reregulating dam, 2.7 mi (4.3 km) downstream from Pelton Dam, 8.5 mi (13.7 km) northwest of Madras, and at mile 100.1 (161.1 km).

DRAINAGE AREA.--7,820 mi² (20,250 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year.

REVISED RECORDS.--WSP 1398: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,390.25 ft (423.748 m) National Geodetic Vertical Datum of 1929 (levels by Portland General Electric Co.). See WSP 1738 for history of changes prior to Nov. 23, 1957.

REMARKS.--Water-discharge records excellent. Diurnal fluctuation caused by Lake Simtustus and reregulating reservoir since 1957, combined capacity for normal operation, 6,500 acre-ft (8.01 hm³). Some winter and spring runoff stored in Ochoco Reservoir, capacity, 47,500 acre-ft (58.6 hm³), in Crescent Lake, Crane Prairie and Wickiup Reservoirs, combined capacity, 354,600 acre-ft (437 hm³), and since 1960, in Prineville Reservoir, capacity, 152,800 acre-ft (188 hm³), and since 1964, in Lake Billy Chinook, capacity, 534,700 acre-ft (659 hm³). Large diversions in upper basin for irrigation.

AVERAGE DISCHARGE.--57 years, 4,480 ft³/s (126.9 m³/s), 3,246,000 acre-ft/yr (4.00 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,800 ft³/s (447 m³/s) Dec. 28, 1964, gage height, 6.29 ft (1.917 m); maximum gage height, 6.89 ft (2.100 m) Jan. 1, 1943, site and datum then in use; minimum discharge, 1,200 ft³/s (34.0 m³/s) Dec. 13, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,950 ft³/s (225 m³/s) Jan. 20, gage height, 4.24 ft (1.292 m); minimum, 3,130 ft³/s (88.6 m³/s) Nov. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3760	4730	5400	4680	5270	7630	4890	4280	3940	3830	3870	3900
2	3710	4790	5110	4790	4480	7020	4870	3900	3970	3970	3940	3760
3	3690	4760	4660	4760	4480	6960	4940	3900	3920	3850	3870	3660
4	3640	4760	4730	4710	4550	6930	4970	3870	3940	3850	3850	3690
5	3640	4730	4660	4970	4480	7020	4970	3920	3940	3920	3850	3710
6	3640	4710	4630	5680	4450	6630	4920	3920	3830	3920	3830	3640
7	3640	4430	4630	5990	4530	6340	4970	3900	3800	3920	3780	3690
8	3640	3760	3830	5740	4130	6370	4890	3920	3800	3970	3780	3690
9	3710	3330	3780	5660	3780	6390	4600	3870	3830	3940	3730	3690
10	3870	3350	3900	5520	3800	6020	4380	3870	3900	3900	3710	3660
11	3900	3690	4330	5240	3760	5630	3970	3870	3800	3970	3830	3710
12	4110	3990	4480	4630	3780	5660	3530	3990	3800	4380	3850	3640
13	4380	4010	4160	4940	3830	5320	3510	4110	3780	4130	3710	3710
14	4380	3990	4010	6280	4160	4890	3570	4110	3800	3870	3600	3830
15	4430	4060	4250	6250	4940	4840	3530	4400	3760	3870	3620	4080
16	4380	4110	4280	6810	4810	4920	3800	4160	3990	3800	3550	4300
17	4380	4040	4250	7140	4480	4890	4060	3900	4180	3690	3550	4130
18	4400	4010	4250	7600	4500	4680	4530	3920	4130	3600	3620	3920
19	4400	4110	4040	7670	4230	4630	4760	3920	4110	3420	3640	3870
20	4400	4010	3660	7760	3830	4630	4790	3970	4040	3420	3800	3800
21	4400	4040	3600	7200	3780	4350	5080	3970	4080	3510	3780	3850
22	4530	4010	3620	6110	4060	4110	5350	3830	4180	3620	3850	3870
23	4630	3990	3570	5910	4430	4130	5820	3920	4160	3570	3800	3870
24	4710	4040	3550	5600	4450	3870	6190	3900	4180	3710	3780	3870
25	4710	4040	3600	5110	4500	3870	6160	3870	4160	3760	3780	3940
26	4710	4160	4060	4710	4940	4330	6160	3850	3990	3920	3830	3900
27	4730	4230	4730	5820	5940	4660	6190	3870	3940	4010	3870	3900
28	4760	4230	4730	6960	6390	4600	5850	3870	3870	4060	3850	3830
29	4810	4450	4790	6370	7200	4350	5570	3900	3830	4040	3850	3900
30	4760	5020	4760	6370	---	4400	5050	3970	3870	3970	3850	3920
31	4730	---	4810	5940	---	4660	---	3990	---	3990	3780	---
TOTAL	131580	125580	132860	182920	131960	164730	145870	122640	118520	119380	117000	114930
MEAN	4245	4186	4286	5901	4550	5314	4862	3956	3951	3851	3774	3831
MAX	4810	5020	5400	7760	7200	7630	6190	4400	4180	4380	3940	4300
MIN	3640	3330	3550	4630	3760	3870	3510	3830	3760	3420	3550	3640
AC-FT	261000	249100	263500	362800	261700	326700	289300	243300	235100	236800	232100	228000
CAL YR 1979 TOTAL	1672310			4582	MAX 8210	MIN 3040	AC-FT 3317000					
WTR YR 1980 TOTAL	1607970			4393	MAX 7760	MIN 3330	AC-FT 3189000					

DESCHUTES RIVER BASIN

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14092500 DESCHUTES RIVER NEAR MADRAS, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1971 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 18.0°C occurred during period Aug. 1 to Sept. 30, 1974; minimum, 3.5°C Feb. 8, 1979.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 14.0°C on many days during August and September; minimum, 5.5°C Feb. 15-18, Mar. 7.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	13.5	13.0	12.0	12.0	9.5	9.0	8.0	7.5	6.0	6.0	6.5	6.5
2	13.5	13.0	12.0	11.5	9.0	9.0	8.0	7.5	6.0	6.0	6.5	6.5
3	13.5	12.5	11.5	11.5	9.0	9.0	8.0	7.5	6.5	6.0	6.5	6.5
4	13.0	13.0	11.5	11.5	9.0	9.0	7.5	7.5	6.5	6.0	6.5	6.5
5	13.5	13.0	11.5	11.5	9.0	9.0	8.5	7.5	6.5	6.5	6.5	6.5
6	13.0	12.5	11.5	11.5	9.0	9.0	7.5	7.5	6.5	6.5	6.5	6.0
7	13.0	12.5	11.5	11.5	9.0	9.0	7.5	7.0	6.5	6.5	6.5	5.5
8	13.0	12.5	11.5	11.5	9.0	9.0	7.5	7.5	6.5	6.5	6.5	6.5
9	13.0	12.5	11.5	11.0	9.0	9.0	7.5	7.0	6.5	6.0	6.5	6.5
10	13.0	12.5	11.0	11.0	9.0	8.5	7.5	7.0	6.5	6.0	7.0	6.5
11	13.0	12.5	11.0	10.5	8.5	8.5	7.5	7.0	6.0	6.0	7.0	6.5
12	13.0	12.5	11.0	11.0	8.5	8.5	7.5	7.5	6.0	6.0	6.5	6.0
13	13.0	12.5	11.0	10.5	8.5	8.5	7.5	7.5	6.0	6.0	7.0	6.5
14	12.5	12.5	10.5	10.5	8.5	8.0	8.0	7.5	6.0	6.0	7.0	6.5
15	13.0	12.5	10.5	10.5	8.5	8.5	8.0	8.0	6.0	5.5	7.0	6.5
16	12.5	12.5	10.5	10.5	8.5	8.5	8.0	7.5	6.0	5.5	7.0	6.5
17	13.0	12.5	10.5	10.5	8.5	8.5	7.5	7.5	6.0	5.5	7.0	7.0
18	12.5	12.5	10.5	10.5	8.5	8.5	7.5	7.0	6.0	5.5	7.0	6.5
19	12.5	12.5	10.5	10.0	8.5	8.5	7.0	7.0	6.0	6.0	7.5	7.0
20	12.5	12.5	10.5	10.0	8.5	8.5	7.0	7.0	6.5	6.0	7.5	7.0
21	12.5	12.0	10.0	10.0	8.5	8.5	7.0	7.0	6.5	6.0	7.5	7.0
22	12.0	12.0	10.0	10.0	8.5	8.5	7.0	7.0	6.5	6.0	7.5	7.0
23	12.0	12.0	10.0	10.0	8.5	8.0	7.0	7.0	6.5	6.5	7.5	7.0
24	12.0	12.0	10.0	10.0	8.0	8.0	7.0	7.0	6.5	6.5	7.5	7.0
25	12.5	12.0	10.0	10.0	8.0	8.0	7.0	6.5	6.5	6.5	7.5	7.0
26	12.5	12.0	10.0	9.5	8.0	8.0	7.0	6.5	6.5	6.5	8.0	7.0
27	12.0	12.0	9.5	9.5	8.0	8.0	6.5	6.0	6.5	6.5	8.0	7.0
28	12.0	12.0	9.5	9.5	8.0	8.0	6.0	6.0	6.5	6.5	7.5	7.0
29	12.0	11.5	9.5	9.0	8.0	8.0	6.0	6.0	6.5	6.5	8.0	7.0
30	12.0	12.0	9.5	9.0	8.0	8.0	6.0	6.0	---	---	7.5	7.0
31	12.0	12.0	---	---	8.0	7.5	6.0	6.0	---	---	7.5	7.0
MONTH	13.5	11.5	12.0	9.0	9.5	7.5	8.5	6.0	6.5	5.5	8.0	5.5

DESCHUTES RIVER BASIN

14092500 DESCHUTES RIVER NEAR MADRAS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.5	7.0	10.0	9.0	11.0	10.5	12.0	11.5	13.5	12.5	14.0	13.0
2	7.5	7.0	9.5	9.0	10.5	10.5	12.0	11.5	13.5	12.5	13.5	13.5
3	8.0	7.5	10.0	8.5	11.0	10.0	12.0	11.5	13.5	12.5	14.0	13.0
4	8.0	7.0	10.0	9.0	11.0	10.0	12.0	11.5	13.5	12.5	14.0	13.0
5	8.0	7.5	9.5	9.0	10.5	10.5	12.0	11.5	14.0	13.0	14.0	13.0
6	8.0	7.5	9.5	9.0	10.5	10.5	12.5	11.5	14.0	12.5	14.0	13.5
7	7.5	7.5	10.0	9.0	11.0	10.5	12.5	11.5	13.5	13.0	13.5	13.0
8	7.5	7.5	10.0	9.5	11.5	10.5	12.5	11.5	13.5	13.0	14.0	13.0
9	8.0	7.5	9.5	9.5	11.0	10.5	12.5	11.5	14.0	13.0	14.0	13.0
10	8.0	7.5	9.5	9.5	11.0	10.5	12.5	11.5	13.5	13.0	13.5	13.5
11	8.5	7.5	10.0	9.5	11.0	10.5	12.5	12.0	14.0	13.0	14.0	13.0
12	8.5	7.5	10.0	9.5	11.0	10.5	12.5	11.5	14.0	13.0	14.0	13.0
13	8.5	7.5	10.0	9.5	11.0	10.5	12.5	11.5	13.5	13.0	14.0	12.5
14	8.5	8.0	10.0	9.5	11.0	10.5	12.5	12.0	13.5	13.0	13.5	13.0
15	9.0	8.5	10.0	9.5	11.5	10.5	13.0	12.0	14.0	13.0	14.0	13.0
16	8.5	8.0	10.5	9.5	11.5	11.0	12.5	12.0	14.0	13.0	14.0	13.0
17	8.5	7.5	10.5	9.5	11.5	10.5	13.0	12.0	14.0	13.0	14.0	13.0
18	8.5	7.5	10.5	9.5	11.5	11.0	13.0	12.0	13.5	13.0	13.5	13.0
19	8.5	8.0	10.5	9.5	11.5	11.0	13.0	12.0	14.0	13.0	13.5	13.0
20	8.5	8.0	10.5	9.5	11.5	11.0	13.0	12.0	14.0	13.0	14.0	13.5
21	8.5	8.0	10.5	9.5	11.5	11.0	13.5	12.0	14.0	13.0	14.0	13.0
22	8.5	8.0	10.5	10.0	11.5	11.0	13.5	12.5	14.0	13.0	13.5	12.5
23	9.0	8.0	10.5	9.5	12.0	11.0	13.5	12.5	14.0	13.0	13.5	13.0
24	9.0	8.5	10.5	10.0	11.5	11.0	13.0	12.5	14.0	13.0	13.5	13.0
25	9.0	8.5	10.0	10.0	11.5	11.0	13.0	12.5	14.0	13.0	13.5	12.5
26	9.5	8.5	10.0	10.0	11.5	11.0	13.5	12.5	14.0	13.0	13.5	13.0
27	9.5	8.5	10.5	10.0	12.0	11.0	13.5	12.5	13.5	13.0	13.5	12.5
28	9.0	8.5	10.5	10.0	12.0	11.0	13.5	12.5	14.0	13.0	13.5	13.0
29	9.0	8.5	11.0	10.0	12.0	11.0	13.5	12.5	13.5	13.0	13.5	12.5
30	9.5	8.5	11.0	10.0	12.0	11.0	13.5	12.5	14.0	13.0	14.0	12.5
31	---	---	11.0	10.0	---	---	13.5	12.5	14.0	13.0	---	---
MONTH	9.5	7.0	11.0	8.5	12.0	10.0	13.5	11.5	14.0	12.5	14.0	12.5

LOCATION.--Lat 44°46'20", long 121°18'15", in NW¼SE¼ sec.21, T.9 S., R.12 E., Jefferson County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on left bank at bridge crossing 2.3 mi (3.7 km) upstream from Tenino Creek, and 2.1 mi (3.4 km) northwest of Warm Springs.

PERIOD OF RECORD.--October 1974 to current year. Records for June 1911 to October 1916, April 1923 to September 1928, and October 1972 to September 1974 (see station 14093000) at sites downstream not equivalent owing to difference in drainage areas.

REMARKS.--Records good. No regulation. Some diversion for irrigation and Warm Springs water supply.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,350 ft³/s (38.2 m³/s) Dec. 13, 1977, gage height, 7.35 ft (2.240 m); minimum daily, 17 ft³/s (0.48 m³/s) Oct. 12-15, 17-22, 24-27, Nov. 12, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 400 ft³/s (11.3 m³/s) and maximum discharge, 650 ft³/s (18.4 m³/s) Jan. 13, gage height, 5.46 ft (1.664 m); minimum, 31 ft³/s (0.88 m³/s) Oct. 5, 8, 9, 11, 12.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	51	46	54	110	157	76	152	102	86	58	44
2	35	48	78	54	132	149	74	154	110	90	58	45
3	34	48	135	54	142	144	73	164	98	94	58	47
4	34	50	177	54	121	139	71	162	90	85	56	44
5	34	50	183	69	110	139	76	185	85	83	56	41
6	34	50	128	85	108	130	76	188	81	79	55	41
7	35	47	106	76	106	125	74	167	81	81	54	40
8	34	47	92	73	100	119	74	154	83	86	54	40
9	34	46	83	79	96	112	83	147	96	90	52	40
10	34	45	110	68	92	106	83	137	108	88	52	40
11	34	44	94	71	88	106	81	128	102	85	51	39
12	34	42	83	210	85	104	81	125	104	79	50	40
13	34	42	76	479	81	102	83	137	100	76	50	42
14	35	41	69	617	81	104	90	132	94	76	48	46
15	36	41	66	446	78	98	98	128	90	78	48	44
16	36	42	63	327	73	94	102	117	98	76	48	41
17	35	45	62	265	73	92	106	108	110	74	50	40
18	36	48	65	222	79	92	114	112	104	69	50	45
19	58	47	65	194	90	90	130	121	106	69	48	42
20	54	45	66	175	90	90	172	128	106	69	46	45
21	48	44	68	159	83	88	185	135	112	66	45	52
22	45	45	65	144	83	86	167	149	117	68	45	50
23	47	47	63	135	81	85	162	128	100	69	45	46
24	51	54	60	125	85	83	162	110	98	65	45	42
25	71	60	58	119	90	81	157	100	98	62	44	41
26	76	56	56	114	137	79	152	94	92	62	42	41
27	68	51	54	90	172	79	162	88	83	60	42	41
28	66	50	52	60	180	78	185	85	88	59	42	40
29	56	47	51	45	169	78	199	83	92	59	42	40
30	54	46	50	55	---	78	172	85	90	58	44	38
31	54	---	50	75	---	76	---	88	---	58	45	---
TOTAL	1371	1419	2474	4793	3015	3183	3520	3991	2918	2299	1523	1277
MEAN	44.2	47.3	79.8	155	104	103	117	129	97.3	74.2	49.1	42.6
MAX	76	60	183	617	180	157	199	188	117	94	58	52
MIN	34	41	46	45	73	76	71	83	81	58	42	38
CFSM	.58	.62	1.05	2.05	1.37	1.36	1.54	1.70	1.28	.98	.65	.56
IN.	.67	.70	1.21	2.35	1.48	1.56	1.73	1.96	1.43	1.13	.75	.63
AC-FT	2720	2810	4910	9510	5980	6310	6980	7920	5790	4560	3020	2530
CAL YR 1979	TOTAL	25864	MEAN	70.9	MAX	202	MIN	20	CFSM	.94	IN	12.69
WTR YR 1980	TOTAL	31783	MEAN	86.8	MAX	617	MIN	34	CFSM	1.15	IN	15.60

DESCHUTES RIVER BASIN

14097100 WARM SPRINGS RIVER NEAR KAHNEETA HOT SPRINGS, OR

LOCATION.--Lat 44°51'24", long 121°08'55", in SE¼SW¼ sec.23, T.8 S., R.13 E., Wasco County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on right bank 25 ft (8 m) upstream from bridge, 2.5 mi (4.0 km) east of Kahneeta Hot Springs, and at mile 4.6 (7.4 km).

DRAINAGE AREA.--526 mi² (1,362 km²).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,400 ft (427 m), from topographic map.

REMARKS.--Records good. No regulation. Diversions above station.

AVERAGE DISCHARGE.--8 years, 430 ft³/s (12.18 m³/s), 11.10 in/yr (282 mm/yr), 311,500 acre-ft/yr (384 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,540 ft³/s (185 m³/s) Dec. 15, 1977, gage height, 8.86 ft (2.701 m); minimum daily, 160 ft³/s (4.53 m³/s) Jan. 1, 2, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,700 ft³/s (48.1 m³/s) and maximum discharge, 4,890 ft³/s (138 m³/s), Jan. 13, gage height, 7.37 ft (2.246 m); minimum, 218 ft³/s (6.17 m³/s) Aug. 14, 26-29, Sept. 8, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	224	263	220	256	500	825	442	624	339	272	228	221
2	224	256	267	271	486	781	433	604	339	268	228	228
3	220	256	480	267	504	754	420	594	342	265	228	231
4	224	267	480	274	500	738	412	589	342	268	228	228
5	224	267	651	395	486	748	420	594	342	268	228	228
6	224	263	510	440	468	727	442	599	335	268	228	225
7	224	260	435	354	504	701	437	580	335	268	228	225
8	224	252	390	341	486	680	429	556	335	258	228	221
9	224	245	354	318	459	639	450	546	323	254	228	221
10	224	238	363	327	446	614	490	541	316	254	228	225
11	224	238	359	318	433	609	500	527	312	254	228	221
12	224	234	341	1400	420	599	481	504	308	251	228	225
13	224	234	327	3420	416	604	481	486	323	251	248	225
14	231	231	314	3430	403	639	500	481	350	251	221	235
15	234	231	300	2410	383	619	532	468	335	248	225	235
16	231	238	293	1660	387	570	541	459	316	248	228	228
17	227	238	285	1350	387	556	551	442	308	244	228	228
18	227	238	285	1020	403	551	560	424	301	244	228	235
19	293	234	285	825	513	532	575	416	297	241	231	231
20	332	227	285	690	619	523	619	407	293	241	231	231
21	300	224	285	695	537	513	770	399	289	241	228	235
22	267	224	293	599	490	495	727	399	289	241	228	235
23	274	231	293	575	513	490	680	399	286	238	228	231
24	278	260	289	537	556	481	669	391	286	238	225	228
25	285	289	282	523	609	472	664	387	304	235	225	228
26	278	263	267	486	905	468	649	383	297	235	221	225
27	271	234	252	403	893	468	644	383	286	235	218	225
28	263	231	256	383	917	455	654	374	282	235	221	225
29	256	224	252	437	870	446	675	362	275	228	221	225
30	252	224	252	403	---	450	654	350	272	228	221	225
31	267	---	252	455	---	442	---	342	---	228	221	---
TOTAL	7674	7314	10197	25262	15493	18189	16501	14610	9357	7698	7033	6829
MEAN	248	244	329	815	534	587	550	471	312	248	227	228
MAX	332	289	651	3430	917	825	770	624	350	272	248	235
MIN	220	224	220	256	383	442	412	342	272	228	218	221
CFSM	.47	.46	.63	1.55	1.02	1.12	1.05	.90	.59	.47	.43	.43
IN.	.54	.52	.72	1.79	1.10	1.29	1.17	1.03	.66	.54	.50	.48
AC-FT	15220	14510	20230	50110	30730	36080	32730	28980	18560	15270	13950	13550
CAL YR 1979	TOTAL	125663	MEAN 344	MAX 1090	MIN 160	CFSM .65	IN 8.89	AC-FT 249300				
WTR YR 1980	TOTAL	146157	MEAN 399	MAX 3430	MIN 218	CFSM .76	IN 10.34	AC-FT 289900				

DESCHUTES RIVER BASIN

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14097200 WHITE RIVER NEAR GOVERNMENT CAMP, OR

LOCATION.--Lat 45°10'40", long 121°34'30", in NE¼SW¼ sec.32, T.4 S., R.10 E., Wasco County, Hydrologic Unit 17070306, in Mount Hood National Forest, on left bank at Faith Spring, 1.4 mi (2.3 km) above Klip Creek, and at mile 33.3 (53.6 km).

DRAINAGE AREA.--40.7 mi² (105.4 km²).

PERIOD OF RECORD.--July 1969 to October 1979, July to September 1980.

REVISED RECORDS.--WDR OR-72-1: 1970. WDR OR-79-1: 1978.

GAGE.--Water-stage recorder. Altitude of gage is 2,740 ft (835 m) from topographic map.

REMARKS.--Records fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--10 years, 169 ft³/s (4.786 m³/s), 56.39 in/yr (1,430 mm/yr), 122,400 acre-ft/yr (151 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,650 ft³/s (103 m³/s) Dec. 13, 1977, gage height, 6.63 ft (2.021 m); minimum, 20 ft³/s (0.57 m³/s) Jan. 6, 1977.

