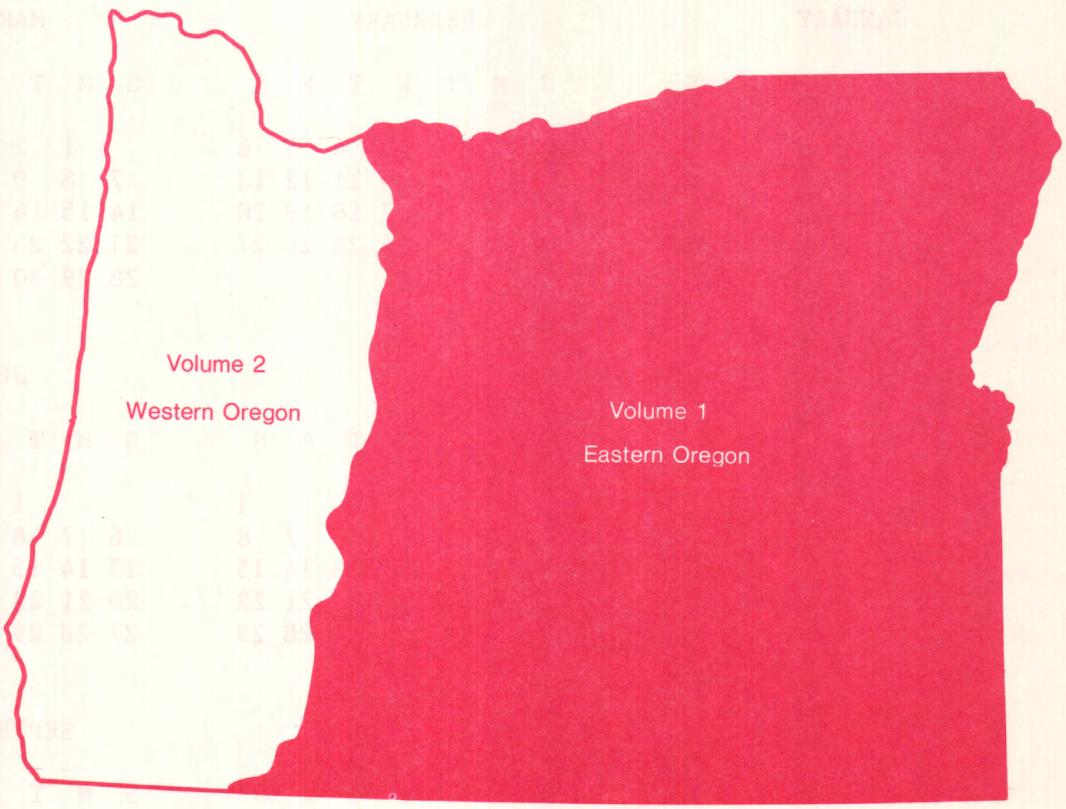
Water Resources Data Oregon Water Year 1982

Volume 1. Eastern Oregon



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OR-82-1
Prepared in cooperation with the Oregon Water Resources Department and with other agencies

CALENDAR FOR WATER YEAR 1982

1981

OCTOBER

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1982

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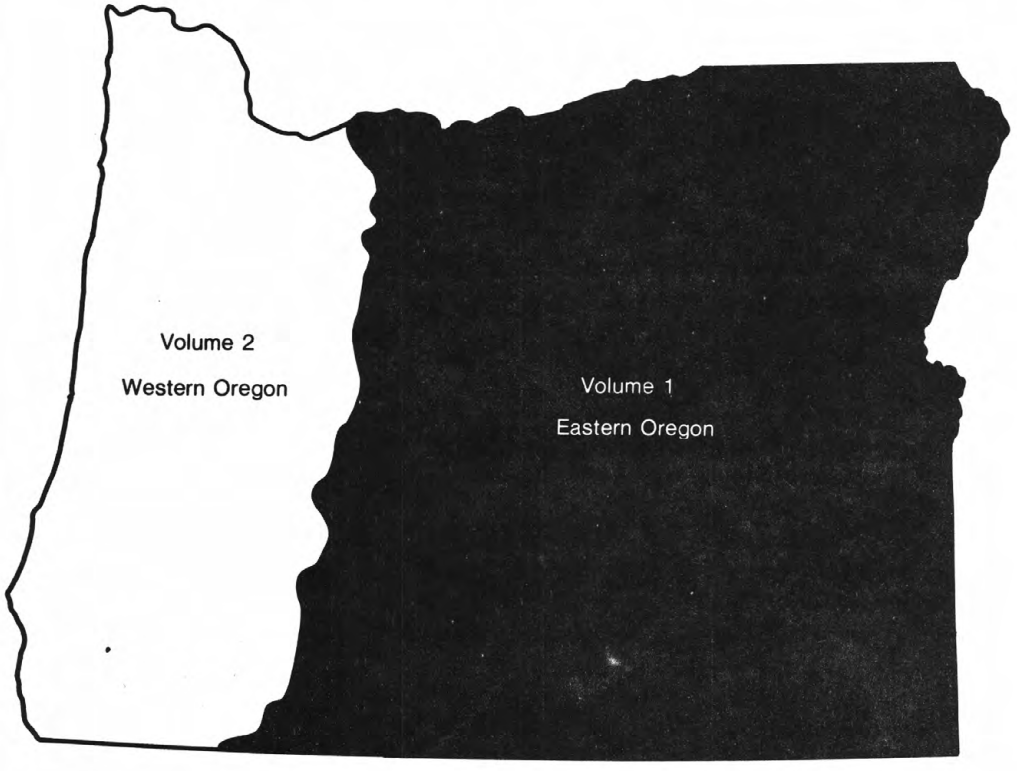
19	20	21	22	23	24	25
26	27	28	29	30		

Water Resources Data Oregon Water Year 1982

Volume 1. Eastern Oregon

by L.L. Hubbard, T.D. Parks, D.L. Weiss, and L.E. Hubbard



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT OR-82-1
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

For additional information write to
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Portland, Oregon 97232

1983

PREFACE

This volume of the annual Oregon hydrologic data report is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Oregon are contained in two volumes as follows:

Volume 1: Eastern Oregon
Volume 2: Western Oregon

The report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the reports. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

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This report was prepared in cooperation with the State of Oregon and with other agencies under the general supervision of Stanley F. Kapustka, District Chief, Oregon, and J.D. Bredehoeft, Regional Hydrologist, Western Region.