EXTREMES FOR PERIOD OCTOBER 1979, JULY TO SEPTEMBER 1980.--Maximum discharge recorded, 224 ft³/s (6.34 m³/s) Oct. 25, gage height, 3.42 ft (1.042 m); minimum recorded, 40 ft³/s (1.13 m³/s) Oct. 3, 4.
A stage of 4.04 ft (1.231 m), from floodmark, occurred Jan. 14, 1980, discharge, 645 ft³/s (18.3 m³/s).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47									85	59	48
2	45									85	59	55
3	44									85	59	48
4	44									85	58	47
5	47									85	56	46
6	47									85	55	45
7	45									80	54	46
8	47									80	54	45
9	49									80	54	46
10	47									75	53	47
11	49									75	54	48
12	49									75	52	48
13	54									73	52	48
14	58									74	52	48
15	67									76	52	49
16	60									74	52	47
17	67									73	52	46
18	86									71	58	46
19	124									69	52	49
20	145									69	49	52
21	151									69	50	56
22	155									69	49	54
23	149									69	49	50
24	184									66	49	49
25	194									65	49	48
26	190									63	48	48
27	190									63	49	49
28	180									63	48	48
29	170									63	47	48
30	160									59	47	48
31	160									59	50	---
TOTAL	3104									2262	1621	1452
MEAN	100									73.0	52.3	48.4
MAX	194									85	59	56
MIN	44									59	47	45
CFSM	2.46									1.79	1.29	1.19
IN.	2.84									2.07	1.48	1.33
AC-FT	6160									4490	3220	2880

DESCHUTES RIVER BASIN

14101500 WHITE RIVER BELOW TYGH VALLEY, OR

LOCATION.--Lat 45°14'30", long 121°05'38", in NE¼NE¼ sec.7, T.4 S., R.14 E., Wasco County, Hydrologic Unit 17070306, on left bank 200 ft (61 m) downstream from former Pacific Power & Light Co. powerplant at White River Falls, 3.9 mi (6.3 km) east of town of Tygh Valley, and at mile 2.0 (3.2 km).

DRAINAGE AREA.--417 mi² (1,080 km²).

PERIOD OF RECORD.--October 1917 to current year.

REVISED RECORDS.--WSP 1448: 1920, 1923, 1927-28, drainage area. WSP 1935: 1956.

GAGE.--Water-stage recorder. Datum of gage is 870.15 ft (265.222 m) National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.). Prior to July 28, 1931, at site 750 ft (229 m) downstream at different datum. July 28, 1931, to Sept. 30, 1954, at site 700 ft (213 m) downstream at different datums.

REMARKS.--Records excellent. No regulation. Diversions above station for irrigation.

AVERAGE DISCHARGE.--63 years, 426 ft³/s (12.06 m³/s), 308,600 acre-ft/yr (381 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft³/s (377 m³/s) Jan. 6, 1923, gage height, about 13.3 ft (4.05 m), site and datum then in use, from rating curve extended above 5,000 ft³/s (142 m³/s); minimum, 7.5 ft³/s (0.21 m³/s) Aug. 31, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,600 ft³/s (45.3 m³/s) and maximum discharge, 3,460 ft³/s (98.0 m³/s) Jan. 14, gage height, 6.43 ft (1.960 m); minimum, 99 ft³/s (2.80 m³/s) Oct. 4, 5, Sept. 9, 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	168	138	228	409	1270	465	953	323	179	135	119
2	105	160	187	251	584	1170	450	947	342	173	135	117
3	103	155	379	255	635	1100	436	894	338	171	135	124
4	101	165	400	255	657	1060	427	868	307	179	133	111
5	101	176	569	334	646	1050	455	984	289	179	126	109
6	107	179	427	350	646	1010	499	940	282	173	119	109
7	111	173	358	289	718	966	479	843	286	165	115	109
8	111	163	326	286	690	913	465	776	286	163	117	103
9	111	155	307	248	635	837	530	723	282	160	113	103
10	107	147	392	255	604	800	589	673	272	160	117	103
11	105	142	346	275	564	812	584	646	258	157	117	103
12	107	138	326	540	540	776	574	630	258	155	117	105
13	105	135	300	1770	530	764	604	620	315	152	119	107
14	105	133	286	2960	499	812	684	594	346	145	119	113
15	107	131	300	2150	470	752	794	559	304	145	122	115
16	113	128	358	1590	455	678	806	509	286	142	119	111
17	113	145	326	1330	450	651	830	484	279	142	119	109
18	113	155	311	1070	574	651	862	474	272	140	128	115
19	147	152	319	887	758	620	933	474	258	138	126	122
20	182	142	323	776	812	609	1020	470	248	138	119	124
21	179	133	326	706	701	589	1200	450	234	138	119	131
22	168	131	338	625	662	569	1090	441	228	140	115	122
23	173	133	315	579	662	569	1050	414	221	142	115	113
24	185	140	300	549	673	554	1070	392	215	140	117	111
25	208	155	286	530	735	540	1030	387	255	138	119	109
26	205	150	268	450	1160	525	990	414	238	138	115	109
27	196	142	255	320	1420	525	1020	414	224	135	109	109
28	190	135	245	280	1490	499	1110	370	208	138	115	109
29	179	131	238	250	1380	489	1130	350	190	133	107	107
30	168	133	231	270	---	484	1020	330	185	131	107	107
31	168	---	228	300	---	474	---	319	---	131	117	---
TOTAL	4276	4425	9708	20958	20759	23118	23196	18342	8029	4660	3705	3358
MEAN	138	148	313	676	716	746	773	592	268	150	120	112
MAX	208	179	569	2960	1490	1720	1200	984	346	179	135	131
MIN	101	128	138	228	409	474	427	319	185	131	107	103
AC-FT	8480	8780	19260	41570	41180	45850	46010	36380	15930	9240	7350	6660
CAL YR 1979	TOTAL	110950	MEAN 304	MAX 1340	MIN 66	AC-FT 220100						
WTR YR 1980	TOTAL	144534	MEAN 395	MAX 2960	MIN 101	AC-FT 286700						

DESCHUTES RIVER BASIN

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14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR
(National stream-quality accounting network station)

LOCATION.--Lat 45°37'20", long 120°54'05", in SW¼SE¼ sec.26, T.2 N., R.15 E., Sherman County, Hydrologic Unit 17070306, on right bank at Moody, 4.0 mi (6.4 km) southwest of Biggs, and at mile 1.4 (2.3 km).

DRAINAGE AREA.--10,500 mi² (27,200 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1897 to December 1899 (published as "near Moro"), July 1906 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 754: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 167.54 ft (51.066 m) National Geodetic Vertical Datum of 1929. Oct. 19, 1897, to Dec. 31, 1899, nonrecording gage at site 10 mi (16 km) upstream at different datum. July 22, 1906, to July 18, 1930, nonrecording gage at site 300 ft (91 m) downstream at datum 0.50 ft (0.152 m) lower.

REMARKS.--Water-discharge records excellent. Some fluctuation caused by regulation at Lake Simtustus since 1957. Some winter and spring runoff stored in Ochoco Reservoir, capacity, 46,420 acre-ft (57.2 hm³), in Crescent Lake, Crane Prairie and Wickiup Reservoirs, combined capacity, 323,390 acre-ft (399 hm³), and since 1960, in Prineville Reservoir (see station 14080400), and since 1964 in Lake Billy Chinook (see station 14092100). Large diversions in upper river basin for irrigation.

AVERAGE DISCHARGE.--76 years, 5,819 ft³/s (164.8 m³/s), 4,216,000 acre-ft/yr (5.19 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,500 ft³/s (2,140 m³/s) Dec. 22, 1964, gage height, 11.80 ft (3.597 m), from rating curve extended above 47,000 ft³/s (1,330 m³/s); minimum, 2,400 ft³/s (68.0 m³/s) Dec. 5, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,600 ft³/s (498 m³/s) Jan. 14, gage height, 5.87 ft (1.789 m); minimum, 3,790 ft³/s (107 m³/s) Nov. 12, July 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4100	5410	5860	5470	6980	10800	6070	6840	4820	4480	4430	4280
2	4180	5410	6080	5440	6500	10400	6160	6110	4790	4470	4390	4370
3	4140	5410	6440	5490	6150	9780	6160	5810	4810	4580	4410	4270
4	4050	5430	6170	5520	6290	9590	6190	5730	4760	4490	4350	4170
5	4050	5450	6160	5540	6250	9630	6230	5830	4720	4500	4330	4170
6	4060	5460	6270	6160	6100	9600	6270	5940	4750	4530	4350	4150
7	4070	5440	5960	6730	6210	9040	6250	5790	4620	4530	4310	4090
8	4060	4990	5610	6950	6270	8880	6230	5640	4620	4520	4240	4140
9	4060	4230	4900	6750	5550	8710	6210	5540	4620	4550	4210	4140
10	4050	3850	4750	6540	5240	8570	5930	5480	4640	4510	4180	4080
11	4120	3820	4830	6460	5170	7920	5830	5500	4640	4500	4190	4140
12	4380	4280	5040	8530	5090	7740	5200	5490	4530	4580	4300	4120
13	4700	4510	5260	16600	5080	7600	4870	5570	4640	5040	4330	4110
14	4910	4520	4920	17200	5060	7200	4960	5650	4720	4580	4110	4190
15	4880	4500	4730	15600	5580	6930	5140	5650	4660	4440	4020	4320
16	4850	4620	4960	12900	6380	6760	5200	5880	4580	4380	4040	4510
17	4870	4690	5040	12000	5780	6670	5580	5360	4900	4330	3980	4780
18	4890	4620	5070	11200	6020	6620	5790	5160	4960	4180	4000	4630
19	4930	4590	5060	10600	6690	6340	6580	5150	4860	4060	4050	4480
20	5000	4600	4790	10200	6590	6260	6820	5090	4810	3870	4090	4400
21	5080	4550	4490	9980	5980	6240	7330	5140	4780	3900	4270	4350
22	5090	4540	4420	9060	5600	5750	7690	5050	4850	3980	4250	4390
23	5120	4530	4420	7920	6120	5600	7650	4940	4890	4070	4310	4410
24	5190	4570	4400	7600	6410	5600	8340	4960	4880	4060	4270	4400
25	5280	4670	4340	7200	6690	5180	8400	4900	4990	4230	4240	4420
26	5340	4760	4300	6530	7710	5390	8340	4900	4970	4240	4230	4470
27	5370	4900	4590	6080	9410	5720	8340	4920	4740	4440	4250	4430
28	5400	4840	5380	7490	10100	6160	8460	4870	4640	4530	4310	4450
29	5410	4840	5440	7850	10300	5810	8010	4820	4500	4520	4310	4400
30	5420	5130	5450	7470	---	5670	7770	4780	4470	4480	4340	4390
31	5440	---	5460	7490	---	5720	---	4820	---	4470	4340	---
TOTAL	146490	143160	160590	266550	187300	227880	198000	167310	142160	136040	131430	129650
MEAN	4725	4772	5180	8598	6459	7351	6600	5397	4739	4388	4240	4322
MAX	5440	5460	6440	17200	10300	10800	8460	6840	4990	5040	4430	4780
MIN	4050	3820	4300	5440	5060	5180	4870	4780	4470	3870	3980	4080
AC-FT	290600	284000	318500	528700	371500	452000	392700	331900	282000	269800	260700	257200
CAL YR 1979 TOTAL	2002080			MEAN 5485	MAX 14400	MIN 3820	AC-FT 3971000					
WTR YR 1980 TOTAL	2036560			MEAN 5564	MAX 17200	MIN 3820	AC-FT 4040000					

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1911-12, 1953-58, 1962 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to current year.

WATER TEMPERATURES: December 1952 to February 1954, November 1954 to September 1958, June 1962 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 241 micromhos July 15, 1978; minimum, 63 micromhos Dec. 5, 1975.

WATER TEMPERATURES: Maximum, 23.0°C July 21, 22, 1980; minimum, 0.5°C Dec. 30, 1955.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 157 micromhos Nov. 26, Dec. 14, Jan. 6, 11; minimum, 92 micromhos Jan. 14.

WATER TEMPERATURES: Maximum, 23.0°C July 21, 22; minimum, 2.0°C Jan. 27, 28.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	OXYGEN, DIS- SOLVED (MG/L)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	SILICA, DIS- SOLVED (MG/L AS SiO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT												
11...	1600	4360	15.0	8.2	11.9	133	38	20	30	7.7	5.5	11
NOV												
14...	1800	4510	8.1	8.0	11.7	136	29	30	29	7.6	5.2	11
DEC												
18...	1200	5060	7.1	7.9	11.1	131	K7	K1	31	7.8	5.3	11
FEB												
12...	1300	5060	5.4	7.7	12.3	138	23	K7	31	9.1	5.7	12
APR												
17...	1400	5740	11.8	8.1	11.5	114	29	K10	28	7.4	4.2	9.0
MAY												
14...	0900	5610	13.0	8.0	11.2	124	K17	K17	28	7.9	4.6	9.4
JUN												
10...	1400	4570	17.2	7.9	10.0	128	K11	K8	29	7.8	4.8	9.7
JUL												
15...	1500	4390	20.2	8.4	10.6	122	K13	K10	27	8.0	5.0	10
AUG												
07...	1300	4330	18.5	8.8	10.8	140	68	31	27	8.3	5.1	10
SEP												
24...	1400	4450	16.0	9.0	10.7	128	K12	K13	30	7.5	5.1	9.9

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)
OCT												
11...	2.4	67	4.6	2.4	.2	.49	.04	.41	.060	.06	.53	.070
NOV												
14...	1.9	65	4.9	2.5	.1	.44	.21	.44	.010	.28	.73	.040
DEC												
18...	2.1	64	1.6	2.4	.1	.21	.22	.40	.010	.27	.68	.060
FEB												
12...	1.9	61	2.2	3.2	.1	.39	.30	.33	.100	.32	.75	.040
APR												
17...	1.7	43	.9	3.6	.2	.61	.04	.66	.000	.03	.69	.060
MAY												
14...	1.8	53	1.1	1.9	.1	.40	.02	.40	.000	.01	.41	.060
JUN												
10...	2.0	49	3.9	2.0	.1	.30	.01	.25	.060	.03	.33	.070
JUL												
15...	2.0	57	2.1	2.7	.3	.36	.00	.47	.000	.00	.47	.040
AUG												
07...	2.1	66	2.8	3.0	.1	.42	.00	1.5	.100	.00	1.6	.050
SEP												
24...	2.1	62	.5	3.1	.2	1.2	.04	--	.000	.01	--	.050

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED (MG/L AS C)	CARBON, ORGANIC TOTAL (MG/L AS C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	TUR- BID- ITY (NTU)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 11...	.070	1.4	.2	--	42	0	97	104	2.5	13	153	59
NOV 14...	.070	--	--	4.9	40	0	113	102	1.6	10	122	51
DEC 18...	.070	--	--	4.5	41	0	105	101	1.9	17	232	51
FEB 12...	.080	--	--	1.9	46	0	102	103	3.1	29	396	45
APR 17...	.100	2.9	.3	--	36	0	87	81	4.1	25	387	42
MAY 14...	.080	--	--	2.5	39	0	79	87	6.5	18	273	90
JUN 10...	.090	--	--	4.0	39	0	94	89	4.3	18	222	69
JUL 15...	.070	2.2	.2	--	41	0	79	91	1.8	11	130	59
AUG 07...	.060	--	--	1.6	42	0	92	98	2.6	14	164	58
SEP 24...	.070	--	--	2.7	40	0	101	96	1.4	10	120	52

DATE	IRON, DIS- SOLVED (UG/L AS FE)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	ARSENIC DIS- SOLVED (UG/L AS AS)	ARSENIC TOTAL (UG/L AS AS)	BARIIUM, DIS- SOLVED (UG/L AS BA)	BARIIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)
OCT 11...	20	160	2	10	1	1	10	200	<1	1
APR 17...	30	470	2	20	2	1	20	100	<1	0
JUL 15...	20	270	<1	20	2	2	10	<100	<1	0

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	LEAD, DIS- SOLVED (UG/L AS PB)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	SILVER, DIS- SOLVED (UG/L AS AG)
OCT 11...	0	0	<3	0	1	2	0	3	0
APR 17...	0	0	<3	1	0	0	1	0	0
JUL 15...	0	10	<3	1	0	8	1	60	0

DATE	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SELE- NIUM, TOTAL (UG/L AS SE)	MERCURY DIS- SOLVED (UG/L AS HG)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
OCT 11...	0	<3	0	0	0	--	--	0	3
APR 17...	0	<3	30	0	0	.0	.0	2	8
JUL 15...	0	<3	60	0	0	.0	.0	1	15

DESCHUTES RIVER BASIN

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	NOV 14,79 1800	FEB 12,80 1300	APR 17,80 1400	MAY 14,80 0900
TOTAL CELLS/ML	470	220	1800	9800
DIVERSITY: DIVISION	1.0	0.9	1.0	0.9
..CLASS	1.0	0.9	1.0	0.9
...ORDER	1.6	1.5	1.2	1.1
...FAMILY	1.9	2.5	2.0	1.2
....GENUS	2.2	3.3	2.0	1.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
...CHARACIACEAE								
...SCHROEDERIA	--	-	--	-	--	-	--	-
...ODCISTACEAE								
...ANKISTRODESMUS	--	-	15	7	--	-	--	-
...CHLORELLA	--	-	60#	27	--	-	--	-
...KIRCHNERIELLA	29	6	5	2	--	-	--	-
...SCENEDESMACEAE								
...SCENEDESMUS	--	-	--	-	--	-	--	-
...VOLVOCALES								
...CHLAMYDOMONADACEAE								
...CHLAMYDOMONAS	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...COSCINODISCACEAE								
...CYCLOTELLA	--	-	15	7	26	1	380	4
...MELOSIRA	43	9	25	11	--	-	--	-
...STEPHANODISCUS	230#	48	--	-	26	1	6000#	61
...PENNALES								
...ACHNANTHACEAE								
...ACHNANTHES	--	-	--	-	26	1	--	-
...COCONEIS	--	-	10	5	--	-	--	-
...RHODICOSPHEA	29	6	5	2	--	-	--	-
...CYMBELLACEAE								
...CYMBELLA	--	-	5	2	--	-	--	-
...EPITHEMIA	--	-	--	-	--	-	--	-
...DIATOMACEAE								
...DIATOMA	--	-	--	-	130	7	64	1
...FRAGILARIACEAE								
...FRAGILARIA	--	-	30	14	--	-	--	-
...SYNEDRA	--	-	15	7	39	2	--	-
...GOMPHONEMACEAE								
...GOMPHONEMA	--	-	15	7	26	1	--	-
...NAVICULACEAE								
...NAVICULA	43	9	10	5	100	6	190	2
...NITZSCHACEAE								
...NITZSCHIA	14	3	10	5	320#	18	190	2
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROOCOCCALES								
...CHROOCOCCACEAE								
...AGMENELLUM	86#	18	--	-	--	-	--	-
...ANACYSTIS	--	-	--	-	26	1	--	-
...HORMOGONALES								
...NOSTOCACEAE								
...APHANIZOMENON	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
...OSCILLATORIA	--	-	--	-	1000#	59	2900#	30

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DESCHUTES RIVER BASIN

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14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JUN 10,80 1400	JUL 15,80 1500	AUG 7,80 1300
TOTAL CELLS/ML	530	840	3800
DIVERSITY: DIVISION	1.0	1.4	0.6
..CLASS	1.0	1.4	0.6
...ORDER	1.7	1.8	1.1
...FAMILY	2.1	2.6	1.2
....GENUS	2.1	2.6	1.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	13	2	--	-
...DOCYSTACEAE						
....ANKISTRODESMUS	13	2	--	-	--	-
....CHLORELLA	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	51	6	77	2
...VOLVOCALES						
...CHLAMYDOMONACEAE						
....CHLAMYDOMONAS	--	-	13	2	--	-
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCAEAE						
....CYCLOTELLA	--	-	--	-	--	-
....MELCIRA	--	-	--	-	26	1
...STEPHANODISCUS	230#	44	280#	34	64	2
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	--	-
...COCCONEIS	13	2	13	2	*	0
...RHOICOSPHEA	--	-	--	-	*	0
...CYMBELLACEAE						
....CYMBELLA	--	-	26	3	26	1
....EPITHEMIA	--	-	--	-	39	1
...DIATOMEACEAE						
....DIATOMA	--	-	--	-	77	2
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	*	0
....SYNEDRA	--	-	--	-	--	-
...GOMPHONEMACEAE						
....GOMPHONEMA	13	2	13	2	26	1
...NAVICULACEAE						
....NAVICULA	64	12	26	3	26	1
...NITZSCHIAEAE						
....NITZSCHIA	34	7	39	5	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROCOCCALES						
...CHROCOCCACEAE						
....AGMENELLUM	--	-	--	-	--	-
....ANACYSTIS	150#	29	--	-	350	9
...HORMOGONALES						
...NOSTOCACEAE						
....APHANIZOMENON	--	-	150#	18	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	210#	25	3000#	80

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

DESCHUTES RIVER BASIN

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	129	150	149	125	135	119	120	135	138	138	
2	132	128	150	149	122	140	122	121	135	135	138	
3	133	128	147	149	118	142	121	121	130	137	134	
4	132	125	145	149	120	144	124	119	130	139	---	
5	133	127	140	149	123	134	125	118	132	137	---	
6	133	132	143	145	132	132	122	117	137	133	122	
7	134	137	145	137	139	137	122	119	132	132	133	
8	134	139	143	136	135	142	122	121	126	134	138	
9	134	141	144	136	133	140	122	123	130	134	139	
10	135	142	142	145	131	136	124	124	132	132	141	
11	137	141	137	151	129	132	126	126	128	135	141	
12	139	139	145	152	130	128	125	130	127	134	139	
13	139	139	142	103	129	129	122	129	125	133	140	
14	138	136	148	100	122	127	118	128	126	134	143	
15	135	134	140	108	122	123	117	126	126	132	144	
16	133	133	129	124	126	128	118	129	127	130	142	
17	132	137	132	126	128	125	116	128	132	130	142	
18	132	138	132	136	129	123	112	128	131	136	143	
19	132	134	133	135	131	125	112	129	130	137	146	
20	135	131	135	143	136	126	116	131	128	136	146	
21	137	134	134	136	136	126	113	128	131	136	142	
22	136	134	133	136	133	123	113	128	130	134	143	
23	136	137	134	136	141	120	117	130	133	135	135	
24	135	140	134	136	145	118	117	129	134	136	138	
25	137	144	133	138	143	116	121	127	130	135	150	
26	140	149	132	130	139	115	125	131	130	137	---	
27	144	148	133	128	138	117	123	133	133	135	---	
28	138	149	142	126	142	121	123	129	133	133	---	
29	136	150	152	130	140	120	120	129	132	135	---	
30	133	153	152	129	---	120	118	133	138	134	---	
31	131	---	147	127	---	121	---	134	---	134	---	
MEAN	135	138	140	135	132	128	120	126	131	135	140	

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	16.0	14.5	11.0	10.0	6.5	6.5	7.0	6.5	4.0	3.5	7.0	6.0
2	16.0	14.0	10.5	10.0	8.0	6.5	7.0	6.5	5.0	4.0	7.0	6.0
3	15.5	13.5	10.5	10.0	8.5	8.0	7.0	6.5	5.0	4.5	7.5	6.5
4	15.5	13.0	11.0	10.0	8.5	8.0	7.0	6.5	6.0	5.0	8.5	7.0
5	16.0	13.5	11.0	11.0	8.0	7.5	6.5	6.0	6.0	5.5	8.5	7.5
6	15.5	14.0	11.5	10.5	8.0	7.5	6.0	5.0	6.0	5.5	8.5	7.0
7	16.0	14.5	11.0	10.0	8.0	7.5	5.0	5.0	6.5	5.5	8.5	6.5
8	16.0	14.0	10.5	10.0	8.0	8.0	5.0	4.0	6.0	6.0	7.5	6.5
9	15.0	13.5	11.0	10.0	8.5	8.0	4.5	3.5	6.0	5.5	8.0	7.0
10	14.5	12.5	10.0	9.0	8.0	6.5	5.0	4.0	6.0	5.5	8.5	7.0
11	15.0	12.5	9.0	8.5	6.5	6.0	5.5	5.0	5.5	5.5	8.0	6.5
12	14.5	13.0	8.5	8.5	6.5	6.0	6.0	5.0	5.5	5.0	8.5	6.5
13	14.0	13.0	8.5	8.0	7.0	6.5	5.5	5.0	5.5	5.0	8.5	7.0
14	14.5	13.5	8.0	8.0	7.5	6.5	5.5	5.0	5.0	4.0	9.0	7.5
15	15.0	13.5	8.0	8.0	8.0	7.0	5.5	5.0	4.0	3.5	9.5	8.0
16	14.5	13.5	8.0	8.0	7.0	6.0	6.0	5.5	4.5	4.0	9.5	8.0
17	14.0	12.5	9.0	8.0	6.5	6.0	6.5	6.0	5.0	4.5	10.0	8.0
18	13.0	12.5	9.5	9.0	7.5	6.5	6.0	5.0	6.0	5.0	9.5	7.5
19	12.5	12.0	9.0	8.0	8.5	7.5	5.5	5.0	6.5	5.5	9.5	7.5
20	12.0	11.0	8.0	7.5	8.0	7.5	5.0	5.0	7.0	6.0	9.5	7.5
21	11.5	10.5	8.0	7.5	7.5	7.0	6.0	5.0	7.0	6.0	10.0	8.0
22	12.0	11.0	7.5	7.5	7.0	6.0	5.5	5.0	7.0	7.0	10.0	8.0
23	12.5	12.0	7.5	7.0	6.0	5.5	5.5	5.0	7.5	7.0	9.5	7.5
24	12.5	12.0	8.0	7.5	6.0	5.5	6.0	5.5	7.0	7.0	9.5	8.0
25	13.0	12.0	8.0	7.5	6.5	6.0	6.0	5.0	8.0	7.0	9.0	7.5
26	13.5	12.0	8.0	7.5	6.0	6.0	5.0	3.5	8.0	7.0	10.0	8.0
27	13.5	12.5	7.5	6.5	6.0	5.5	3.5	2.0	8.0	7.0	9.0	7.0
28	12.5	11.5	6.5	5.5	6.0	5.5	3.0	2.0	8.5	7.5	9.0	7.0
29	11.5	10.5	6.0	5.5	6.5	6.0	3.0	2.5	8.5	7.0	8.5	7.0
30	11.0	11.0	6.5	6.0	6.5	6.0	3.0	2.5	---	---	9.5	7.5
31	11.5	10.5	---	---	6.5	6.0	3.5	3.0	---	---	11.0	9.0
MONTH	16.0	10.5	11.5	5.5	8.5	5.5	7.0	2.0	8.5	3.5	11.0	6.0
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	11.0	9.0	13.5	10.0	---	---	19.5	15.5	21.0	17.5	18.0	15.5
2	10.0	8.0	15.0	12.0	---	---	19.5	16.5	20.5	18.0	18.0	16.5
3	9.5	8.0	15.5	12.0	---	---	18.0	16.0	20.0	17.0	18.0	15.5
4	9.5	8.5	16.0	12.5	---	---	16.0	14.0	20.0	17.0	18.0	15.5
5	11.0	9.5	15.5	13.0	---	---	17.5	13.5	19.0	16.5	18.5	16.0
6	11.5	9.0	14.5	12.0	---	---	19.0	14.5	20.0	16.0	18.5	16.5
7	11.5	9.5	15.0	11.5	---	---	20.0	15.5	20.0	16.0	18.5	17.0
8	13.0	10.0	14.5	12.0	---	---	20.5	17.0	20.5	17.5	18.5	16.0
9	13.5	11.5	14.0	11.5	---	---	19.5	17.5	21.0	18.0	18.0	15.5
10	13.0	10.0	11.5	10.5	18.0	16.0	19.0	16.0	20.5	17.5	18.5	16.5
11	12.5	10.5	14.0	11.5	17.5	14.5	18.0	16.0	21.0	18.0	18.5	16.5
12	13.5	11.0	15.5	12.5	16.0	14.5	19.0	15.0	21.0	18.0	17.5	16.0
13	11.5	11.5	15.5	13.0	14.5	13.0	19.0	15.5	21.0	18.0	16.5	15.0
14	---	---	13.0	13.0	15.0	12.5	19.5	16.0	20.0	17.5	16.5	14.5
15	---	---	---	---	17.5	13.0	20.0	16.5	19.5	16.5	17.5	15.0
16	---	---	---	---	19.0	15.0	20.0	17.0	20.0	16.5	17.5	15.0
17	12.0	11.5	---	---	18.5	15.0	20.5	16.5	19.0	17.0	17.0	15.0
18	12.5	9.5	---	---	18.5	15.0	20.5	17.0	18.5	16.0	16.0	15.5
19	12.5	11.0	---	---	18.5	15.0	21.0	16.5	19.0	16.0	15.5	15.0
20	11.5	10.5	---	---	19.0	15.5	22.0	17.5	19.0	16.0	15.5	14.0
21	10.5	9.5	---	---	19.0	16.0	23.0	18.5	19.0	16.0	15.5	14.0
22	11.0	9.5	---	---	17.0	15.5	23.0	19.5	19.0	16.0	15.5	13.5
23	12.5	10.0	---	---	16.5	14.0	22.0	18.5	19.0	16.5	16.0	14.5
24	12.5	10.5	---	---	16.0	14.0	21.0	17.5	19.5	16.5	16.5	15.0
25	12.5	10.0	---	---	15.5	13.5	21.0	17.5	19.0	16.5	16.0	14.5
26	14.0	11.0	---	---	16.5	13.5	21.0	18.0	18.5	16.5	16.0	14.0
27	14.5	11.5	---	---	18.0	13.5	21.5	18.5	18.0	16.5	16.0	14.5
28	14.5	12.0	---	---	19.0	15.0	21.5	18.5	17.5	16.0	16.0	14.5
29	13.0	11.0	---	---	19.0	15.0	21.0	17.5	17.0	15.0	16.5	14.5
30	12.5	10.5	---	---	19.0	15.5	20.5	17.0	16.5	15.0	16.5	15.0
31	---	---	---	---	---	---	20.0	17.5	17.0	15.0	---	---
MONTH	14.5	8.0	16.0	10.0	19.0	12.5	23.0	13.5	21.0	15.0	18.5	13.5

COLUMBIA RIVER MAIN STEM

14105700 COLUMBIA RIVER AT THE DALLES, OR

LOCATION.--Lat 45°36'27", long 121°10'20", in SW¼SW¼ sec.34, T.2 N., R.13 E., Wasco County, Hydrologic Unit 17070105, Corps of Engineers land, on left bank 0.3 mi (0.5 km) downstream from Mill Creek, 2.6 mi (4.2 km) downstream from The Dalles Dam, and at mile 188.9 (303.9 km).

DRAINAGE AREA.--237,000 mi² (614,000 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1857 to September 1877 (annual maximum only, at Lower Cascades Landing, published in WSP 1318), June 1878 to current year. Published as "near The Dalles" 1936-56.

REVISED RECORDS.--WSP 534: 1920(M). WSP 1094: 1894. WSP 1248: 1866, 1888, 1899, 1909. WSP 1518: 1876(M).

GAGE.--Acoustic velocity meter (AVM) with water-stage and velocity-index recorder. Datum of gage is National Geodetic Vertical Datum of 1929. See WSP 1738 for history of changes prior to Mar. 16, 1957. Mar. 16, 1957, to Sept 30, 1968, water-stage recorder at site 0.4 mi (0.6 km) upstream at same datum.

REMARKS.--Water-discharge records excellent. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--102 years, 193,100 ft³/s (5,469 m³/s), 139,900,000 acre-ft/yr (172 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (1858-1980), 1,240,000 ft³/s (35,100 m³/s) June 6, 1894, gage height, 106.5 ft (32.46 m); minimum (1878-1980), 12,100 ft³/s (343 m³/s) Apr. 16, 1968 (recorded by AVM due to closure of John Day dam).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 345,000 ft³/s (9,770 m³/s) June 18; maximum gage height, 81.53 ft (24.850 m) May 23; minimum daily discharge, 70,500 ft³/s (2,000 m³/s) Sept. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980												
DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95400	113000	152000	105000	151000	131000	133000	268000	274000	212000	139000	115000
2	108000	125000	120000	135000	145000	110000	136000	278000	303000	155000	104000	117000
3	106000	134000	120000	128000	122000	132000	124000	231000	293000	186000	112000	108000
4	114000	124000	119000	128000	129000	161000	132000	223000	280000	138000	131000	116000
5	102000	146000	152000	145000	128000	200000	120000	238000	258000	197000	141000	110000
6	102000	131000	161000	124000	134000	170000	107000	262000	285000	200000	137000	94800
7	81300	130000	133000	185000	122000	173000	133000	302000	301000	193000	135000	70500
8	113000	135000	133000	171000	151000	130000	144000	292000	296000	197000	125000	123000
9	90200	127000	125000	219000	143000	119000	145000	288000	288000	203000	95100	112000
10	122000	138000	137000	194000	114000	135000	163000	276000	296000	192000	88300	104000
11	120000	118000	149000	193000	135000	166000	152000	278000	293000	205000	138000	105000
12	98600	140000	167000	142000	163000	194000	101000	250000	301000	139000	134000	99400
13	86500	127000	162000	126000	174000	203000	105000	251000	292000	116000	131000	84500
14	80600	128000	177000	152000	200000	186000	116000	240000	298000	156000	106000	73100
15	120000	119000	129000	164000	218000	122000	112000	219000	274000	181000	109000	98200
16	101000	127000	108000	180000	135000	118000	152000	246000	285000	171000	109000	115000
17	97400	141000	149000	132000	110000	167000	143000	241000	318000	146000	93900	124000
18	128000	130000	131000	130000	145000	152000	160000	246000	345000	146000	122000	117000
19	118000	127000	150000	162000	136000	134000	133000	214000	329000	133000	141000	118000
20	110000	130000	143000	122000	133000	131000	132000	238000	293000	149000	125000	100000
21	95300	151000	136000	151000	168000	144000	177000	243000	274000	173000	113000	80600
22	134000	155000	126000	163000	182000	137000	195000	255000	283000	173000	121000	102000
23	123000	135000	124000	171000	131000	118000	214000	291000	286000	150000	92100	122000
24	114000	132000	136000	150000	122000	132000	232000	274000	298000	148000	71200	101000
25	116000	121000	124000	133000	125000	115000	200000	241000	297000	142000	97700	109000
26	117000	140000	135000	188000	121000	125000	172000	240000	303000	138000	139000	116000
27	114000	146000	127000	139000	158000	122000	146000	239000	259000	114000	120000	116000
28	102000	155000	137000	200000	138000	132000	189000	257000	196000	116000	124000	99600
29	128000	158000	124000	231000	146000	125000	247000	291000	180000	121000	123000	115000
30	116000	154000	128000	188000	---	115000	262000	312000	224000	137000	118000	121000
31	106000	---	136000	201000	---	135000	---	293000	---	138000	113000	---
TOTAL	3359300	4037000	4250000	4952000	4179000	4434000	4677000	8017000	8502000	4965000	3648300	3186700
MEAN	108400	134600	137100	159700	144100	143000	155900	258600	283400	160200	117700	106200
MAX	134000	158000	177000	231000	218000	203000	262000	312000	345000	212000	141000	124000
MIN	80600	113000	108000	105000	110000	110000	101000	214000	180000	114000	71200	70500
AC-FT	6663000	8007000	8430000	9822000	8289000	8795000	9277000	15900000	16860000	9848000	7236000	6321000
CAL YR 1979	TOTAL	54616600	MEAN	149600	MAX	311000	MIN	65500	AC-FT	108300000		
WTR YR 1980	TOTAL	58207300	MEAN	159000	MAX	345000	MIN	70500	AC-FT	115500000		

COLUMBIA RIVER MAIN STEM

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14105700 COLUMBIA RIVER AT THE DALLES, OR--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at The Dalles Dam, 3.2 mi (5.1 km) upstream from discharge station.

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1950 to current year.

WATER TEMPERATURES: December 1950 to September 1969, October 1973 to September 1976.

REMARKS.--No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 324 micromhos Dec. 7, 1955; minimum daily, 95 micromhos June 8, 1972.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily recorded, 218 micromhos Mar. 14; minimum daily recorded, 125 micromhos June 8.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	ONCE-DAILY										
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	SEP
1	---	166	184			---	197	200	140	132	143
2	---	166	---			---	198	200	141	132	142
3	---	164	---			---	199	198	138	131	---
4	163	161	---			---	201	198	135	130	143
5	163	166	---			---	201	198	132	130	143
6	163	173	---			---	203	190	128	132	143
7	165	178	---			---	198	175	128	132	144
8	164	181	---			---	200	---	125	132	145
9	167	184	---			---	197	160	---	133	145
10	167	188	---			---	195	153	130	132	145
11	168	196	---			---	195	152	132	133	145
12	167	196	---			---	193	152	134	135	---
13	167	197	---			212	191	152	135	135	---
14	165	190	---			218	193	149	139	136	146
15	164	189	---			214	191	148	137	138	146
16	163	188	---			211	192	147	137	140	148
17	161	186	---			210	192	147	137	139	---
18	161	181	---			215	190	147	138	140	150
19	164	---	---			216	189	145	141	141	149
20	163	182	---			215	186	144	146	---	159
21	163	---	---			216	184	144	148	---	151
22	---	---	---			212	182	144	148	145	152
23	167	---	---			211	186	145	146	---	153
24	167	---	---			207	186	137	143	143	152
25	165	---	---			203	187	136	141	142	153
26	164	---	---			202	186	137	137	143	153
27	163	---	---			198	188	138	135	143	153
28	162	---	---			193	190	137	134	144	154
29	161	---	---			189	196	137	134	143	152
30	163	---	---			192	199	137	133	143	153
31	165	---	---			193	---	138	---	143	153
MEAN	164	181	184			207	193	156	137	137	149

MOSIER CREEK BASIN

14113200 MOSIER CREEK NEAR MOSIER, OR

LOCATION.--Lat 45°38'55", long 121°22'35", in NW¼ sec.19, T.2 N., R.12 E., Wasco County, Hydrologic Unit 17070105, on left bank 0.1 mi (0.2 km) downstream from West Fork Mosier Creek, 2.5 mi (4.0 km) southeast of Mosier, and at mile 3.0 (4.8 km).

DRAINAGE AREA.--41.5 mi² (107.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1963 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 425 ft (130 m), from topographic map. Prior to July 22, 1976, water-stage recorder at site 20 ft (6.1 m) upstream at datum 3.57 ft (1.088 m) higher. July 22, 1976, to Dec. 12, 1977, water-stage recorder at site 20 ft (6.1 m) upstream at datum 1.57 ft (0.479 m) higher.

REMARKS.--Records good except those for period of no gage-height record Oct. 10 to Nov. 27, which are poor. No regulation. Several small pumping diversions for irrigation above station.

AVERAGE DISCHARGE.--17 years, 28.7 ft³/s (0.813 m³/s), 20,790 acre-ft/yr (25.6 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,790 ft³/s (136 m³/s) Dec. 23, 1964, gage height, 8.9 ft (2.71 m), from flood profile, from rating curve extended above 1,000 ft³/s (28.3 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.35 ft³/s (0.010 m³/s) July 25, 26, Aug. 6, 7, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 110 ft³/s (3.12 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)		Date	Time	Discharge (ft ³ /s) (m ³ /s)		Gage height (ft) (m)	
Jan. 14	-	483	13.7	5.48	1.670	Apr. 10	1900	110	3.12	3.94	1.201
Feb. 28	1800	*551	15.6	*5.66	1.725	Apr. 21	0200	128	3.62	4.04	1.231

Minimum, 0.76 ft³/s (0.022 m³/s) Aug. 12, 20, 21, 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	5.0	4.1	12	25	287	46	33	6.3	3.1	.99	1.6
2	1.4	4.7	11	15	45	247	42	30	6.6	2.9	1.1	1.6
3	1.4	4.5	16	17	70	228	39	27	6.6	3.1	1.2	1.4
4	1.4	5.5	41	19	50	247	38	24	6.3	3.5	1.2	1.3
5	1.4	6.8	45	21	39	230	47	23	6.0	3.5	1.2	1.3
6	1.4	6.4	33	20	59	175	57	21	5.8	3.3	1.3	1.2
7	1.4	5.9	30	18	86	141	53	19	6.3	2.9	1.1	1.1
8	1.4	5.5	24	19	94	125	51	18	6.3	2.7	.99	1.1
9	1.3	5.3	20	25	89	119	68	18	5.5	2.4	1.1	1.1
10	1.4	5.0	19	49	80	121	105	18	5.0	2.4	.99	.99
11	1.4	4.7	16	100	72	122	108	17	4.8	2.6	.91	.99
12	1.5	4.4	15	180	65	113	105	16	5.0	2.4	.91	1.1
13	1.7	4.2	14	380	59	118	104	14	11	2.3	.91	1.2
14	1.8	4.0	13	460	52	127	107	13	10	2.1	.91	1.9
15	2.3	3.7	12	300	45	121	103	13	7.2	2.1	.91	1.7
16	2.1	4.5	11	210	39	108	93	12	6.3	2.1	.99	1.4
17	2.1	6.4	11	149	37	101	88	11	5.5	1.9	.99	1.3
18	3.1	6.9	12	113	41	96	80	11	5.0	1.8	1.1	1.6
19	7.0	5.8	11	93	54	92	76	10	4.5	1.7	1.2	2.1
20	5.0	5.1	11	78	84	92	76	9.6	4.3	1.7	1.1	2.3
21	3.9	4.5	12	64	98	89	105	9.6	4.1	1.6	.99	2.3
22	4.1	4.3	11	53	97	89	90	9.2	3.8	1.4	.99	1.9
23	7.4	4.8	11	45	90	90	82	8.9	3.8	1.3	.91	1.7
24	6.2	5.8	12	40	94	82	74	8.5	4.1	1.3	.91	1.8
25	8.8	6.5	11	37	115	74	65	8.5	6.6	1.3	.99	1.7
26	6.4	5.2	10	33	263	68	59	8.5	5.3	1.3	.99	1.6
27	8.4	4.6	9.6	30	380	62	52	8.9	4.3	1.2	1.2	1.7
28	7.2	4.3	9.6	27	491	55	48	7.9	3.8	1.2	1.7	1.8
29	6.1	4.3	9.2	25	390	55	43	7.5	3.5	1.1	1.6	1.7
30	5.2	4.1	9.2	24	---	52	37	6.9	3.3	1.1	1.6	1.8
31	5.6	---	9.2	24	---	49	---	6.6	---	.99	1.7	---
TOTAL	111.2	152.7	482.9	2680	3203	3775	2141	448.6	166.9	64.29	34.68	46.28
MEAN	3.59	5.09	15.6	86.5	110	122	71.4	14.5	5.56	2.07	1.12	1.54
MAX	8.8	6.9	45	460	491	287	108	33	11	3.5	1.7	2.3
MIN	1.3	3.7	4.1	12	25	49	37	6.6	3.3	.99	.91	.99
AC-FT	221	303	958	5320	6350	7490	4250	890	331	128	69	92
CAL YR 1979	TOTAL	5175.60	MEAN	14.2	MAX	141	MIN	.91	AC-FT	10270		
WTR YR 1980	TOTAL	13306.55	MEAN	36.4	MAX	491	MIN	.91	AC-FT	26390		

MOSIER CREEK BASIN

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14113200 MOSIER CREEK NEAR MOSIER, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May to July 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	SILICA, DIS- SOLVED (MG/L AS SiO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CaCO3)
MAY											
25...	1430	8.5	11.2	6.1	85	34	6.4	3.4	4.5	1.1	39
JUN											
06...	1500	5.8	14.8	7.9	92	36	7.2	3.8	4.7	1.2	43
11...	1500	4.8	16.9	7.5	99	33	6.9	3.6	3.9	1.5	41
15...	1200	7.5	14.8	7.4	91	35	7.3	3.7	4.9	1.3	42
20...	1400	4.5	19.0	8.0	96	38	7.8	4.1	5.2	1.6	50
JUL											
16...	1200	2.1	18.0	8.1	112	38	8.7	4.7	5.7	1.6	53

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)
MAY											
25...	.2	1.4	.0	.35	.01	.34	.030	.06	.43	.010	.040
JUN											
06...	.1	1.4	.0	.78	.05	--	--	.06	--	.020	.030
11...	.3	1.6	.1	.33	.01	.45	.010	.01	.47	.010	.010
15...	.1	1.7	.1	.32	.02	.41	.010	.03	.45	.010	.010
20...	.4	1.4	.1	.73	.00	.66	.050	.02	.73	.020	.030
JUL											
16...	1.2	1.8	.3	.36	.00	.33	.000	.00	.33	.030	.040

DATE	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED (MG/L AS C)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	TUR- BID- ITY (NTU)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
MAY										
25...	3.2	--	30	0	78	75	1.4	--	--	--
JUN										
06...	2.7	--	34	0	79	81	.80	5	.08	53
11...	3.4	.2	32	0	81	76	1.4	9	.12	48
15...	2.6	.1	34	0	79	80	1.6	13	.26	53
20...	1.8	.0	36	0	78	89	.60	--	--	--
JUL										
16...	1.6	.1	41	0	97	94	1.7	0	.00	45

MOSIER CREEK BASIN

14113200 MOSIER CREEK NEAR MOSIER, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ARSENIC DIS- SOLVED (UG/L AS AS)		ARSENIC TOTAL (UG/L AS AS)		BARIUM, DIS- SOLVED (UG/L AS BA)		BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)		BORON, DIS- SOLVED (UG/L AS B)		BORON, TOTAL RECOV- ERABLE (UG/L AS B)		CADMIUM DIS- SOLVED (UG/L AS CD)		CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)		CHRO- MIUM, DIS- SOLVED (UG/L AS CR)		CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	
MAY 25...	0		0		10		<100		--		--		<1		0		10		10	
JUN 06...	1		1		20		<100		--		--		1		0		0		0	
11...	1		1		20		<100		6		60		2		2		0		0	
15...	1		0		20		<100		6		80		<1		1		0		0	
20...	1		1		10		<100		--		--		<1		0		0		0	
JUL 16...	2		2		20		<100		20		30		<1		0		10		0	

DATE	COBALT, DIS- SOLVED (UG/L AS CO)		COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)		COPPER, DIS- SOLVED (UG/L AS CU)		COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)		IRON, DIS- SOLVED (UG/L AS FE)		IRON, TOTAL RECOV- ERABLE (UG/L AS FE)		LEAD, DIS- SOLVED (UG/L AS PB)		LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)		MANGA- NESE, DIS- SOLVED (UG/L AS MN)	
MAY 25...	<3		0		3		6		40		150		4		2		2	
JUN 06...	<3		0		2		5		30		140		5		4		2	
11...	<3		0		<10		2		20		300		0		8		1	
15...	<3		0		<10		2		31		290		0		6		2	
20...	<3		0		1		20		20		1500		0		3		2	
JUL 16...	<3		0		<10		6		20		70		0		5		2	

DATE	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)		NICKEL, DIS- SOLVED (UG/L AS NI)		NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)		SILVER, DIS- SOLVED (UG/L AS AG)		SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)		ZINC, DIS- SOLVED (UG/L AS ZN)		ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)		ALUM- INUM, DIS- SOLVED (UG/L AS AL)		ALUM- INUM, TOTAL RECOV- ERABLE (UG/L AS AL)	
MAY 25...	10		3		0		0		0		4		30		--		--	
JUN 06...	10		0		0		0		0		8		10		--		--	
11...	20		0		2		0		0		17		210		30		80	
15...	20		0		4		0		0		<3		160		30		100	
20...	10		3		15		0		0		<3		30		--		--	
JUL 16...	10		3		4		0		0		5		20		0		110	

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)		LITHIUM TOTAL RECOV- ERABLE (UG/L AS LI)		SELE- NIUM, DIS- SOLVED (UG/L AS SE)		SELE- NIUM, TOTAL (UG/L AS SE)		MERCURY DIS- SOLVED (UG/L AS HG)		MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)		BERYL- LIUM, DIS- SOLVED (UG/L AS BE)		STRON- TIUM, DIS- SOLVED (UG/L AS SR)		VANA- DIUM, DIS- SOLVED (UG/L AS V)	
MAY 25...	--		--		0		0		--		--		--		--		--	
JUN 06...	--		--		0		0		.0		.0		--		--		--	
11...	--		0		0		0		.0		.0		<1		75		<6.0	
15...	<4		0		0		0		.0		.0		<1		78		<6.0	
20...	--		--		0		0		.0		.0		--		--		--	
JUL 16...	7		0		0		0		.0		.0		<1		92		<6.0	

HOOD RIVER BASIN

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14118500 WEST FORK HOOD RIVER NEAR DEE, OR

LOCATION.--Lat 45°35'55", long 121°38'05", in SE¼ sec.1, T.1 N., R.9 E., Hood River County, Hydrologic Unit 17070105, on left bank 0.3 mi (0.5 km) upstream from Dead Point Creek, 0.8 mi (1.3 km) northwest of Dee, and at mile 0.4 (0.6 km).

DRAINAGE AREA.--95.6 mi² (247.6 km²).

PERIOD OF RECORD.--September 1913 to February 1916 (incomplete), June 1932 to current year.

GAGE.--Water-stage recorder. Datum of gage is 802.1 ft (244.48 m) National Geodetic Vertical Datum of 1929. Sept. 1, 1913, to Feb. 12, 1916, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum.

REMARKS.--Records fair. No regulation. Dee Irrigation District canal diverts from right bank about 6 mi (10 km) above station for irrigation above station and in Middle Fork basin. Diversions from Green Point Creek basin above station for irrigation near Oak Grove; water from two of these diversions is carried in Hood River Irrigation District canal.

AVERAGE DISCHARGE.--49 years (water years 1914, 1933-80), 558 ft³/s (15.80 m³/s), 404,300 acre-ft/yr (499 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, Dec. 22, 1964, gage height, 27.0 ft (8.23 m), from floodmarks; maximum daily, 15,000 ft³/s (425 m³/s) Dec. 23, 1964; minimum, 93 ft³/s (2.63 m³/s) Aug. 22, 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,100 ft³/s (116 m³/s) and maximum discharge, 4,760 ft³/s (135 m³/s) Dec. 4, gage height, 9.01 ft (2.746 m); minimum recorded, 98 ft³/s (2.78 m³/s) Oct. 2, 3.

REVISIONS.--The maximum discharge for the water year 1972 has been revised to 13,000 ft³/s (368 m³/s) Jan. 20, 1972, gage height, 14.73 ft (4.490 m), superseding figure published in the report for 1972.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	220	191	629	386	1090	486	874	467	245	169	142
2	105	200	1600	629	555	958	460	890	563	243	163	179
3	103	200	1220	681	1080	896	445	810	506	243	162	147
4	100	230	2910	589	907	1020	456	831	427	231	152	137
5	100	240	1710	779	758	976	598	930	389	224	152	135
6	105	230	1120	611	1040	820	705	836	360	217	158	137
7	110	220	890	530	1090	729	602	724	354	229	158	140
8	105	210	758	502	852	714	638	681	342	231	152	132
9	105	200	913	494	719	676	1040	671	333	231	147	126
10	100	190	1100	494	620	690	1090	625	321	226	145	130
11	100	180	779	494	550	857	913	598	306	217	145	132
12	100	170	734	1690	498	749	885	598	309	208	147	134
13	100	170	634	2530	456	804	964	567	510	204	144	130
14	110	160	681	3060	427	779	1220	518	449	206	142	134
15	120	160	1000	1880	396	676	1580	475	386	208	139	126
16	100	190	831	1360	370	593	1280	445	386	204	139	121
17	100	240	804	1190	363	580	1210	438	399	204	140	122
18	150	250	868	918	399	625	1100	438	360	193	181	130
19	270	220	820	763	559	602	1200	456	324	189	149	154
20	220	200	799	662	638	607	1300	463	315	193	140	245
21	180	190	896	585	559	585	1300	479	306	200	135	222
22	180	190	789	522	510	567	1200	559	290	208	134	171
23	270	200	666	475	475	598	1100	452	279	206	132	156
24	260	230	576	456	452	546	1100	406	281	185	135	149
25	310	250	506	434	486	514	1100	413	324	179	134	147
26	270	230	452	403	970	530	1100	611	287	175	132	147
27	300	210	403	386	1110	534	1200	611	268	175	151	147
28	270	204	370	350	1400	494	1300	494	261	177	147	147
29	250	195	342	330	1350	572	1200	441	255	175	135	145
30	230	189	324	340	---	559	879	406	253	165	134	158
31	240	---	318	350	---	526	---	393	---	165	149	---
TOTAL	5168	6168	26004	25116	19975	21466	29651	18133	10610	6356	4542	4422
MEAN	167	206	839	810	689	692	988	585	354	205	147	147
MAX	310	250	2910	3060	1400	1090	1580	930	563	245	181	245
MIN	100	160	191	330	363	494	445	393	253	165	132	121
AC-FT	10250	12230	51580	49820	39620	42580	58810	35970	21040	12610	9010	8770

CAL YR 1979 TOTAL 158837 MEAN 435 MAX 3440 MIN 100 AC-FT 315100
WTR YR 1980 TOTAL 177611 MEAN 485 MAX 3060 MIN 100 AC-FT 352300

NOTE.--No gage-height record Oct. 3 to Nov. 28, Apr. 17-30.

14120000 HOOD RIVER AT TUCKER BRIDGE, NEAR HOOD RIVER, OR

LOCATION.--Lat 45°39'20", long 121°32'50", in SE $\frac{1}{4}$ sec.15, T.2 N., R.10 E., Hood River County, Hydrologic Unit 17070105, on right bank 25 ft (8 m) downstream from Tucker Bridge, 0.5 mi (0.8 km) upstream from Odell Creek, 4.0 mi (6.4 km), revised, southwest of town of Hood River, and at mile 6.1 (9.8 km).

DRAINAGE AREA.--279 mi² (723 km²).

PERIOD OF RECORD.--October 1897 to December 1899, September 1913 to September 1914, August 1915 to September 1917, January 1965 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1318: 1899. WSP 1935: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 383.2 ft (116.80 m) National Geodetic Vertical Datum of 1929 (Oregon State Highway Department bench mark). Prior to July 23, 1915, nonrecording gage at bridge at various datums. July 23 to Dec. 21, 1915, water-stage recorder at site 0.8 mi (1.3 km) upstream at different datum. January 1916 to September 1917, nonrecording gage at bridge at different datum. Jan. 16 to July 23, 1965, nonrecording gage at bridge.

REMARKS.--Records good. Some daily fluctuation caused by diversion dam above station and sawmill at Dee. Diversions for irrigation above station.

AVERAGE DISCHARGE.--20 years (water years 1898-99, 1914, 1916-17, 1966-80), 1,090 ft³/s (30.87 m³/s), 789,700 acre-ft/yr (974 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,300 ft³/s (632 m³/s) Dec. 13, 1977, gage height, 15.59 ft (4.752 m); minimum recorded, 136 ft³/s (3.85 m³/s) Sept. 16, 1915, caused by temporary storage behind dam at Dee.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1964, reached a stage of 20.6 ft (6.28 m), present datum, discharge, 33,200 ft³/s (940 m³/s), from rating curve extended above 1,500 ft³/s (42.5 m³/s) on basis of slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (127 m³/s) and maximum (*):

Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)	Date	Time	Discharge (ft ³ /s) (m ³ /s)	Gage height (ft) (m)
Dec. 4	1130	*7,040 199	*9.07 2.765	Jan. 13	2030	5,750 163	8.42 2.566

Minimum, 236 ft³/s (6.68 m³/s) Oct. 3, 4, 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	482	431	935	846	2010	913	1650	842	519	366	277
2	240	461	2130	922	1240	1840	881	1680	945	530	344	352
3	244	463	1670	987	1770	1730	864	1570	859	539	340	338
4	238	513	3890	895	1520	1860	868	1590	763	499	318	301
5	246	551	2320	1100	1300	1820	1020	1800	710	472	314	292
6	253	528	1550	913	1640	1590	1170	1660	673	458	312	307
7	262	499	1280	821	1740	1450	1040	1460	666	472	307	310
8	258	474	1090	784	1450	1400	1070	1360	666	480	301	277
9	248	453	1220	736	1270	1340	1590	1320	673	493	298	260
10	246	440	1580	763	1140	1340	1710	1250	643	493	298	272
11	244	427	1120	728	1050	1560	1470	1210	621	466	307	281
12	246	418	1060	2630	982	1420	1430	1200	627	436	309	279
13	244	411	940	3950	931	1510	1530	1150	886	420	296	264
14	248	405	977	4770	886	1520	1810	1080	851	429	294	272
15	318	396	1320	3030	838	1360	2240	1020	732	445	281	264
16	272	440	1150	2190	796	1200	1950	949	717	436	292	256
17	274	536	1120	1950	796	1180	1880	935	736	438	289	262
18	362	569	1270	1580	868	1200	1870	940	686	413	368	294
19	596	496	1170	1360	1050	1120	2040	954	647	402	320	335
20	502	466	1140	1200	1150	1120	2200	963	640	429	296	434
21	420	455	1260	1080	1050	1080	2240	1010	640	448	285	400
22	427	455	1110	996	992	1050	1890	1090	621	480	283	340
23	590	469	987	935	949	1080	1890	931	584	493	285	325
24	572	522	899	908	945	1020	1940	855	575	418	301	314
25	669	566	817	881	1010	982	1800	834	653	398	294	309
26	590	513	759	834	1910	992	1800	1000	596	387	264	316
27	634	466	710	670	2150	1000	1950	1000	551	383	283	327
28	584	436	673	620	2440	945	2210	873	548	398	283	329
29	551	431	643	600	2330	1020	2040	813	542	396	260	329
30	522	424	627	600	---	1000	1710	767	536	358	253	366
31	530	---	618	600	---	963	---	743	---	352	294	---
TOTAL	11870	14165	37531	40968	37039	40702	49016	35657	20429	13780	9335	9282
MEAN	383	472	1211	1322	1277	1313	1634	1150	681	445	301	309
MAX	669	569	3890	4770	2440	2010	2240	1800	945	539	368	434
MIN	238	396	431	600	796	945	864	743	536	352	253	256
AC-FT	23540	28100	74440	81260	73470	80730	97220	70730	40520	27330	18520	18410

CAL YR 1979	TOTAL	259768	MEAN	712	MAX	4600	MIN	220	AC-FT	515200
WTR YR 1980	TOTAL	319774	MEAN	874	MAX	4770	MIN	238	AC-FT	634300

COLUMBIA RIVER MAIN STEM

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14128600 COLUMBIA RIVER AT STEVENSON, WA

LOCATION.--Lat 45°41'58", long 121°52'02", in NW¼SE¼ sec.36, T.3 N., R.7½ E., Skamania County, Hydrologic Unit 17070105, on right bank 0.9 mi (1.4 km) east of Stevenson, and at mile 151.3 (243.4 km).

DRAINAGE AREA.--239,800 mi² (621,100 km²), approximately.

PERIOD OF RECORD.--October 1973 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 79.79 ft (24.320 m) June 20, 1974; minimum (corrected), 70.81 ft (21.583 m) Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 78.39 ft (23.893 m) May 24; minimum, 72.07 ft (21.967 m) Oct. 22.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	76.02	74.15	75.31	76.33	74.21	75.43	76.80	74.38	75.87	76.24	73.46	74.54
2	76.62	74.74	75.78	76.83	74.04	75.33	76.66	74.07	75.31	76.79	73.56	75.12
3	76.95	75.37	76.22	76.27	73.63	74.70	76.09	73.83	75.23	76.69	73.46	75.17
4	76.60	75.03	75.77	76.35	74.03	74.91	76.59	73.80	75.35	76.68	73.67	75.40
5	76.62	75.40	76.04	76.54	72.79	74.99	76.92	74.29	75.93	76.81	74.65	75.77
6	75.94	74.10	74.90	76.66	74.21	75.52	76.78	74.05	75.25	76.67	74.05	75.37
7	75.45	73.78	74.38	76.54	74.14	75.44	76.26	73.45	74.92	77.00	74.22	75.72
8	74.91	72.58	73.48	76.81	73.81	75.44	76.48	74.11	75.24	76.73	73.71	75.26
9	74.28	72.94	73.72	76.59	74.24	75.57	76.36	74.43	75.09	77.34	73.74	75.48
10	73.78	72.19	73.11	76.68	73.56	74.80	77.01	74.29	75.70	76.72	73.69	74.93
11	74.26	72.46	73.25	76.54	75.18	75.61	76.62	73.77	75.05	76.74	73.43	74.98
12	75.99	72.80	74.41	76.40	72.78	74.50	76.89	73.02	75.10	76.38	73.21	74.93
13	75.89	75.27	75.57	76.69	73.99	75.42	76.23	73.34	74.95	76.04	73.76	74.85
14	75.83	73.70	74.69	77.02	74.08	75.88	76.71	73.02	74.72	76.45	73.68	75.07
15	75.18	72.74	74.01	76.76	74.26	75.71	76.75	73.40	75.26	76.72	73.93	75.31
16	74.81	72.88	73.70	76.70	73.74	75.18	76.81	74.41	75.26	76.98	73.91	75.22
17	74.19	73.00	73.62	76.89	73.50	74.90	76.50	72.74	74.59	77.04	74.35	75.81
18	76.62	72.59	74.53	76.55	74.09	75.18	76.83	73.79	75.52	76.70	73.86	75.51
19	76.74	74.12	75.65	76.96	73.66	75.36	76.83	74.33	75.56	76.65	75.11	75.86
20	76.16	74.83	75.50	77.06	73.97	75.79	76.85	74.64	75.90	76.74	74.48	75.29
21	75.53	72.20	73.75	77.12	73.75	75.48	77.06	73.67	75.44	75.92	73.68	74.87
22	75.43	72.07	73.78	77.13	73.88	75.37	77.00	74.60	75.79	76.05	74.16	75.04
23	76.05	73.31	74.67	76.44	73.80	75.19	76.83	74.87	75.91	76.36	74.22	75.26
24	76.26	74.16	75.37	76.93	75.47	76.19	76.47	73.71	75.07	76.78	73.40	75.04
25	76.36	74.39	75.53	76.96	74.70	75.53	76.16	73.64	74.61	76.68	74.25	75.32
26	76.95	74.46	75.69	76.92	73.40	75.34	76.02	73.27	74.42	76.93	75.59	76.27
27	76.93	74.41	75.67	77.00	74.92	76.21	76.02	73.41	74.75	76.43	74.75	75.34
28	76.05	74.06	74.69	76.34	73.23	75.01	76.73	73.09	74.87	76.60	73.95	75.44
29	76.40	72.70	74.53	76.50	74.01	75.51	76.44	74.07	75.03	76.46	74.04	75.44
30	76.30	73.95	75.29	76.79	74.48	75.51	76.15	73.75	74.87	76.46	73.83	74.84
31	76.34	73.87	75.34	---	---	---	76.37	73.28	74.95	76.87	73.15	75.40
MONTH	76.95	72.07	74.77	77.13	72.78	75.37	77.06	72.74	75.21	77.34	73.15	75.29

14128600 COLUMBIA RIVER AT STEVENSON, WA--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	77.06	74.33	75.21	76.80	75.04	76.02	76.24	73.99	74.78	77.06	74.33	75.66
2	76.44	73.05	74.61	76.50	74.94	75.56	76.80	74.17	75.67	77.95	75.86	76.79
3	76.44	73.85	75.05	76.92	73.90	75.36	76.92	75.02	76.01	77.69	75.44	76.04
4	76.07	73.27	74.48	77.09	75.16	76.34	76.29	74.02	75.05	76.65	74.69	75.48
5	76.10	73.20	74.81	77.13	74.70	75.79	76.16	74.14	74.89	76.81	74.97	75.81
6	76.81	73.86	75.31	76.82	74.62	75.84	75.35	73.94	74.46	76.55	74.65	75.62
7	77.05	74.40	75.75	76.83	74.39	75.58	76.80	73.06	75.05	77.10	75.30	76.30
8	76.84	74.77	75.78	76.89	74.68	75.59	77.14	75.09	76.26	77.20	76.18	76.74
9	76.97	74.16	75.65	76.14	74.74	75.24	77.10	74.02	75.64	77.13	75.99	76.50
10	76.53	74.86	75.50	76.55	73.42	74.84	77.19	74.40	75.54	77.04	75.50	76.40
11	76.26	73.04	74.69	77.35	74.04	75.73	77.10	74.98	75.82	77.95	76.46	77.10
12	76.87	73.75	75.40	77.57	74.73	76.15	76.39	74.66	75.39	77.53	74.94	75.67
13	76.88	74.75	75.90	77.45	74.30	75.60	75.78	73.97	74.86	76.43	74.76	75.65
14	76.98	73.77	75.58	77.17	74.12	75.84	76.68	74.09	75.19	77.95	75.51	76.61
15	77.00	74.66	75.77	76.81	75.06	76.06	76.99	74.65	75.51	77.21	74.25	76.10
16	76.70	74.90	75.65	75.78	73.04	73.88	76.64	75.14	75.81	77.81	75.56	76.82
17	76.37	74.40	75.01	76.74	72.89	74.90	77.14	73.85	75.29	77.58	76.18	76.90
18	76.19	72.83	74.35	76.08	73.70	74.92	77.03	74.55	76.08	77.24	76.15	76.69
19	76.12	73.00	74.64	75.68	73.71	74.76	76.32	73.78	74.94	76.80	74.10	74.79
20	76.60	73.55	74.95	75.58	73.06	74.12	76.83	75.44	76.10	76.24	73.46	74.61
21	77.07	74.77	75.78	75.94	73.08	74.38	77.09	74.99	76.33	77.61	73.71	75.68
22	77.00	74.08	75.40	76.34	73.83	74.94	76.90	74.13	75.74	77.25	75.77	76.50
23	76.73	74.76	75.72	76.23	74.67	75.21	77.65	73.77	75.69	78.35	76.50	77.37
24	76.76	74.88	75.67	75.28	73.29	74.18	77.11	75.32	76.47	78.39	75.47	76.48
25	77.18	73.89	75.51	75.24	73.19	74.05	76.84	75.12	76.13	77.30	74.50	75.75
26	77.11	73.86	75.79	75.80	73.20	74.58	76.64	75.26	75.92	77.15	75.33	76.22
27	76.86	73.22	75.38	75.89	73.60	74.67	77.18	74.60	75.55	77.10	73.48	75.72
28	76.79	73.32	75.24	76.84	74.00	75.37	77.52	74.93	76.27	76.15	74.39	75.04
29	76.76	73.92	75.45	76.72	74.75	75.89	78.15	75.10	76.64	77.38	75.14	75.81
30	---	---	---	76.44	74.60	75.09	77.85	75.04	76.03	78.01	75.92	76.99
31	---	---	---	75.95	72.94	74.69	---	---	---	77.71	75.90	77.10
MONTH	77.18	72.83	75.31	77.57	72.89	91.33	78.15	73.06	75.64	78.39	73.46	76.16

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE				JULY			AUGUST			SEPTEMBER		
1	76.13	75.02	75.51	77.27	75.47	76.10	76.74	74.12	75.57	76.10	73.13	74.44
2	77.07	75.11	75.85	76.25	74.41	75.03	76.74	74.79	75.69	75.15	72.81	73.94
3	77.68	76.49	77.21	76.68	74.65	75.74	76.94	74.63	75.88	75.24	73.37	74.38
4	77.85	76.31	77.18	76.65	74.03	74.72	76.85	74.44	75.60	76.21	73.34	74.72
5	76.34	74.80	75.42	76.92	74.16	75.36	76.72	74.36	75.64	76.63	74.83	75.79
6	76.47	74.77	75.75	77.08	76.50	76.81	77.01	74.45	75.62	76.73	75.33	75.95
7	77.80	76.02	76.80	76.68	73.54	75.03	76.79	74.90	75.99	76.63	74.03	75.28
8	77.72	75.50	76.50	76.26	74.12	75.36	76.79	74.45	75.71	75.81	72.73	74.10
9	77.58	74.95	75.88	76.65	74.63	75.74	76.73	75.33	76.13	75.88	73.92	74.78
10	75.71	74.14	74.70	76.93	74.99	75.94	76.54	75.25	75.88	75.82	74.09	74.85
11	76.35	74.05	74.97	77.29	74.83	76.04	76.99	74.23	75.73	75.83	73.96	74.85
12	77.65	74.33	75.95	77.29	75.77	76.44	76.70	73.66	74.95	76.21	74.64	75.57
13	77.50	75.41	76.75	76.87	74.17	74.89	76.04	73.04	74.45	75.83	74.50	75.17
14	77.13	75.90	76.65	75.72	73.03	74.04	75.99	73.62	74.88	75.60	74.62	74.92
15	77.19	74.44	75.75	76.97	74.44	75.74	76.85	74.43	75.61	75.15	73.92	74.57
16	77.20	75.00	75.95	76.96	74.88	76.01	76.68	75.00	75.95	75.86	74.01	74.82
17	76.48	74.19	75.64	77.09	75.10	76.12	76.49	74.89	75.36	76.47	73.65	75.11
18	76.63	75.52	76.24	77.06	74.90	76.11	76.20	73.06	74.29	76.66	74.25	75.60
19	76.55	75.46	76.21	76.66	74.02	75.32	76.54	73.73	74.92	76.79	74.55	75.74
20	76.47	74.84	75.50	76.37	74.53	75.46	76.52	74.36	75.52	76.53	74.84	75.68
21	76.34	75.02	75.54	77.24	74.89	76.08	76.17	74.71	75.20	75.88	74.07	75.01
22	77.15	74.98	75.90	77.14	74.95	76.12	76.60	72.84	74.85	74.33	73.15	73.83
23	77.17	75.49	76.11	77.10	75.25	76.13	76.54	75.48	75.92	76.36	73.41	74.77
24	76.50	74.80	75.65	76.65	74.99	75.75	76.33	74.19	74.98	76.61	75.10	76.01
25	77.25	74.98	76.33	76.80	74.27	75.55	74.17	73.11	73.68	77.08	76.03	76.47
26	77.66	74.95	76.31	76.53	74.14	75.33	75.85	72.85	74.09	76.89	75.67	76.34
27	77.69	75.22	76.25	76.65	74.16	75.35	75.87	73.55	74.86	76.98	74.98	76.02
28	76.44	74.37	75.27	76.40	74.12	75.43	76.55	74.72	75.66	76.89	75.00	75.51
29	76.07	75.03	75.54	76.97	74.63	75.68	76.59	74.67	75.73	75.98	73.42	74.74
30	77.39	73.46	75.21	76.94	74.29	75.61	76.61	74.79	75.75	76.59	74.53	75.64
31	---	---	---	76.97	74.00	75.54	76.46	74.24	75.34	---	---	---
MONTH	77.85	73.46	75.95	77.29	73.03	75.63	77.01	72.84	75.34	77.08	72.73	75.15
YEAR	78.39	72.07	76.78									

COLUMBIA RIVER MAIN STEM

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14128890 COLUMBIA RIVER NEAR BONNEVILLE, OR

LOCATION.--Lat 45°37'35", long 121°58'22", in sec.29, T.2 N., R.7 E., Multnomah County, Hydrologic Unit 17080001, on left bank 0.2 mi (0.3 km) upstream from Moffett Creek, 2.2 mi (3.5 km) downstream from Bonneville Dam, at mile 143.5 (230.9 km).

DRAINAGE AREA.--239,900 mi² (621,300 km²), approximately.

PERIOD OF RECORD.--October 1973 to current year (gage heights only).

REVISED RECORDS.--WDR-OR 77-1: 1974-76(m).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 33.12 ft (10.095 m) June 22, 1974; minimum recorded, 6.47 ft (1.972 m) Sept. 30, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 24.27 ft (7.397 m) June 19; minimum, 6.60 ft (2.012 m) Oct. 1.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	10.49	6.60	8.62	11.07	10.42	10.75	14.77	12.04	13.35	13.34	11.11	12.22
2	10.51	7.56	9.54	12.23	10.41	11.21	13.80	12.94	13.37	13.33	10.69	12.51
3	10.75	7.36	9.66	13.17	11.75	12.44	13.59	12.11	13.01	13.46	12.60	13.03
4	11.52	10.45	11.12	13.22	12.43	12.79	14.17	12.55	13.36	12.96	12.24	12.70
5	11.58	10.82	11.22	13.16	12.30	12.76	16.60	13.54	14.83	14.90	12.74	13.97
6	11.85	9.94	11.39	12.65	12.05	12.39	16.39	15.77	16.19	14.80	12.82	13.26
7	11.92	7.86	10.39	12.54	12.11	12.35	15.76	13.61	14.40	16.96	12.81	15.19
8	11.88	10.26	11.22	12.73	12.32	12.54	13.70	12.94	13.33	16.97	14.18	15.65
9	11.09	8.71	10.49	12.60	12.12	12.41	13.19	12.79	12.99	18.98	15.80	17.47
10	11.69	8.41	10.51	12.79	11.96	12.48	14.49	12.58	13.08	19.10	17.55	17.90
11	11.81	10.38	11.35	12.11	11.60	11.90	15.00	12.71	13.93	17.60	16.03	16.71
12	11.56	7.51	8.83	12.13	11.36	11.85	16.15	13.66	14.64	16.92	15.50	15.89
13	9.24	7.27	8.32	11.63	10.82	11.26	16.35	14.69	15.17	16.65	15.68	16.29
14	10.77	7.15	9.25	11.21	10.51	10.84	16.55	14.57	15.18	18.93	16.59	17.89
15	10.83	7.82	9.94	11.10	9.86	10.61	16.53	12.00	13.48	18.87	18.60	18.75
16	11.17	8.20	10.43	12.26	10.97	11.64	11.96	11.46	11.76	19.29	18.37	18.77
17	10.54	7.44	9.29	12.92	11.79	12.44	14.00	11.80	12.70	18.87	16.22	17.48
18	10.94	8.97	10.32	12.88	12.28	12.61	13.97	12.71	13.19	16.36	14.84	15.50
19	11.73	9.20	11.15	12.58	11.65	12.23	15.90	12.97	14.47	16.32	14.08	15.45
20	11.51	10.88	11.18	12.40	11.51	11.93	16.12	13.46	14.44	16.30	13.92	14.56
21	11.55	10.27	11.28	15.96	11.16	12.37	14.72	13.64	14.11	14.55	13.74	14.32
22	11.92	10.49	11.32	16.13	13.17	14.08	13.87	12.97	13.51	15.30	14.17	14.83
23	11.73	10.34	11.33	13.56	12.58	12.97	13.72	12.34	12.87	15.52	15.12	15.33
24	11.37	10.47	10.94	12.77	12.32	12.52	14.17	13.25	13.75	15.40	13.85	14.43
25	11.95	10.97	11.41	12.92	12.57	12.68	13.62	13.09	13.41	14.03	12.50	13.25
26	11.79	10.83	11.27	13.26	11.95	12.66	13.35	12.58	13.06	18.45	12.18	15.16
27	11.39	10.89	11.16	15.15	11.94	13.38	12.64	11.72	12.31	---	---	---
28	11.40	10.93	11.21	15.35	11.79	13.53	12.47	11.67	12.13	---	---	---
29	11.52	10.73	11.25	14.05	12.59	13.25	12.35	11.65	11.97	---	---	---
30	11.09	10.58	10.82	14.66	12.92	13.70	12.38	11.42	11.89	---	---	---
31	11.19	8.87	10.33	---	---	---	13.03	11.53	12.36	---	---	---
MONTH	11.95	6.60	10.53	16.13	9.86	12.35	16.60	11.42	13.49	19.29	10.69	15.33

14128890 COLUMBIA RIVER NEAR BONNEVILLE, OR--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	15.09	13.14	14.03	12.89	11.54	12.51	21.54	19.10	20.16
2	---	---	---	13.65	12.83	13.09	12.64	12.08	12.37	21.80	19.90	20.22
3	---	---	---	13.30	12.73	12.93	12.54	11.98	12.26	22.00	18.46	20.03
4	---	---	---	16.88	12.55	14.91	12.88	12.17	12.52	18.59	17.17	18.05
5	---	---	---	17.75	16.84	17.17	13.19	11.79	12.64	19.02	17.92	18.74
6	13.36	12.28	13.02	17.29	15.50	15.93	12.23	11.21	11.89	20.44	18.91	19.95
7	14.02	12.45	13.11	16.63	15.15	15.94	11.81	10.83	11.50	21.77	20.37	21.40
8	14.54	12.11	13.68	15.26	12.53	13.68	14.60	10.80	12.79	21.80	21.58	21.65
9	14.52	12.35	13.90	12.95	12.36	12.70	15.04	14.05	14.41	21.68	20.30	21.25
10	12.32	11.81	12.06	12.92	12.31	12.65	15.97	13.95	14.80	21.48	20.34	20.96
11	12.37	11.28	11.83	16.68	12.40	14.02	16.28	12.70	15.24	21.01	20.25	20.45
12	14.90	11.55	13.52	18.58	14.32	16.26	12.65	11.69	12.02	21.00	19.83	20.50
13	16.19	14.55	15.45	18.67	17.06	17.68	12.06	10.04	11.60	19.82	19.33	19.65
14	17.50	14.98	15.96	17.80	15.48	16.75	12.40	9.51	11.70	20.25	17.14	18.74
15	18.55	16.00	17.64	17.84	13.78	14.49	12.86	11.87	12.29	20.07	16.66	18.17
16	16.00	12.20	13.34	14.14	13.57	13.87	16.09	12.46	14.41	20.09	17.70	18.73
17	12.98	11.96	12.41	17.31	13.34	14.38	16.11	12.93	14.35	20.20	19.04	19.57
18	13.63	12.61	12.99	15.60	14.70	15.09	16.30	12.90	14.79	19.40	18.41	19.09
19	13.92	13.09	13.41	15.43	13.54	14.23	16.28	12.44	14.08	20.33	17.01	18.69
20	13.95	12.96	13.53	13.98	13.29	13.65	13.40	12.49	13.16	19.15	16.55	17.86
21	16.22	12.78	14.85	13.80	13.10	13.48	16.52	13.04	15.53	19.10	17.67	18.10
22	17.25	14.90	16.31	13.36	12.76	13.12	18.26	15.08	16.57	21.03	18.53	19.41
23	14.90	12.25	13.19	12.93	12.65	12.82	19.76	16.72	17.80	21.79	18.02	20.23
24	12.48	11.86	12.13	13.01	12.53	12.81	19.36	17.90	18.81	21.78	20.17	21.27
25	12.31	11.81	11.97	12.89	11.44	12.22	19.35	15.71	17.95	20.16	18.19	18.98
26	13.96	11.70	12.21	12.55	8.89	11.15	16.38	14.77	15.68	19.95	17.54	19.11
27	17.45	13.85	15.50	12.65	11.08	12.10	15.67	13.10	13.99	21.14	17.77	18.96
28	15.51	14.55	14.92	12.44	11.18	11.81	17.67	15.32	16.25	21.14	19.35	20.32
29	16.59	14.18	15.02	12.60	11.69	12.26	20.63	17.51	18.44	20.71	20.40	20.55
30	---	---	---	12.58	12.23	12.43	21.55	20.62	21.24	23.03	20.54	21.93
31	---	---	---	12.94	11.93	12.49	---	---	---	22.52	21.68	22.32
MONTH	18.55	11.28	13.83	18.67	8.89	13.88	21.55	9.51	14.45	23.03	16.55	19.84

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	21.67	20.92	21.47	19.08	16.06	17.78	12.90	12.13	12.62	11.49	10.76	11.23
2	21.79	21.10	21.53	16.04	13.27	14.83	12.69	8.68	10.68	11.92	10.46	11.36
3	22.59	20.23	21.53	15.20	14.09	14.80	11.94	8.39	10.18	10.15	9.18	9.71
4	22.60	19.71	21.43	15.39	13.11	14.35	12.44	11.49	11.98	10.36	9.37	9.90
5	21.60	20.01	20.74	15.23	13.12	14.33	12.92	12.07	12.53	10.34	8.33	9.71
6	21.24	19.83	20.63	17.07	15.19	16.30	12.80	12.08	12.41	10.13	8.65	9.43
7	21.79	19.96	21.10	17.26	16.34	16.70	12.74	11.61	12.34	10.44	7.64	9.44
8	21.92	21.67	21.79	16.51	15.79	16.34	12.78	10.62	11.88	10.53	8.99	9.80
9	23.19	21.37	22.25	17.29	16.10	16.54	10.57	9.27	9.82	11.29	9.78	10.39
10	23.03	21.21	21.92	16.94	15.47	15.95	10.55	8.03	9.58	10.86	9.58	10.05
11	21.67	20.98	21.39	17.32	15.82	16.53	12.92	9.77	11.56	10.12	9.38	9.76
12	21.75	21.40	21.64	15.99	12.60	13.78	14.04	12.17	13.13	9.99	9.22	9.60
13	21.98	21.43	21.71	13.17	12.41	12.75	12.87	10.85	12.04	9.92	8.21	8.82
14	22.40	21.85	22.05	13.54	12.74	13.16	12.33	9.40	10.34	9.05	7.41	8.12
15	21.94	20.62	21.22	16.26	12.50	14.07	11.11	9.06	9.50	9.35	7.18	8.63
16	22.07	20.68	21.77	16.48	13.63	14.94	11.32	9.43	10.36	10.61	7.71	9.84
17	23.36	21.35	22.63	13.75	12.27	13.18	10.79	9.04	10.08	11.09	9.74	10.50
18	24.25	22.37	23.47	13.42	12.64	13.07	11.05	9.91	10.44	11.26	10.10	10.65
19	24.27	23.13	23.68	13.46	11.98	12.54	12.24	10.57	11.92	11.09	10.44	10.72
20	23.23	19.94	21.90	13.58	11.98	13.19	12.26	10.75	11.51	10.94	8.56	10.23
21	22.11	19.64	20.94	15.57	11.52	13.68	12.10	10.14	11.44	10.93	7.89	9.59
22	21.23	20.01	20.54	16.07	13.92	14.85	11.09	8.22	10.26	10.26	7.79	9.56
23	21.85	20.79	21.51	14.91	13.20	13.86	9.85	7.78	9.16	10.42	8.30	9.73
24	21.79	21.09	21.52	13.99	12.42	13.54	9.93	8.04	9.19	10.27	9.47	9.85
25	22.45	21.03	21.47	13.36	12.19	12.76	10.60	7.86	9.57	10.89	9.12	9.80
26	21.67	20.86	21.46	13.07	12.08	12.53	11.65	10.38	11.19	11.85	10.35	10.96
27	21.54	19.72	20.58	12.94	10.53	11.50	11.87	11.02	11.38	11.77	10.58	11.12
28	19.76	16.41	17.60	12.22	10.21	11.12	11.62	10.83	11.24	11.65	10.19	11.08
29	16.38	15.60	15.91	12.18	9.95	11.14	11.46	10.68	11.14	11.66	9.48	10.61
30	18.56	15.33	16.49	13.07	12.12	12.55	11.43	10.69	11.08	11.07	10.06	10.66
31	---	---	---	13.04	12.30	12.64	11.42	10.71	11.12	---	---	---
MONTH	24.27	15.33	21.13	19.08	9.95	14.04	14.04	7.78	11.02	11.92	7.18	10.03
YEAR	24.27	6.60	14.15									

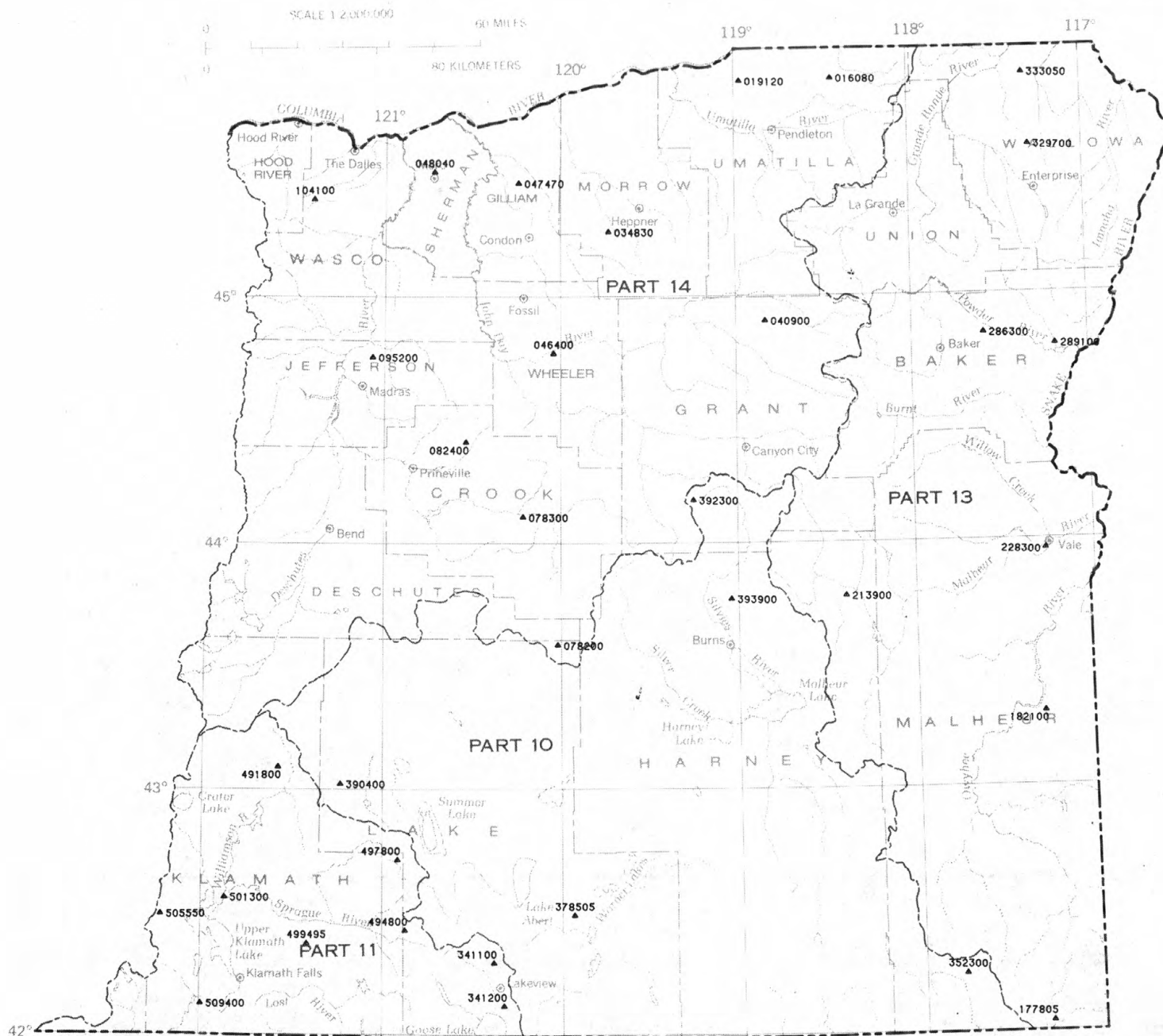


Figure 4. -- Map of Eastern Oregon showing location of partial-record stations

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station Name	Location	Drainage area (mi ²)	Period of record	Annual maximum		
					Date	Gage height (ft)	Dis- charge (ft ³ /s)
QUINN RIVER BASIN (NEVADA)							
10352300	JACKSON CREEK TRIBU- TARY NEAR MCDERMITT, NV	Lat 42°14'00", long 117°44'20", in N½ sec.36, T.38 S., R.42 E., Malheur County, at culvert on BLM Star Valley Road 930-0, 15 miles north of McDermitt.	66.6	1969-77, 1979-80	9- 1-79 9-12-80	10.94 8.98	28 1
WARNER LAKES BASIN							
10378505	MINERS DRAW NEAR PLUSH, OR	Lat 42°29'15", long 119°53'57", in SW¼ sec.33, T.35 S., R.24 E., Lake County, at culvert on Hogback Road, 5.2 miles north of Plush.	15.9	1980	-	-	-
SILVER LAKE BASIN							
10390400	BRIDGE CREEK NEAR THOMPSON RESERVOIR, OR	Lat 43°01'28", long 121°12'04" in SE¼SW¼ sec.29, T.29 S., R.13 E., Lake County, in Fremont National Forest, at culvert on Forest Service road 2800, 7.2 miles north- west of Thompson Reservoir, and 11 miles southwest of town of Silver Lake.	10.6	1965-80	1-13-80	9.44	39
MALHEUR AND HARNEY LAKES BASIN							
10392300	SILVIES RIVER NEAR SENECA, OR	Lat 44°10'30", long 119°12'50", in NW¼NW¼ sec.23, T.16 S., R.29 E., Grant County, in Malheur National Forest, at culvert on Forest Service road 1611, 100 feet downstream from Wickiup Creek, and 12 miles northwest of Seneca.	18.4	1967-80	3-21-80	12.11	59
10393900	DEVINE CANYON NEAR BURNS, OR	Lat 43°46'20", long 119°00'15", in NE¼ sec.9, T.21 S., R.31 E., Harney County, at culvert at U.S. Highway 395, at junction with road to Baker Corral, 0.7 mile north of Ochoco National Forest boundary, and 15 miles north of Burns.	4.96	1965-80	4- 4-80	12.32	61.0
GOOSE LAKE BASIN							
11341100	SALT CREEK NEAR LAKEVIEW, OR	Lat 42°17'35", long 120°20'45", in NW¼ sec. 10, T.38 S., R.20 E., Lake County, at culvert on U.S. Highway 395, 1.7 miles upstream from mouth, 2.6 miles north of Warner Valley Junction, and 7.6 miles north of Lakeview.	5.62	1964-80	1-13-80	14.94	57
11341200	CRANE CREEK NEAR LAKEVIEW, OR	Lat 42°07'05", long 120°17'25", in NW¼ sec. 7, T.40 S., R.21 E., Lake County, in Fremont National Forest, at culvert on Crane Creek road, 1.5 miles east of crossing of U.S. Highway 395, and 6 miles southeast of Lakeview.	11.4	1966-80	1-13-80	13.55	120
KLAMATH RIVER BASIN							
11491800	MOSQUITO CREEK NEAR SHEVLIN, OR	Lat 43°05'40", long 121°32'50", in SE¼SE¼ sec.32, T.28 S., R.10 E., Klamath County, in Winema National Forest, at culvert on Forest Service road 283A, 150 ft south of intersection with road 283, 2 miles southwest of Jacks Corral, and 8 miles southeast of Shevlin.	2.63	1965-80	1-13-80	7.50	8.4
11494800	BROWNSWORTH CREEK NEAR BLY, OR	Lat 42°25'40", long 120°50'20", in NW¼NW¼ sec.28, T.36 S., R.16 E., Lake County, at culvert on Forest Service road 3610 in Fremont National Forest, 2 miles upstream from Hammond Creek, and about 12 miles east of Bly.	2.20	1965-80	1-13-80	11.24	22
11497800	CURRIER CREEK NEAR PAISLEY, OR	Lat 42°42'55", long 120°52'50", in NW¼NW¼ sec.18, T.33 S., R.16 E., Lake County, in Fremont National Forest, at culvert on Forest Service road 337, 100 ft east of junction with road 3313, 1.4 miles upstream from mouth, and 17 miles west of Paisley.	2.46	1965-80	1-13-80	12.21	18

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station Name	Location	Drainage area (mj ²)	Period of record	Date	Annual maximum	
						Gage height (ft)	Dis- charge (ft ³ /s)
KLAMATH RIVER BASIN--Continued							
11499495	WEST FORK WHISKEY CREEK NEAR BEATTY, OR	Lat 42°22'32", long 121°22'52", in SW¼ sec.11, T.37 S., R.11 E., Klamath County, at culvert on Road No. 4083 in Winema National Forest, 0.2 mile northwest of State Highway 66, and 7.2 miles south- west of Beatty.	4.40	1980	1-13-80	16.87	57
11501300	CRYSTAL CREEK NEAR CHILOQUIN, OR	Lat 42°33'45", long 121°50'20", in SE¼ sec.2, T.35 S., R.7 E., Klamath County, in Winema National Forest, at culvert on Chiloquin Ridge road, 200 ft upstream from mouth, and 1.5 miles southeast of Chiloquin.	5.77	1965-80	1-12-80	13.66	26
11505550	LOST CREEK NEAR ROCKY POINT, OR	Lat 42°29'35", long 122°11'30", in SE¼ sec.26, T.35 S., R.5 E., Klamath County, Winema National Forest, at culvert on Forest Service road 3561, 1.5 miles east of Long Lake, and 5.5 miles west of Rocky Point.	13.2	1966-80	1-12-80	9.51	64
11509400	KLAMATH RIVER TRIBU- TARY NEAR KENO, OR	Lat 42°07'50", long 121°57'50", in SW¼ sec.35, T.39 S., R.7 E., Klamath County, at culvert on State Highway 66, 0.3 mile upstream from mouth, 1.8 miles west of Keno, and 4.0 miles east of Klamath River bridge.	1.02	1964-80	1-12-80	12.05	5.7
OWYHEE RIVER BASIN							
13177805	TENT CREEK NEAR MCDERMITT, NV	Lat 42°02'00", long 117°16'15", in NW¼ sec.12, T.41 S., R.46 E., Malheur County, at culvert on BLM Star Valley access road, 8 miles southwest of Lookout Lake, and 23 miles east of McDermitt.	11.6	1974-76, 1978-80	5- 7-80	9.42	114
13182100	DAGO GULCH NEAR ROCKVILLE, OR	Lat 43°17'37", long 117°15'14", in SW¼SE¼ sec.18, T.26 S., R.45 E., Malheur County, at culvert on Bureau of Land Management Leslie Gulch road, 0.2 mile west of Runaway Creek, and 8 miles west of Rockville.	3.09	1970-80	5-25-80	12.75	36
MALHEUR RIVER BASIN							
13213900	MALHEUR RIVER TRIBU- TARY NEAR DREWSEY, OR	Lat 43°46'51", long 118°21'27", in SE¼SW¼ sec.36, T.20 S., R.35 E., Harney County, at culvert on county road to Drewsey, 200 feet north of U.S. Highway 20, and 2 miles south of Drewsey.	2.28	1964-80	3-20-80	9.14	30
13228300	LYTLE CREEK NEAR VALE, OR	Lat 43°57'26", long 117°13'33", in SE¼ sec.32, T.18 S., R.45 E., Malheur County, at culvert on Lytle Boulevard, 2 miles south of Vale.	6.46	1968-80	3-21-80	10.48	67
POWDER RIVER BASIN							
13286300	WATERSPOUT CREEK NEAR BAKER, OR	Lat 44°50'08", long 117°32'48", in SW¼SW¼ sec.27, T.8 S., R.42 E., Baker County, at culvert on State Highway 86, 14 miles east of Baker.	.96	1968-80	-	-	0
13289100	IMMIGRANT GULCH NEAR RICHLAND, OR	Lat 44°47'10", long 117°08'05", in NW¼ sec.18, T.9 S., R.46 E., Baker County, at culvert on State Highway 86, 1.9 miles northeast of Richland, and 2.0 miles above maximum flow line of Brownlee Reservoir.	6.64	1964-80	3- 5-80	-	10
GRANDE RONDE RIVER BASIN							
13329700	TROUT CREEK TRIBU- TARY NEAR CHICO, OR	Lat 45°35'50", long 117°15'35", in center of sec.1, T.1 N., R.44 E., Wallowa County, at culvert on State Highway 3, 0.2 mile upstream from mouth, 1.0 mile south of Wallowa-Whitman National Forest boundary and 9.5 miles southwest of Chico.	.26	1967-80	3- 5-80	9.47	7.4
13333050	BUFORD CREEK NEAR FLORA, OR	Lat 45°53'25", long 117°17'00", on sec. line 23 and 26, T.5 N., R.44 E., Wallowa County, at two culverts on county road 1.0 mile west of junction with State Highway 3, 1.5 miles southeast of Flora.	.47	1967-80	3- 5-80	8.61	11

Annual maximum discharge at crest-stage partial-record stations--Continued

						Annual maximum	
Station No.	Station Name	Location	Drainage area (mi ²)	Period of record	Date	Gage height (ft)	Dis- charge (ft ³ /s)
WALLA WALLA RIVER BASIN							
14016080	DRY CREEK TRIBUTARY NEAR MILTON- FREEWATER, OR	Lat 45°53'05", long 118°23'28", in NE¼ sec.26, T.5 N., R.35 E., Umatilla County, at culvert on State Highway 11, 2.6 miles south of Milton-Freewater.	1.22	1967-80	1-12-80	18.90	26
COLD SPRINGS CANYON BASIN							
14019120	NORTH FORK COLD SPRINGS CANYON TRIBUTARY AT HOLDMAN, OR	Lat 45°52'40", long 118°55'10", in NW¼NE¼ sec.34, T.5 N., R.31 E., Umatilla County, at culvert on county road, at at mouth, and 0.6 mile east of Holdman.	2.86	1967-80	1-12-80	21.17	39
JOHN DAY RIVER BASIN							
14040900	BRUIN CREEK NEAR DALE, OR	Lat 44°53'51", long 118°47'35", in SW¼ sec.6, T.8 S., R.33 E., Grant County, at culvert on Forest Service road SA-12, 12 miles southeast of Dale.	4.63	1969-80	4-29-80	12.26	43
14046400	DONNELLY CREEK TRIBU- TARY NEAR SERVICE CREEK, OR	Lat 44°46'20", long 120°00'10", in SE¼ sec.19, T.9 S., R.23 E., Wheeler County, at two culverts on State Highway 207, 1.8 miles south of Service Creek.	1.85	1964-80	3-20-80	9.43	1.9
14047470	JUNIPER CANYON TRIBU- TARY NEAR MIKKALO, OR	Lat 45°27'51", long 120°11'54", in SW¼ sec.21, T.1 S., R.21 E., Gilliam County, at culvert on Mikkalo Road, 0.1 mile upstream from mouth, and 1.7 miles east of Mikkalo.	1.94	1972-80	1-12-80	12.03	207
14048040	GORDON HOLLOW AT DEMOSS SPRINGS, OR	Lat 45°30'40", long 120°40'55", in NW¼ sec.3, T.1 S., R.17 E., Sherman County, at culvert on U.S. Highway 97 at DeMoss Springs.	8.86	1959-80	-	-	-
DESCHUTES RIVER BASIN							
14078200	LIZARD GULCH NEAR HAMPTON, OR	Lat 43°35'20", long 119°59'00", in SW¼ sec.8, T.23 S., R.23 E., Lake County, in Glass Mountain conservation area, at culvert on U.S. Highway 20, and 15.5 miles east of Hampton.	19.6	1965-80	-	-	0
14078300	CEMETERY CREEK NEAR PAULINA, OR	Lat 44°06'36", long 120°10'39", in SW¼ sec.11, T.17 S., R.21 E., Crook County, at culvert on State Highway 380, 10 miles west of Paulina.	a5.1	1968-80	5- 9-80	13.25	30
14082400	WILDCAT CREEK NEAR PRINEVILLE, OR	Lat 44°24'47", long 120°30'00", in NW¼ sec.30, T.13 S., R.19 E., Crook County, at culvert on U.S. Highway 26, 18.5 miles northeast of Prineville.	3.66	1968-80	5-22-80	-	c5.0
14095200	SAGEBRUSH CREEK TRIBUTARY NEAR GATEWAY, OR	Lat 44°45'33", long 121°02'02", in SE¼NE¼ sec.27, T.9 S., R.14 E., Jefferson County, at culvert on former U.S. Highway 97, 1 mile upstream from mouth and 11 miles north of Madras.	10.7 (revised)	1957-80	6-25-80	14.66	147
FIFTEENMILE CREEK BASIN							
14104100	RAMSEY CREEK NEAR DURFUR, OR	Lat 45°24'03", long 121°22'27", in NW¼ sec.13, T.2 S., R.11 E., Wasco County, in Mt. Hood National Forest, at culvert on Forest Service road S207, 12 miles west of Dufur.	3.87	1965-80	1-14-80	11.65	48

a Approximately.

b Maximum observed.

c Estimated.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table.

Discharge measurements at miscellaneous sites during water year 1980

[illegible]

Discharge measurements at miscellaneous sites during water year 1980--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements Date	Discharge (ft ³ /s)
Part 10 MALHEUR AND HARNEY LAKES BASIN--Continued						
Malheur Lake Outlet (Continued)	Harney Lake	SE $\frac{1}{4}$ sec.26, T.26 S., R.30 E.	a2,150	1916 \pm , 1972-76 \pm	1- 3-79	0
					2- 7-79	0
					3- 7-79	20.0
					4- 4-79	62.2
					4-18-79	66.8
					5- 3-79	140
					5-15-79	169
					6- 1-79	164
					6-12-79	152
					6-26-79	107
					8- 2-79	31.5
					9- 6-79	13.0
					10- 4-79	4.00
					11- 7-79	6.93
					12- 6-79	12.1
					1- 8-80	17.9
					2- 6-80	40.9
					3- 6-80	127
					4- 3-80	149
					4-22-80	133
					5- 8-80	152
					5-21-80	193
					6- 5-80	213
					6-26-80	173
					8- 7-80	97.7
					9- 4-80	50.2
Part 11 KLAMATH RIVER BASIN						
Munson Creek	Annie Creek	Lat 42°52'45", long 122°08'15".	-	1967-68, 1977-79	7- 2-80 9- 2-80	18.9 6.66
Annie Creek	Wood River	Lat 42°46'00", long 122°03'20".	-	1967-68, 1977-79	7- 2-80 9- 2-80	94.1 61.7
Part 14 DESCHUTES RIVER BASIN						
Deschutes River	Columbia River	SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec.20, T.21 S., R.8 E., just below Sheep Springs, 15 mi northwest of La Pine.	-	1938-49 \pm , 1950, 1952-57, 1960-79	10- 1-79 11- 2-79 12-13-79 1-24-80 3- 4-80 3-27-80 5-19-80 6-30-80 8- 6-80 9- 2-80	b775 b502 b400 b230 b309 b324 b525 b484 b603 b619
Warm Springs River	Deschutes River	NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.6, T.7 S., R.9 E.	23.7	1973	10-31-79 4-21-80 5-12-80	3.0 59.2 50.7
.....Do.....	.....do.....	SE $\frac{1}{4}$ sec.3, T.7 S., R.9 E.	-	-	10-31-79 3-10-80 4-22-80	61.0 86.0 119
.....Do.....	.....do.....	SE $\frac{1}{4}$ sec.2, T.7 S., R.10 E.	-	-	10-31-79 3- 7-80 4-22-80	102 196 245
.....Do.....	.....do.....	NW $\frac{1}{4}$ sec.18, T.7 S., R.1 $\frac{1}{2}$ E.	-	-	10-24-79 3- 3-80 5-12-80	119 211 195
Mill Creek	Warm Springs River	SW $\frac{1}{4}$ sec.16, T.8 S., R.10 E.	-	-	11- 2-79 3- 8-80 4-23-80	35.2 74.4 90.6
Warm Springs River	Deschutes River	SE $\frac{1}{4}$ sec.18, T.8 S., R.12 E.	-	-	3-11-80 6- 2-80 9-17-80	412 266 181

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements at miscellaneous sites during water year 1980--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Date	Measurements Discharge (ft ³ /s)
Part 14						
DESCHUTES RIVER BASIN--Continued						
Beaver Creek	Warm Springs River	SE $\frac{1}{4}$ sec.33, T.5 S., R.10 E.	-	-	10-24-79 3- 3-80 4-21-80	14.7 94.4 131
.....Do.....	.....do.....	NW $\frac{1}{4}$ sec.36, T.6 S., R.10 E.	-	-	10-26-79 3- 8-80 5-13-80	14.9 104 56.4
.....Do.....	.....do.....	SE $\frac{1}{4}$ sec.6, T.7 S., R.11 E.	-	-	10-29-79 3- 7-80 5-13-80	38.8 160 89.3
.....Do.....	.....do.....	SE $\frac{1}{4}$ sec.18, T.8 S., R.12 E.	-	-	3-11-80 5-22-80	190 74.6
Warm Springs River	Deschutes River	NE $\frac{1}{4}$ sec.19, T.8 S., R.13 E.	-	-	10-25-79 3- 6-80 6- 6-80	276 720 321
.....Do.....	.....do.....	NE $\frac{1}{4}$ sec.20, T.8 S., R.14 E.	-	-	11- 1-79 3-10-80 6- 4-80	256 760 338

Operated as a continuous record gaging station.

a Approximately.

b Base flow from intervening springs can be obtained by subtracting flow of Deschutes River below Crane Prairie Reservoir.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

POWDER RIVER BASIN

445739118135200 - ANTHONY LAKE, OREG. (LAT 44 57 39 LONG 118 13 52)

DATE	TIME	TEMPER- ATURE, WATER (DEG C)	PH FIELD (UNITS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	SILICA, DIS- SOLVED (MG/L AS SiO2)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CaCO3)
JUL 17...	1030	12.0	6.5	12	3.9	1.3	.1	.7	.4	8
DATE		SULFATE DIS- SOLVED (MG/L AS SO4)	CHLOR- IDE, DIS- SOLVED (MG/L AS CL)	FLUOR- IDE, DIS- SOLVED (MG/L AS F)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)
JUL 17...		.8	.0	.1	.50	.01	.57	.010	.00	.58
DATE		PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED (MG/L AS C)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CaCO3)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	TUR- BID- ITY (NTU)
JUL 17...		.010	.030	1.5	.2	4	0	12	12	.70

ANALYSES OF WETFALL SAMPLES COLLECTED AT ATMOSPHERIC DEPOSITION SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

441730121301500 - PRECIPITATION AT SISTERS-KALLIO

DATE	SILICA, DIS- SOLVED (MG/L AS SI02)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SULFATE DISSOLV (UG/L)	CHLO- RIDE DISSOLV (UG/L)	FLUO- RIDE DISSOLV (UG/L)	BROMIDE DISSOLV (UG/L)	NITRO- GEN NITRATE DISSOLV (UG/L)	PHOS- PHORUS DISSOLV (UG/L)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)
SEP 11-12	.040	.200	<.004	<.2	300	100	90	<50	10	<10	<2	<1

DATE	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	LITHIUM DIS- SOLVED (UG/L AS LI)
SEP 11-12	<1	<3	<10	<10	14	6	20	<1	<6.0	5	<4

452017118515700 - PRECIPITATION AT LAGRANDE-EICKER

DATE	PRECIP- ITATION DAILY (IN)	PH FIELD (UNITS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	SILICA, DIS- SOLVED (MG/L AS SI02)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SULFATE DISSOLV (UG/L)	CHLO- RIDE DISSOLV (UG/L)
JUN 12-12	--	4.0	44	--	--	--	--	--	--
SEP 12-13	.68	5.3	5	<.010	.070	<.004	<.2	700	300
18...	.17	5.0	14	<.010	.300	<.004	<.2	900	350
20...	.13	5.1	8	.030	.800	<.004	<.2	700	400

DATE	FLUO- RIDE DISSOLV (UG/L)	BROMIDE DISSOLV (UG/L)	NITRO- GEN NITRATE DISSOLV (UG/L)	PHOS- PHORUS DISSOLV (UG/L)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)
JUN 12-12	--	--	--	--	--	--	--	--	--
SEP 12-13	210	<50	120	<10	<2	<1	<1	<3	<10
18...	160	<50	170	<10	<2	<1	<1	<3	<10
20...	120	<50	210	<10	<2	<1	<1	<3	<10

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	LITHIUM DIS- SOLVED (UG/L AS LI)
JUN 12-12	--	--	--	--	--	--	--	--
SEP 12-13	<10	<10	2	<10	<1	<6.0	<3	<4
18...	<10	<10	2	<10	<1	<6.0	9	<4A
20...	31	<10	1	<10	<1	<6.0	--	<4

ANALYSES OF WETFALL SAMPLES COLLECTED AT ATMOSPHERIC DEPOSITION SITES

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WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

454047118445600 - PRECIPITATION AT PENDLETON-MARSHALL

DATE	PRECIP- ITATION DAILY (IN)	PH FIELD (UNITS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	SILICA, DIS- SOLVED (MG/L AS SiO2)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SULFATE DISSOLV (UG/L)	CHLO- RIDE DISSOLV (UG/L)
JUN									
12...	.23	4.0	44	.100	.600	<.040	<.2	5000	1000
13-14	.26	4.4	21	<.010	.100	<.004	<.2	2000	<10
JUL									
08-09	.36	5.3	11	--	.500	<.040	<.2	900	400

DATE	FLUO- RIDE DISSOLV (UG/L)	BROMIDE DISSOLV (UG/L)	NITRO- GEN NITRATE DISSOLV (UG/L)	PHOS- PHORUS DISSOLV (UG/L)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)
JUN									
12...	<10	<50	1000	<100	<2	<1	1	<3	<10
13-14	<10	<50	<10	<100	<2	<1	<1	<3	<10
JUL									
08-09	40	<100	300	<100	8	<1	1	<3	<10

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)	LITHIUM DIS- SOLVED (UG/L AS LI)
JUN								
12...	21	<10	5	<10	1	<10	12	<4
13-14	<10	<10	2	18	<1	<6.0	6	<4
JUL								
08-09	34	14	14	20	2	<3.0	9	<4

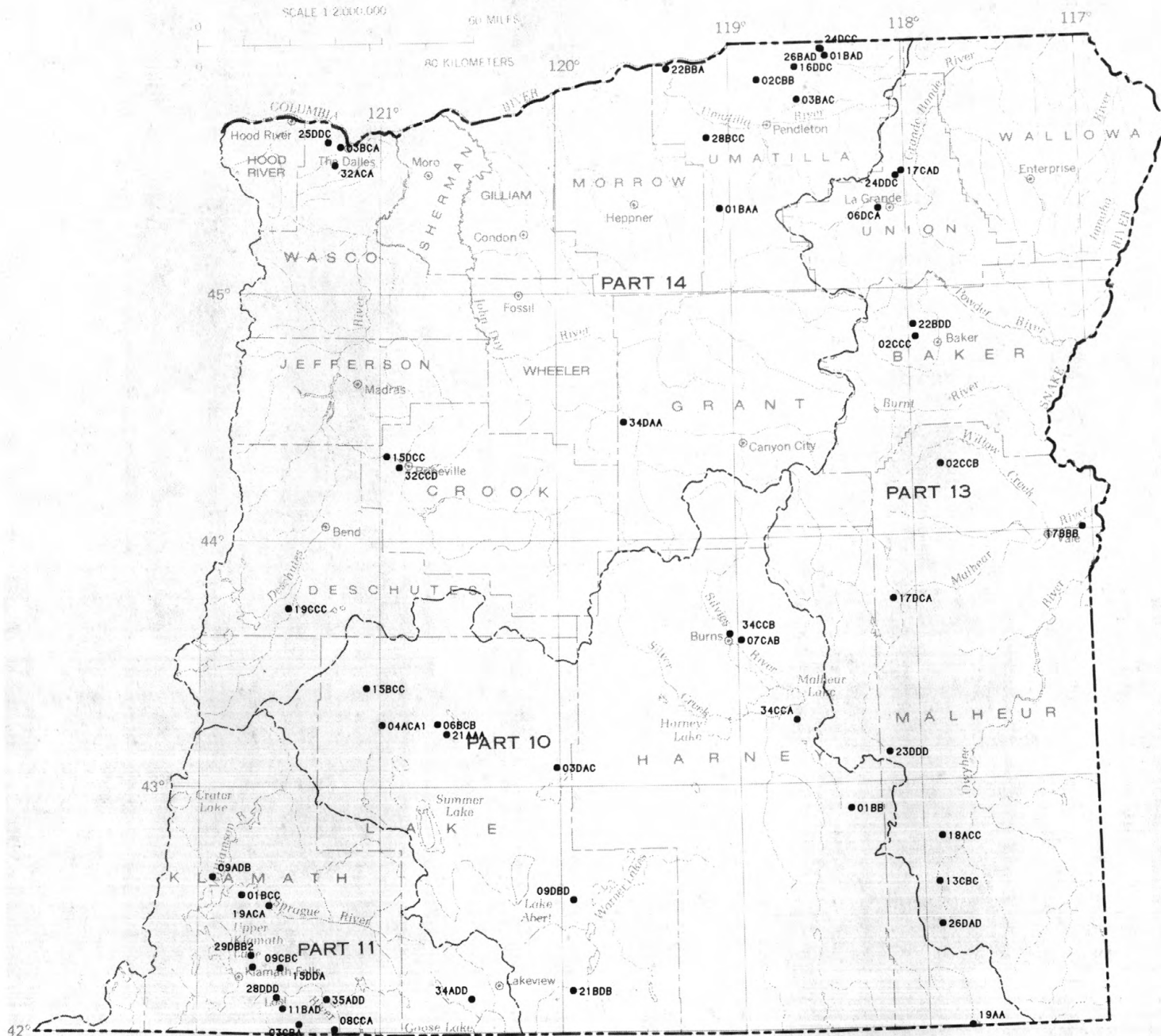


Figure 5. -- Map of Eastern Oregon showing location of observation wells

BAKER COUNTY

445116117551601. Local number 8S/39E-2BDD.

LOCATION.--Lat 44°51'16", long 117°55'16", Hydrologic Unit 17050203.

Owner: Baker County

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Dug observation well, size 18x18 in (460 x 460 mm), depth 11 ft (3.4 m) cribbed with wood to 9 ft (2.7 m), perforated 12-in (300 mm) steel casing 7-11 ft (2-3 m).

DATUM.--Land surface datum is 3,385.78 ft (1,031.99 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of 1½-in (30 mm) pipe, 0.50 ft (0.15 m) above datum.

PERIOD OF RECORD.--1936, 1938 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.52 ft (0.46 m) below datum, Feb. 22, 1973; lowest measured, 9.87 ft (3.01 m) below datum, Sept. 29, 1939.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 8	5.68	FEB 15	4.49	MAY 13	3.85	AUG 8	4.93

444813117543401. Local number 9S/39E-2CCC.

LOCATION.--Lat 44°48'13", long 117°54'34", Hydrologic Unit 17050203.

Owner: Warren Spencer. Formerly Kermit Hansen.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled unused well, diam 12 in (300 mm), depth 321 ft (98 m) perforated 0-321 ft (0-98 m).

DATUM.--Altitude of land surface datum is about 3,410 ft (1,039 m). Measuring point: Top of casing, 0.30 ft (0.09 m) above datum.

PERIOD OF RECORD.--1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.37 ft (0.42 m) below datum, Feb. 17, 1965; lowest measured, 13.95 ft (4.25 m) below datum, Jan. 20, 1955.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 8	11.11	FEB 15	10.32	MAY 13	3.39	AUG 8	7.41

CROOK COUNTY

442100120541701. Local number 14S/15E-15DCC.

LOCATION.--Lat 44°12'00", long 120°54'48", Hydrologic Unit 17070305.

Owner: Evert Hibbits. Formerly Williams.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled domestic and stock well, diam 4 in (100 mm), depth 210 ft (64 m).

DATUM.--Land surface datum is 2,846.8 ft (867.7 m) National Geodetic Vertical Datum of 1929. Measuring point: Center of pressure gage, 6.50 ft (1.98 m) above datum.

REMARKS.--No measurements in 1980.

PERIOD OF RECORD.--1944 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 75.5 ft (23.0 m) above datum, Mar. 12, 1964; lowest measured, 34.5 ft (10.5 m) above datum, May 13, 1977.

441819120503301. Local number 14S/16E-32CCD.

LOCATION.--Lat 44°18'19", long 120°50'33", Hydrologic Unit 17070305.

Owner: Olen Ford.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled unused artesian well, diam 5 in (130 mm), depth 160 ft (49 m).

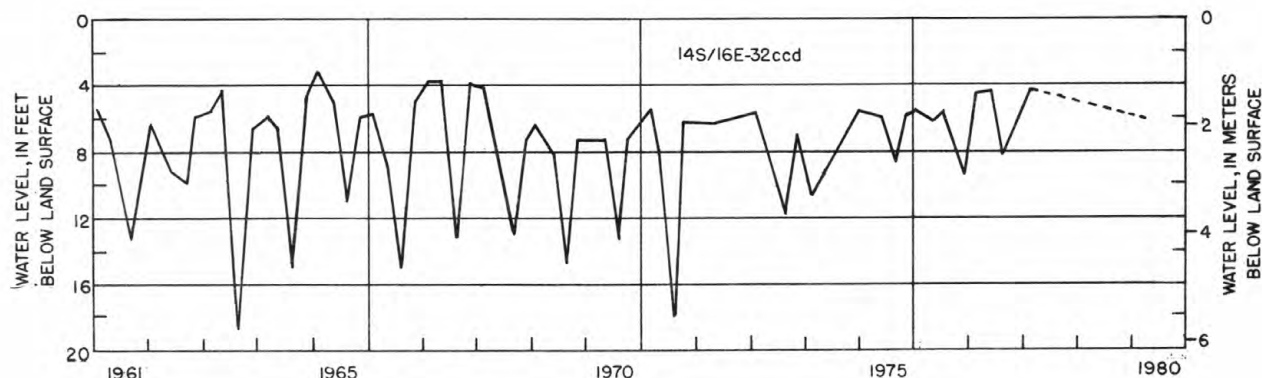
DATUM.--Land surface datum is 2,865.90 ft (873.53 m) National Geodetic Vertical Datum of 1929. Measuring point: Hole in casing, 1.70 ft (0.52 m) above datum.

PERIOD OF RECORD.--1944 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.82 ft (0.56 m) above datum, Dec. 8, 1945; lowest measured, 21.36 ft (6.51 m) below datum, Aug. 8, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 4	6.15	-	-	-	-	-	-



GROUND-WATER LEVELS

DESCHUTES COUNTY

434400121275001. Local number 21S/11E-19CCC.

LOCATION.--Lat 43°44'01", long 121°27'57", Hydrologic Unit 17070302.

Owner: Randy Kellems. Formerly Inez Kellems.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Dug domestic and stock well, diam 6 in (150 mm), depth 100 ft (30 m), cased to 70 ft (21 m).

DATUM.--Altitude of land surface datum is about 4,220 ft (1,286 m). Measuring point: Top of casing, 0.20 ft (0.06 m) above datum.

PERIOD OF RECORD.--1945, 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.90 ft (3.32 m) below datum, Aug. 14, 1956; lowest measured, 41.63 ft (12.69 m) below datum Oct. 23, 1964.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 17	41.05	-	-	-	-	-	-

GRANT COUNTY

442845119343001. Local number 12S/26E-34DAA.

LOCATION.--Lat 44°28'59", long 119°34'25", Hydrologic Unit 17070201.

Owner: Dayville Cemetery.

AQUIFER.--Tuffaceous sand and gravel.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 6 in (150 mm), depth 477 ft (145 m), cased to 222 ft (68 m), perforated 177-222 ft (54-68 m).

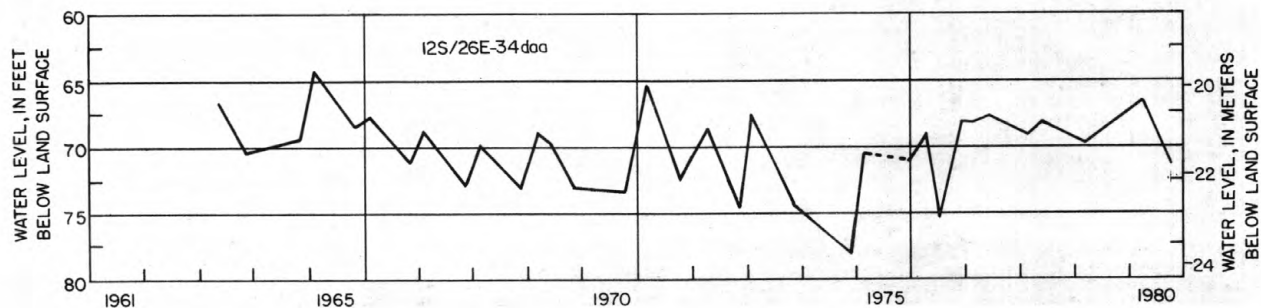
DATUM.--Altitude of land surface datum is about 2,340 ft (713 m). Measuring point: Top hole in casing seal 1.50 ft (0.5 m) below datum.

PERIOD OF RECORD.--1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 64.33 ft (19.61 m) below datum, Feb. 19, 1965; lowest measured, 78.14 ft (23.82 m) below datum, Nov. 15, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 3	66.59	-	-	-	-	-	-



GROUND-WATER LEVELS

229

HARNEY COUNTY

43370118595401. Local number 22S/31E-34CCB.

LOCATION.--Lat 43°37'01", long 118°59'54", Hydrologic Unit 17120001.

Owner: Jay Hoyt.

AQUIFER.--Volcanic or sedimentary rock.

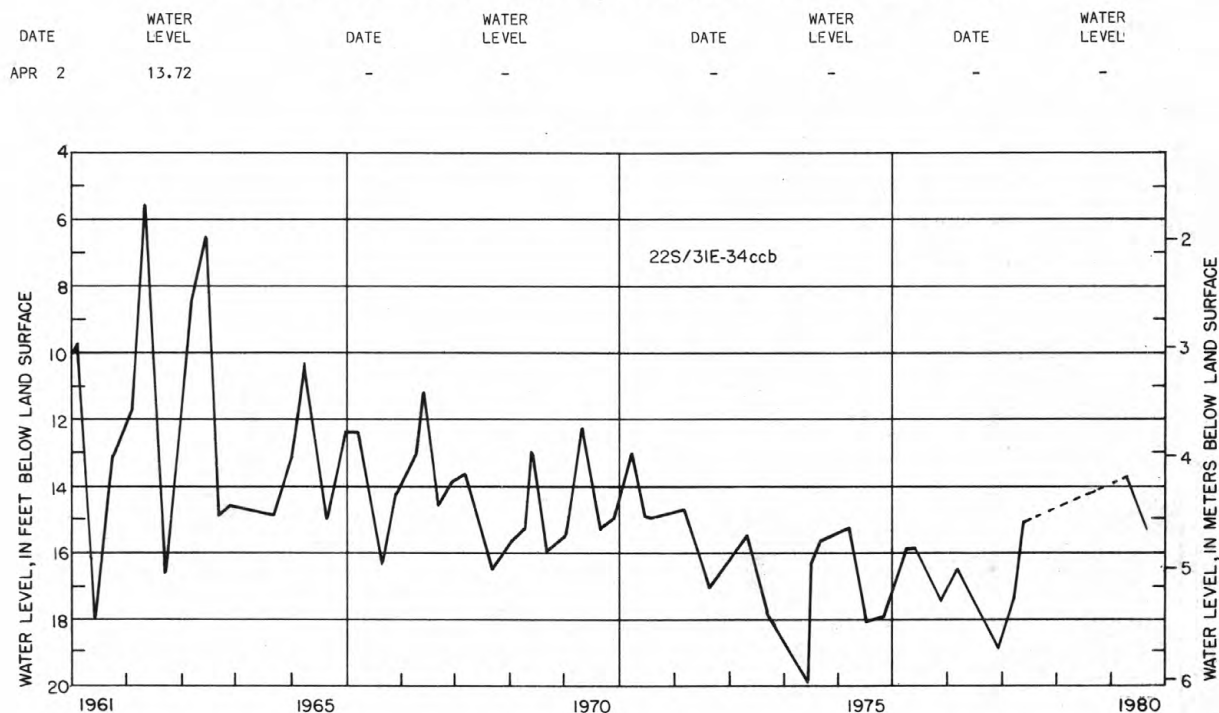
WELL CHARACTERISTICS.--Drilled stock well, diam 18 to 8 in (460 to 200 mm), depth 288 ft (88 m), cased to 68 ft (21 m).

DATUM.--Land surface datum is 4,153.17 ft (1,265.89 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of well cover, 1.00 ft (0.30 m) above datum.

PERIOD OF RECORD.--1936 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.50 ft (0.46 m) below datum, Apr. 21, 1936; lowest measured, 19.82 ft (6.04 m) below datum, June 6, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980



433527118560502. Local number 23S/32E-7CAB.

LOCATION.--Lat 43°35'27", long 118°56'05", Hydrologic Unit 17120001.

Owner: Emmett Ray. Formerly Dorland Ray.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 18 in (460 mm), depth 93 ft (28 m), cased to 60 ft (18 m).

DATUM.--Land surface datum is 4,135.24 ft (1,260.42 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.36 ft (0.11 m) below datum.

PERIOD OF RECORD.--1928 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.07 ft (0.63 m) below datum, May 19, 1965; lowest measured, 38.37 ft (11.70 m) below datum, July 30, 1931.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 3	5.26	-	-	-	-	-	-

GROUND-WATER LEVELS

HARNEY COUNTY--Continued

431551118381001. Local number 26S/33E-34CCA.

LOCATION.--Lat 43°15'51", long 118°38'10", Hydrologic Unit 17120001.

Owner: Davis Farms.

AQUIFER.--Cinders.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 14 in (350 mm), depth 81 ft (25 m), cased to 30 ft (9 m).

DATUM.--Altitude of land surface datum is 4,120 ft (1,256 m). Measuring point: Top of casing, 0.50 ft (0.15 m) above datum.

PERIOD OF RECORD.--1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.10 ft (5.82 m) below datum, Mar. 23, 1978; lowest measured, 22.10 ft (6.74 m) below datum, Mar. 9, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 25	21.06	SEP 17	21.06	-	-	-	-

425400118205001. Local number 31S/35E-18B.

LOCATION.--Lat 42°54'00", long 118°20'50", Hydrologic Unit 17120009.

Owner: Fred Pallock.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled domestic well, diam 8 in (200 mm), depth 32 ft (10 m).

DATUM.--Altitude of land surface datum is 4,270 ft (1,302 m). Measuring point: Top of casing, 0.50 ft (0.15 m) above datum.

PERIOD OF RECORD.--1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.35 ft (0.72 m) below datum, Aug. 20, 1975; lowest measured, 18.12 ft (5.52 m) below datum, Nov. 20, 1963, May 21, 1964.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 2	5.16	-	-	-	-	-	-

KLAMATH COUNTY

423832121524801. Local number 34S/7E-9ADB.

LOCATION.--Lat 42°38'32", long 121°52'48", Hydrologic Unit 18010201.

Owner: State of Oregon.

AQUIFER.--Basalt.

WELL CHARACTERISTICS.--Drilled domestic well, diam 6 in (150 mm), depth 221 ft (67 m), cased to 43 ft (13 m).

DATUM.--Altitude of land surface datum is 4,220 ft (1,286 m). Measuring point: Bolt above top of casing, 4.86 ft (1.48 m) below datum.

REMARKS.--No measurements in 1980.

PERIOD OF RECORD.--1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.49 ft (5.64 m) below datum, Jan. 31, 1975; lowest measured, 26.87 ft (8.19 m) below datum, Apr. 30, 1976.

GROUND-WATER LEVELS

231

KLAMATH COUNTY--Continued

423408121430901. Local number 35S/8E-1BCC.

LOCATION.--Lat 42°34'08", long 121°43'09", Hydrologic Unit 18010202.

Owner: H. G. Wolff.

WELL CHARACTERISTICS.--Drilled domestic well, diam 6 in (150 mm), depth 102 ft (31 m).

DATUM.--Altitude of land surface datum is 4,305 ft (1,312 m). Measuring point: top of casing 0.50 ft (0.15 m) above datum.

PERIOD OF RECORD.--1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.45 ft (0.44 m) below datum, Apr. 8, 1956; lowest measured, 17.00 ft (5.18 m) below datum, July 27, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	11.61	MAR 19	3.64	-	-	-	-

423131121340801. Local number 35S/10E-19ACA.

LOCATION.--Lat 42°31'31", long 121°34'08", Hydrologic Unit 18010202.

Owner: Wolfe Butte Ranch.

AQUIFER.--Volcanic rock.

WELL CHARACTERISTICS.--Drilled domestic well, diam, 6 in (150 mm), depth 360 ft (110 m), cased to 70 ft (21 m).

DATUM.--Altitude of land surface datum is 4,300 ft (1,311 m). Measuring point: Top of casing, 0.50 ft (0.15 m), above datum.

PERIOD OF RECORD.--1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.98 ft (2.13 m) below datum, Apr. 18, 1956; lowest measured, 40.72 ft (12.41 m) below datum, July 24, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	22.96	MAR 19	9.33	-	-	-	-

421920121400001. Local number 37S/10E-29DBB2.

LOCATION.--Lat 42°19'20", long 121°40'00", Hydrologic Unit 18010204.

Owner: Edgewood Ranch.

AQUIFER.--Gravel.

WELL CHARACTERISTICS.--Drilled stock well, diam 18 in (460 mm), depth 800 ft (244 m), cased to 20 ft (6.1 m).

DATUM.--Altitude of land surface datum is 4,186 ft (1,276 m). Measuring point: Top of casing, at datum.

PERIOD OF RECORD.--1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.78 ft (6.33 m) below datum, Apr. 17, 1958; lowest measured, 31.97 ft (9.74 m) below datum, Oct. 20, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	31.93	MAR 19	29.01	-	-	-	-

421630121392701. Local number 38S/10E-9CBC.

LOCATION.--Lat 42°16'30", long 121°39'27", Hydrologic Unit 18010204.

Owner: Underwood Ranch.

AQUIFER.--Basalt.

WELL CHARACTERISTICS.--Drilled stock well, diam 6 in (150 mm), depth 135 ft (41 m), cased to 25 ft (8 m).

DATUM.--Altitude of land surface datum is 4,210 ft (1,283 m). Measuring point: top of casing, 0.70 ft (0.21 m) above datum.

PERIOD OF RECORD.--1949-1972, 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.55 ft (32.78 m) below datum Apr. 17, 1958; lowest measured, 121.71 ft (37.10 m) below datum, July 28, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	118.84	MAR 19	111.74	-	-	-	-

KLAMATH COUNTY--Continued

421612121302501. Local number 38S/11E-150DA.

LOCATION.--Lat 42°16'12", long 121°30'25", Hydrologic Unit 18010204.

Owner: George McCollum.

AQUIFER.--Lava rock and clinders.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 12 in (300 mm), depth 495 ft (151 m).

DATUM.--Altitude of land surface datum is 4,185 ft (1,276 m). Measuring point: Airline hole in pumpbase, 1.05 ft (0.32 m) above datum.

PERIOD OF RECORD.--1948, 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 71.26 ft (21.72 m) below datum, Apr. 24, 1975; lowest measured, 82.20 ft (25.05 m) below datum, Oct. 3, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	82.20	MAR 19	80.63	-	-	-	-

420908121313701. Local number 39S/11E-28DDD.

LOCATION.--Lat 42°09'08", long 121°31'37", Hydrologic Unit 18010204.

Owner: Lost River Ranch.

AQUIFER.--Diatomite.

WELL CHARACTERISTICS.--Drilled domestic and stock well, diam 6 in (150 mm), depth 460 ft (140 m), cased to 60 ft (18 m).

DATUM.--Altitude of land surface datum is 4,105 ft (1,251 m). Measuring point: Top south side of concrete curb, 0.30 ft (0.09 m) above datum.

PERIOD OF RECORD.--1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.50 ft (1.98 m) below datum, Aug. 25, 1955; lowest measured, 37.16 ft (11.33 m) below datum, July 24, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 20	12.83	-	-	-	-	-	-

420845121150601. Local number 39S/12E-35ADD.

LOCATION.--Lat 42°08'45", long 121°15'06", Hydrologic Unit 18010204.

Owner: Quentin Steele.

AQUIFER.--Basalt.

WELL CHARACTERISTICS.--Drilled domestic and stock well, diam 6 in (150 mm), depth 360 ft (110 m).

DATUM.--Altitude of land surface datum is 4,180 ft (1,274 m). Measuring point: Top of casing at datum.

PERIOD OF RECORD.--1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 33.26 ft (10.14 m) below datum, Aug. 5, 1958; lowest measured, 43.42 ft (13.23 m) below datum, May 2, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	37.86	MAR 19	39.78	-	-	-	-

420623121293601. Local number 40S/11E-11BAD.

LOCATION.--Lat 42°06'23", long 121°29'36", Hydrologic Unit 18010204.

Owner: A. W. Shaupp.

AQUIFER.--Basalt.

WELL CHARACTERISTICS.--Drilled irrigation and stock well, diam 12 in (300 mm), depth 992 ft (302 m).

DATUM.--Altitude of land surface datum is 4,150 ft (1,265 m). Measuring point: Top of 1/4-in (6 mm) hole in pumpbase flange, 0.60 ft (0.18 m) above datum.

PERIOD OF RECORD.--1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.38 ft (2.55 m) below datum, Apr. 7, 1956; lowest measured, 28.83 ft (8.79 m) below datum, July 22, 1964.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	21.80	MAR 20	19.47	-	-	-	-

GROUND-WATER LEVELS

233

KLAMATH COUNTY--Continued

420232121241201. Local number 41S/12E-3CBA.

LOCATION.--Lat 42°02'32", long 121°24'12", Hydrologic Unit 18010204.

Owner: Al Prescott.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled domestic well, diam 4 in (100 mm), depth 76 ft (23 m).

DATUM.--Altitude of land surface datum is 4,110 ft (1,253 m). Measuring point: Top of casing, 0.30 ft (0.09 m) above datum.

PERIOD OF RECORD.--1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.75 ft (0.23 m) below datum, Feb. 18, 1955; lowest measured, 4.56 ft (1.39 m) below datum, July 24, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	3.06	MAR 20	3.64	-	-	-	-

420124121122801. Local number 41S/14E-8CCA.

LOCATION.--Lat 42°01'24", long 121°12'28", Hydrologic Unit 18010204.

Owner: Charles Kilgore.

AQUIFER.--Basalt fragments.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 16 to 12 in (410 to 300 mm), depth 210 ft (64 m), cased to 8 ft (2 m).

DATUM.--Altitude of land surface datum is 4,160 ft (1,268 m). Measuring point: Hole in pumpbase, 1.00 ft (0.30 m) above datum.

PERIOD OF RECORD.--1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.84 ft (4.52 m) below datum, Jan. 28, 1965; lowest measured, 21.12 ft (6.44 m) below datum, Apr. 25, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	a	MAR 19	16.25	-	-	-	-

a Well being pumped.

LAKE COUNTY

432435121015001. Local number 25S/14E-15BCC.

LOCATION.--Lat 43°24'35", long 121°01'50", Hydrologic Unit 17120005.

Owner: Surcomp. Formerly Al Soto.

AQUIFER.--Basalt.

WELL CHARACTERISTICS.--Drilled unused well, diam 18 in (460 mm), depth 220 ft (67 m).

DATUM.--Altitude of land surface datum is about 4,350 ft (1,326 m). Measuring point: Top of casing, at datum.

PERIOD OF RECORD.--1932, 1935-36, 1938 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.88 ft (12.46 m) below datum, Oct 7, 1974; lowest measured, 52.88 ft (16.18 m) below datum, Oct. 22, 1948.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUN 30	a49.16	-	-	-	-	-	-

a Well being pumped.

431536120563901. Local number 27S/15E-4ACA1.

LOCATION.--Lat 43°15'36", long 120°56'39", Hydrologic Unit 17120005.

Owner: M. Y. Parks.

AQUIFER.--Basaltic fragments.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 16 in (410 mm), depth 257 ft (78 m), cased to 14 ft (4 m).

DATUM.--Altitude of land surface datum is about 4,335 ft (1,321 m). Measuring point: Top of pumpbase flange, 2.00 ft (0.61 m) above datum.

PERIOD OF RECORD.--1932, 1935-36, 1938 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.30 ft (10.76 m) below datum, May 15, 1975; lowest measured, 39.64 ft (12.08 m) below datum, July 2, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUL 2	39.64	-	-	-	-	-	-

GROUND-WATER LEVELS

LAKE COUNTY--Continued

431547120380201. Local number 27S/18E-6BCB.

LOCATION.--Lat 43°15'47", long 120°38'02", Hydrologic Unit 17120005.

Owner: Rose T. Morici.

AQUIFER.--Sand.

WELL CHARACTERISTICS.--Drilled unused well, diam 8 in (200 mm), depth 83 ft (25 m), cased to 10 ft (3 m).

DATUM.--Altitude of land surface datum is about 4,317 ft (1,316 m). Measuring point: Top of casing, 0.50 ft (0.15 m) above datum.

PERIOD OF RECORD.--1940 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.94 ft (4.86 m) below datum, Oct. 8, 1974; lowest measured, 25.19 ft (7.68 m) below datum, Apr. 1, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	17.68	JUL 1	17.33	-	-	-	-

431320120350001. Local number 27S/18E-21AAA.

LOCATION.--Lat 43°13'20", long 120°35'00", Hydrologic Unit 17120005.

Owner: Chewaucan Land & Cattle Co.

AQUIFER.--Basalt (?).

WELL CHARACTERISTICS.--Drilled abandoned oil-test well, diam 6½ in (165 mm), depth 635 ft (193 m).

DATUM.--Altitude of land surface datum is about 4,330 ft (1,320 m). Measuring point: Top of casing, at datum.

PERIOD OF RECORD.--1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.41 ft (8.05 m) below datum, Apr. 5, 1967; lowest measured, 28.78 ft (8.77 m) below datum, July 1, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JUL 1	28.78	-	-	-	-	-	-

430508119582001. Local number 29S/23E-3DAC.

LOCATION.--Lat 43°05'08", long 119°58'20", Hydrologic Unit 17120005.

Owner: U.S. Soil Conservation Service

AQUIFER.--Basalt (?).

WELL CHARACTERISTICS.--Drilled stock well, diam 8 in (200 mm), depth 177 ft (54 m).

DATUM.--Altitude of land surface datum is about 4,225 ft (1,288 m). Measuring point: Top of casing collar, at datum.

PERIOD OF RECORD.--1945, 1947 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.42 ft (4.395 m) below datum, July 27, 1965; lowest measured, 19.62 ft (5.97 m) below datum, Apr. 23, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	18.00	MAR 18	18.02	-	-	-	-

423250119531501. Local number 35S/24E-9DBD.

LOCATION.--Lat 42°32'45", long 119°53'22", Hydrologic Unit 17120007.

Owner: U.S. Bureau of Land Management.

AQUIFER.--Basalt.

WELL CHARACTERISTICS.--Drilled well, diam 8 in (200 mm), depth 376 ft (115 m), cased to 22 ft (8 m).

DATUM.--Altitude of land surface datum is 4,470 ft (1,362 m).

REMARKS.--Hogback well on Rabbit Hills SW quadrangle map.

PERIOD OF RECORD.--1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.17 ft (2.19 m) below datum, Feb. 1, 1966; lowest measured, 11.15 ft (3.40 m) below datum, July 31, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	9.72	MAR 18	8.49	-	-	-	-

GROUND-WATER LEVELS

235

LAKE COUNTY--Continued

420842120271301. Local number 39S/19E-34ADA.

LOCATION.--Lat 42°08'42", long 120°27'13", Hydrologic Unit 18020001.

Owner: Daryl Jamison.

WELL CHARACTERISTICS.--Drilled domestic and stock well, diam 6 in (150 mm), depth 110 ft (34 m), cased to 110 ft (34 m).

DATUM.--Altitude of land surface datum is 4,792 ft (1,461 m). Measuring point: Top of vent pipe, 2.00 ft (0.61 m) above datum.

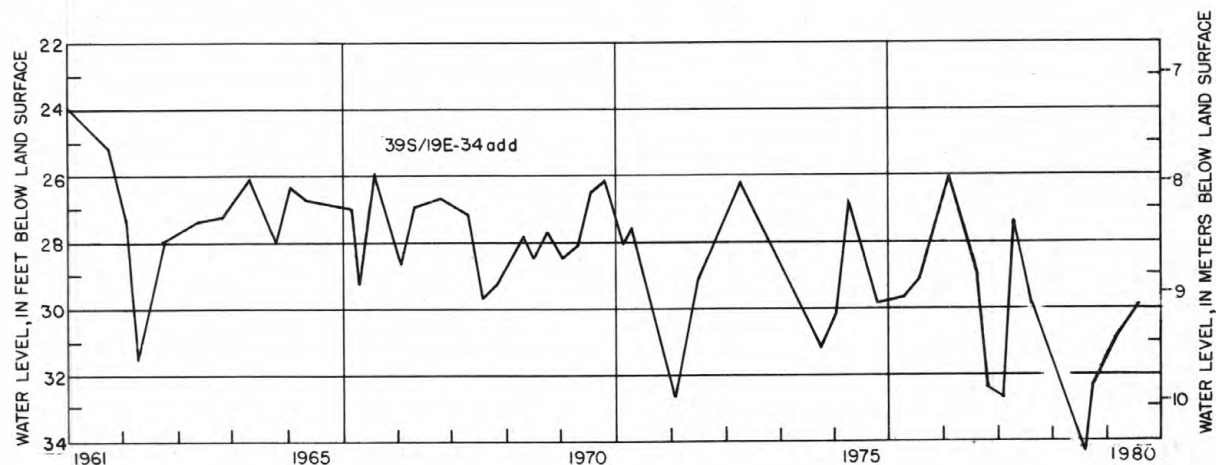
PERIOD OF RECORD.--1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.78 ft (7.25 m) below datum, Oct. 13, 1960; lowest measured, 32.21 ft (9.82 m) below datum, Oct. 2, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	32.21b	MAR 19	30.82	-	-	-	-

b May be affected by recent pumping.



421032119535802. Local number 39S/24E-21BDB.

LOCATION.--Lat 42°10'34", long 119°53'48", Hydrologic Unit 17120007.

Owner: E.G. & T.M. Sanford

AQUIFER.--Gravel.

WELL CHARACTERISTICS.--Drilled domestic well, diam 6 in (150 mm), depth 165 ft (50 m).

DATUM.--Altitude of land surface datum is about 4,580 ft (1,396 m). Measuring point: Top of casing, 0.50 ft (0.15 m) above datum.

PERIOD OF RECORD.--1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.00 ft (2.74 m) below datum, July 23, 1974; lowest measured, 19.34 ft (5.90 m) below datum, Jan. 15, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	19.13	MAR 18	18.78	-	-	-	-

GROUND-WATER LEVELS

MALHEUR COUNTY

441710117472301. Local number 15S/40E-2CCB.

LOCATION.--Lat 44°17'11", long 117°47'22", Hydrologic Unit 17050119.

Owner: Rankin Crow.

AQUIFER.--Gravel.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 10 in (250 mm), depth 310 ft (94 m), cased to 170 ft (52 m).

DATUM.--Altitude of land surface datum is about 3,898.3 ft (1,188.2 m). Measuring point: 1.00 ft (0.30 m) above datum.

PERIOD OF RECORD.--1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.06 ft (9.47 m) below datum, Mar. 18, 1951; lowest measured, 58.37 ft (17.79 m) below datum, Oct. 24, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	58.37	MAR 14	55.17	-	-	-	-

440007117000401. Local number 18S/47E-17BBB.

LOCATION.--Lat 44°00'36", long 117°00'13", Hydrologic Unit 17050115.

Owner: Earl Weaver.

WELL CHARACTERISTICS.--Drilled domestic well, diam 3 in (80 mm), depth 135 ft (41 m), cased to 135 ft (41 m).

DATUM.--Altitude of land surface datum is about 2,180 ft (664 m). Measuring point: Top of casing, 0.95 ft (0.29 m) above datum.

PERIOD OF RECORD.--1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.91 ft (2.11 m) below datum, Sept. 9, 1952; lowest measured, 15.15 ft (4.62 m) below datum, Aug. 31, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 1	11.20	-	-	-	-	-	-

434450118044001. Local number 21S/38E-17DCA.

LOCATION.--Lat 43°44'50", long 118°04'40", Hydrologic Unit 17050116.

Owner: Walter Bodkin.

AQUIFER.--Gravel.

WELL CHARACTERISTICS.--Dug stock well, diam 12 in (300 mm), depth 14 ft (4.2 m), cribbed to bottom.

DATUM.--Altitude of land surface datum is about 2,960 ft (902 m). Measuring point: At land surface datum.

PERIOD OF RECORD.--1945-56, 1958 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.07 ft (0.94 m) below datum, June 23, 1952; lowest measured, 11.33 ft (3.45 m) below datum, Feb. 28, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 31	3.81	-	-	-	-	-	-

430730118073001. Local number 28S/37E-23DDD.

LOCATION.--Lat 43°07'30", long 118°07'30", Hydrologic Unit 17050110.

Owner: Earl Obenchain.

AQUIFER.--Gravel.

WELL CHARACTERISTICS.--Dug domestic well, diam 4 ft (1.2 m), depth 30 ft (9 m), cribbed with rock to bottom.

DATUM.--Altitude of land surface datum is about 4,060 ft (1,240 m). Measuring point: Top of south side of concrete casing, 1.85 ft (0.56 m) above datum.

PERIOD OF RECORD.--1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.95 ft (0.59 m) below datum, Mar 8, 1967; lowest measured, 18.40 ft (5.61 m) below datum, Jan. 22, 1955.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 25	3.86	JUN 23	5.15	SEP 16	8.35	-	-

MALHEUR COUNTY--Continued

424639117510501. Local number 32S/40E-18ACC.

LOCATION.--Lat 42°46'38", long 117°51'03", Hydrologic Unit 17050109.

Owner: Clarence J. Eckstein.

AQUIFER.--Volcanic rock.

WELL CHARACTERISTICS.--Drilled domestic and public-supply well, diam 6 in (150 mm), depth 358 ft (109 m), cased to 160 ft (49 m).

DATUM.--Altitude of land surface datum is about 3,930 ft (1,200 m). Measuring point: Hole in top of casing, 0.70 ft (0.21 m) above datum.

PERIOD OF RECORD.--1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 234.21 ft (71.39 m) below datum, Mar. 1, 1977; lowest measured, 243.89 ft (74.34 m) below datum, June 4, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 1	234.73	-	-	-	-	-	-

423527117522501. Local number 34S/39E-13CBC.

LOCATION.--Lat 42°35'27", long 117°52'25", Hydrologic Unit 17050109.

Owner: Civil Aeronautics Administration.

AQUIFER.--Basalt (?).

WELL CHARACTERISTICS.--Drilled observation well, diam 10 in (250 mm), depth 246 ft (75 m).

DATUM.--Altitude of land surface datum is 4,050 ft (1,234 m). Measuring point: Top of casing, at datum.

PERIOD OF RECORD.--1954-56, 1958 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 193.53 ft (58.99 m) below datum, Aug. 19, 1975; lowest measured, 207.20 ft (63.15 m) below datum, Sept. 13, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 1	194.27	-	-	-	-	-	-

422504117515501. Local number 36S/41E-26DAD.

LOCATION.--Lat 42°25'04", long 117°51'55", Hydrologic Unit 17050109.

Owner: U.S. Bureau of Land Management.

AQUIFER.--Basalt (?).

WELL CHARACTERISTICS.--Drilled unused well, diam 8 in (200 mm), depth 222 ft (68 m).

DATUM.--Altitude of land surface datum is 4,200 ft (1,280 m). Measuring point: Top of casing, 1.00 ft (0.30 m) above datum.

PERIOD OF RECORD.--1961 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 194.07 ft (59.15 m) below datum, May 2, 1962; lowest measured, 219.12 ft (66.79 m) below datum, Nov. 16, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 1	209.70	-	-	-	-	-	-

420010117431001. Local number 41S/43E-19AA.

LOCATION.--Lat 42°00'10", long 117°43'10", Hydrologic Unit 16040201.

Owner: Victor Albisu.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled domestic well, diam 6 in (150 mm), depth 98 ft (30 m).

DATUM.--Altitude of land surface datum is 4,420 ft (1,347 m). Measuring point: Top of casing, 5.35 ft (1.63 m) below datum.

PERIOD OF RECORD.--1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.23 ft (3.73 m) below datum, Sept. 19, 1972; lowest measured, 32.11 ft (9.79 m) below datum, Aug. 23, 1966.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
APR 1	14.45	-	-	-	-	-	-

GROUND-WATER LEVELS

UMATILLA COUNTY

453736119043401. Local number 2N/30E-28BDC.

LOCATION.--Lat 45°37'36", long 119°04'34", Hydrologic Unit 17070103.

Owner: Cunningham Sheep Co.

AQUIFER.--Columbia River Basalt Group.

WELL CHARACTERISTICS.--Drilled unused well, diam 6 in (150 mm), depth 81 ft (25 m).

DATUM.--Altitude of land surface datum is 1,380 ft (439 m). Measuring point: Top of casing, 0.40 ft (0.12 m) above datum.

PERIOD OF RECORD.--1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 58.93 ft (17.96 m) below datum, May 10, 1978; lowest measured, 68.28 ft (20.81 m) below datum, Sept. 19, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 12	60c	-	-	-	-	-	-

c Estimated.

454639118330901. Local number 3N/34E-3BAC.

LOCATION.--Lat 45°46'25", long 118°33'08", Hydrologic Unit 17070103.

Owner: Berkley Davis.

AQUIFER.--Columbia River Basalt Group.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 12 in (300 mm), depth 1,263 ft (385 m), deepened from 298 ft (91 m) in 1972; cased to 60 ft (18 m).

DATUM.--Altitude of land surface datum is 1,544 ft (471 m). Measuring point: Center of air gage, 1.90 ft (0.58 m) above datum.

REMARKS.--No measurements in 1980.

PERIOD OF RECORD.--1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4 ft (1.5 m) below datum, May 2, 1954; lowest measured, 130.5 ft (39.8 m) below datum, Oct. 27, 1970.

455120118470501. Local number 4N/32E-2CBB.

LOCATION.--Lat 45°51'20", long 118°46'55", Hydrologic Unit 17070103.

Owner: L.F. King

AQUIFER.--Columbia River Basalt Group.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 10 in (250 mm), reported depth 527 ft (161 m).

DATUM.--Altitude of land surface datum is 1,650 ft (503 m). Measuring point: Hole in pumpbase, at datum.

REMARKS.--No measurements in 1980.

PERIOD OF RECORD.--1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11 ft (3 m) below datum, Aug. 26, 1953; lowest measured, b/ 60.85 ft (18.50 m) below datum, Aug. 25, 1959.

b May be affected by recent pumping.

455425119182001. Local number 5N/28E-22BBA.

LOCATION.--Lat 45°54'25", long 119°18'08", Hydrologic Unit 17070101.

Owner: L.J. Martin.

AQUIFER.--Columbia River Basalt Group.

WELL CHARACTERISTICS.--Drilled domestic well, diam 6 in (150 mm), depth 189 ft (58 m), cased to 8 ft (2.4 m).

DATUM.--Altitude of land surface datum is 440 ft (134 m). Measuring point: Top of casing, at datum.

REMARKS.--No measurements in 1980.

PERIOD OF RECORD.--1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.39 ft (1.34 m) below datum, Feb. 15, 1965; lowest measured, 53.62 ft (16.34 m) below datum, Nov. 30, 1978.

455420118334001. Local number 5N/34E-16DDC.

LOCATION.--Lat 45°54'18", long 118°33'40", Hydrologic Unit 17070102.

Owner: R.M. Thompson.

AQUIFER.--Basalt.

WELL CHARACTERISTICS.--Drilled domestic and stock well, diam 6 in (150 mm), depth 228 ft (69 m).

DATUM.--Altitude of land surface datum is 2,130 ft (649 m). Measuring point: Top of hole in sanitary seal, 0.50 ft (0.15 m) above datum.

REMARKS.--No measurements in 1980.

PERIOD OF RECORD.--1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 139.82 ft (42.62 m) below datum, Dec. 1, 1978; lowest measured, b/ 162.50 ft (49.53 m) below datum, Nov. 30, 1956.

b May be affected by recent pumping.

UMATILLA COUNTY--Continued

455652118230001. Local number 5N/35E-1BAD.

LOCATION.--Lat 45°56'52", long 118°23'00", Hydrologic Unit 17070102.

Owner: W. Bingman.

AQUIFER.--Gravel.

WELL CHARACTERISTICS.--Dug irrigation well, size 6 x 8 ft (1.8 x 2.4 m), depth 37 ft (11 m), curbed with wood.

DATUM.--Land surface datum is 995.60 ft (303.46 m) National Geodetic Vertical Datum of 1929. Measuring point: At datum.

PERIOD OF RECORD.--1933 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.22 ft (4.03 m) below datum, Dec. 19, 1946; lowest measured, 35.43 ft (10.80 m) below datum, Feb. 16, 1937.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	27.9	JAN 21	22.9	APR 21	24.0	JUL 21	29.6
NOV 19	22.9	FEB 22	22.2	MAY 21	24.5	AUG 21	30.3
DEC 26	22.6	MAR 24	24.0	JUN 19	26.1	SEP 24	29.3

455840118244501. Local number 6N/35E-24DCC.

LOCATION.--Lat 45°58'40", long 118°24'45", Hydrologic Unit 17070102.

Owner: G. Ransom.

AQUIFER.--Gravel.

WELL CHARACTERISTICS.--Dug and drilled irrigation well, size 6 x 6 ft (1.8 x 1.8 m) to 10-in (250 mm) diam, depth 165 ft (50 m), cased to 45 ft (14 m).

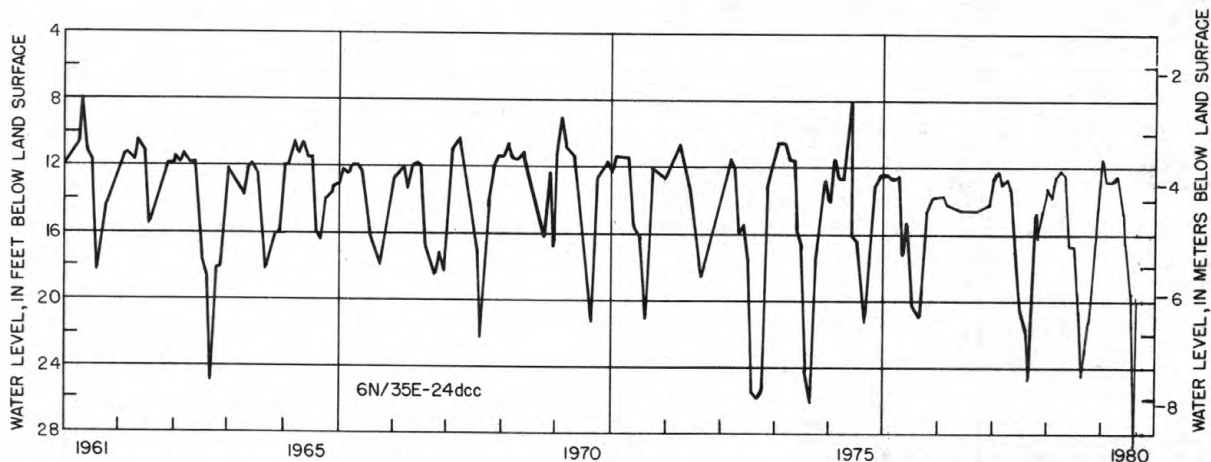
DATUM.--Land surface datum is 864.30 ft (263.44 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of 4- x 6-in (100 x 150 mm) plank on east side of well curb, 0.50 ft (0.15 m) above datum.

PERIOD OF RECORD.--1933 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.65 ft (2.33 m) below datum, July 29, 1948; lowest measured, 28.8 ft (8.78 m) below datum, Aug. 21, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	16.1	JAN 21	11.7	APR 21	12.4	JUL 21	19.6
NOV 19	14.5	FEB 22	12.8	MAY 21	14.6	AUG 21	28.8
DEC 26	12.8	MAR 24	12.8	JUN 19	16.4	SEP 24	17.6



455830118241502. Local number 6N/35E-26BAD..

LOCATION.--Lat 45°58'30", long 118°24'15", Hydrologic Unit 17070102.

Owner: Earl Ransom.

AQUIFER.--Gravel.

WELL CHARACTERISTICS.--Dug and drilled irrigation well, size 6 x 6 ft (1.8 x 1.8 m) to 8-in (200 mm) diam, depth 46 ft (14 m), dug part cased with concrete.

DATUM.--Land surface datum is 867.12 ft (264.30 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of 4- x 4-in (100 x 100 mm) stringer, 0.48 ft (0.15 m) above datum.

PERIOD OF RECORD.--1933 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.81 ft (2.38 m) below datum, May 25, 1939; lowest measured, 37.6 ft (11.46 m) below datum, Feb. 22, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	18.2	DEC 26	24.7	FEB 22	37.6	-	-
NOV 19	25.9	JAN 21	23.2	MAR 24	39.0		

GROUND-WATER LEVELS

UMATILLA COUNTY--Continued

452015119003201. Local number 3S/30JE-1BAA.

LOCATION.--Lat 45°20'25", long 119°00'29", Hydrologic Unit 17070103.

Owner: Joe Pedro.

AQUIFER.--Columbia River Basalt Group.

WELL CHARACTERISTICS.--Drilled unused well, diam 6 in (150 mm), reported depth 99 ft (30 m).

DATUM.--Altitude of land surface datum is 3,180 ft (970 m). Measuring point: Top of steel blocks beneath jet connector, 1.00 ft (0.30 m) below datum.

REMARKS.--No measurements in 1980.

PERIOD OF RECORD.--1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.01 ft (6.71 m) below datum, Apr. 16, 1968; lowest measured, 39.81 ft (12.13 m) below datum, May 7, 1968.

UNION COUNTY

452730117595901. Local number 1S/38E-24DDC.

LOCATION.--Lat 45°27'26", long 117°59'50", Hydrologic Unit 17060104.

Owner: H. L. Wagner.

AQUIFER.--Basalt.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 12 to 8 in (300 to 200 mm), depth 1,150 ft (350 m), cased to bottom.

DATUM.--Altitude of land surface datum is 2,750 ft (838 m). Measuring point: Center line of pressure gage, 6.00 ft (1.83 m) above datum.

PERIOD OF RECORD.--1950-74, 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107 ft (33 m) above datum, Dec. 30, 1951; lowest measured, 53 ft (16 m) above datum, Aug. 13, 1951.

WATER LEVEL, IN FEET ABOVE LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 8	75.88	FEB 15	79.34	MAY 13	60.28	AUG 8	75.30

452840117580501. Local number 1S/39E-17CAD.

LOCATION.--Lat 45°28'34", long 117°57'48", Hydrologic Unit 17060104.

Owner: A. F. Furman.

AQUIFER.--Sand.

WELL CHARACTERISTICS.--Drilled domestic well, diam 4 in (100 mm), depth 46 ft (14 m).

DATUM.--Altitude of land surface datum is 2,735 ft (834 m). Measuring point: Top of coupling on casing, 1.00 ft (0.30 m) above datum.

PERIOD OF RECORD.--1940 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.40 ft (1.34 m) below datum, Feb. 17, 1965; lowest measured, 19.54 ft (5.96 m) below datum, Aug. 29, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 8	11.20	FEB 15	9.66	MAY 13	8.61	AUG 8	10.80

451942118060601. Local number 3S/38E-6DCA.

LOCATION.--Lat 45°19'42", long 118°06'06", Hydrologic Unit 17060104.

Owner: Mrs. C.L. Gilstrap.

AQUIFER.--Gravel.

WELL CHARACTERISTICS.--Drilled domestic well, diam 8 in (200 mm), depth 20 ft (6 m), cased to 20 ft (6 m).

DATUM.--Altitude of land surface datum is 2,795 ft (852 m). Measuring point: Top of casing, 2.00 ft (0.61 m) below datum.

PERIOD OF RECORD.--1957 to 1979 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.50 ft (5.03 m) below datum, Feb. 18, 1958; lowest measured, 21.86 ft (6.66 m) below datum, Aug. 7, 1974.

WASCO COUNTY

453606121105701. Local number 1N/13E-38CA.

LOCATION.--Lat 45°36'06", long 121°10'57", Hydrologic Unit 17070105.

Owner: City of the Dalles.

AQUIFER.--Basalt.

WELL CHARACTERISTICS.--Drilled municipal well, diam 12 in (300 mm), depth 200 ft (61 m), cased to 62 ft (19 m).

DATUM.--Land surface datum is 99.5 ft (30.3 m) National Geodetic Vertical Datum of 1929. Measuring point: Hole in pumpbase, 6.40 ft (1.95 m) below datum.

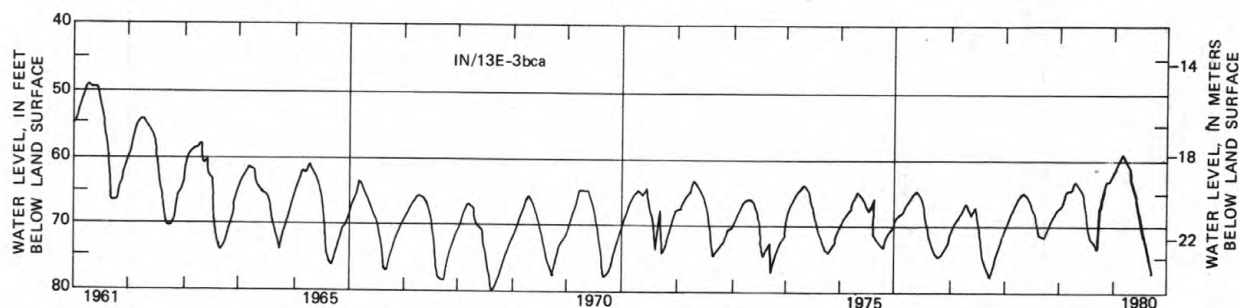
REMARKS.--Water levels published for this well (Jan. 1962, to Sept. 1971, subtract 0.6 ft from published water level, Sept. 15, 1971, to Sept. 1978, subtract 6.4 ft from published water levels) did not use proper measuring point correction. Corrected values are available at USGS office, Portland, Oregon.

PERIOD OF RECORD.--1926-30, 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.90 ft (5.20 m) below datum, July 19, 1928; lowest measured, 80.03 ft (24.39 m) below datum, Aug. 16, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	72.99	JAN 14	67.80	APR 7	65.70	JUL 7	71.93
NOV 15	70.71	FEB 18	65.30	MAY 12	67.59	AUG 1	77.65
DEC 17	69.30	MAR 10	66.21	JUN 5	70.07	SEP 5	77.14



453142121125501. Local number 1N/13E-32ACD.

LOCATION.--Lat 45°31'42", long 121°12'55", Hydrologic Unit 17070105.

Owner: Milton Martin.

AQUIFER.--Basalt.

WELL CHARACTERISTICS.--Drilled irrigation well, diam 6 in (150 mm), depth 368 ft (102 m), cased to 244 ft (74 m).

DATUM.--Altitude of land surface datum is about 1,200 ft (366 m). Measuring point: Center line of pressure gage, 1.5 ft (0.46 m) above datum.

PERIOD OF RECORD.--1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 186.5 ft (56.8 m) above datum, Apr. 1, 1953; lowest measured, 30.8 ft (9.4 m) above datum, Sept. 14, 1977.

WATER LEVEL, IN FEET ABOVE LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 14	124.74	-	-	-	-	-	-

453715121151801. Local number 2N/12E-250DC.

LOCATION.--Lat 45°37'15", long 121°15'18", Hydrologic Unit 17070105.

Owner: Ernest A. Kuck.

AQUIFER.--Sandstone of Dalles Formation.

WELL CHARACTERISTICS.--Drilled well, diam 8 in (200 mm), depth 443 ft (135 m), cased to 30 ft (9 m).

DATUM.--Altitude of land surface datum is about 520 ft (158 m). Measuring point: Airline port in pumpbase, 0.80 ft (0.24 m) above datum.

PERIOD OF RECORD.--1947 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.93 ft (31.98 m) below datum, Mar. 16, 1951; lowest measured, 151.54 ft (46.19 m) below datum, Aug. 6, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 14	109.15	-	-	-	-	-	-

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^3	square meters (m ²)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-3}	square kilometers (km ²)
square miles (mi ²)	2.590×10^0	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	liters (L)
	3.785×10^0	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-2}	cubic meters (m ³)
cfs-days	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (L/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-2}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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