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Water Resources Data for the 1982 water year for Oregon consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality in wells and springs. This report, in two volumes, contains discharge records for 253 gaging stations; stage only records for 8 gaging stations; stage and contents for 37 lakes and reservoirs; water quality for 81 gaging stations, water levels for 57 observation wells; and water quality for 4 precipitation stations. Also included are 33 crest-stage partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and co-operating State and Federal agencies in Oregon.

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

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

WATER RESOURCES DATA FOR OREGON, 1982

INTRODUCTION

Water resources data for the 1982 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 253 gaging stations; stage only records for 8 gaging stations; stage and contents for 37 lakes and reservoirs; water quality for 81 gaging stations; water levels for 57 observation wells; and water quality for 4 precipitation stations. Also included are data for 33 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-82-1." 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 Transportation, State Highway Division, H. S. Coulter, State Highway Engineer.
Oregon State University, R. W. MacVicar, President.
Coos Bay-North Bend Water Board, C. W. Heckard, Manager.
Eugene Water and Electric Board, Keith Parks, General Manager.
Lane Council of Governments, George Kloeppel, Exective Director.
Douglas County, Ken Erickson, Director of Public Works.
Lane County, Board of County Commissioners, G. E. Morgan, General Administrator.
Wasco County, through The Northern Wasco County People's Utility District, Harold Haake, Manager.
City of McMinnville, A. H. Jones, General Manager.
City of Portland, Bureau of Public Works, Carl Gobel, Administrator.
The Confederated Tribes of the Umatilla Indian Reservation, Antone Minthorn, Chairman of the General Council.
The Confederated Tribes of the Warm Springs Indian Reservation, K. L. Smith, General Manager.

Assistance in the form of funds or services was provided by the Forest Service, U.S. Department of Agriculture; Corps of Engineers, U.S. Army; Bonneville Power Administration, U.S. Department of Energy; Bureau of Reclamation, National Park Service, U.S. Department of the Interior in collection of records for 100 stage and discharge stations and 45 water-quality stations published in this report.

The following organizations aided in collecting records for 35 stations under Federal Energy Regulatory Commission licenses: Eugene Water & Electric Board; Pacific Power & Light Co.; Portland General Electric Co.; Idaho Power Co., Idaho.

GENERAL HYDROLOGIC CONDITIONS

The hydrology of Oregon is influenced by five mountain ranges with the Cascade Range providing a natural division between western and eastern Oregon. These ranges divide the state into drainage basins and greatly affect the distribution of precipitation. 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 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, 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 occuring as snow fall. On the large streams, 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.

Major hydrologic areas are: (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 1982 WATER YEAR

Streamflow was generally above the long term average. Precipitation was generally above average while the snowpack was average to above average throughout most eastern Oregon on April 1. The exception was the Mile Creeks area (Wasco County) which was much below reporting 57 percent of average. No major flooding or drought occurred during the water year.

Closed Basins

Streamflows in the closed basins were above average. Average flow of the Donner und Blitzen River of the Harney Lake basin was 138 percent of the 52-year average. The peak for the year occurred on February 16, and resulted from a generalized rain storm over frozen ground. The peak of 2,340 ft^3/s was a peak with an exceedance probability of about 15 percent, which means there is about a 15 percent chance that a peak of at least this magnitude will occur in any one year.

Concentrations of chemical constituents in the Donner und Blitzen River were not significantly different from previous years.

Klamath River Basin

Flows in the Klamath River basin were generally above average in the 1982 water year. As an example, mean flow of Williamson River below Sprague River near Chiloquin (station 11502500) was 157 percent of the long-term average. Peak discharge of the year occurred on February 24 as a result of a general rainstorm over snow covered, frozen ground. The exceedance probability of this peak is 2 percent, which represents a very high magnitude maximum discharge.

Snowpack on April 1 in the Upper Klamath River basin was 112 percent of average.

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 well above average. At that site, the 1982 mean flow was 176 percent of the 33-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, also had average flow.

The Malheur River near Drewsey (station 13214000) reported an annual mean discharge of 423 ft^3/s. This is 230 percent of the 56-year average and makes the 1982 water year the greatest year for runoff for the 56 years that records have been maintained for this gage.

Snowpack on April 1 was much above average throughout the Owyhee River basin and in the Malheur River basin, and ranged from 140 percent to 190 percent of normal.

Maximum flow for the year of Owyhee River near Rome occurred February 17 as the result of a general rainstorm.

The Owyhee River at Owyhee station (13184000) is downstream from a 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 non-irrigation season, most flow is from ground-water seepage and has higher concentrations of chemical constituents. During the 1982 water year dissolved-solids concentrations ranged from 148 to 801 mg/L. Concentrations of chemical constituents were not significantly different from previous years.

Northeast Region

Flows in the northeastern part of the state were above average in the 1982 water year. Typical of the area was Grande Ronde River at Troy (station 13333000) which had an annual mean discharge which was 129 percent of the 38-year average. Mean flow of Minam River at Minam (station 13331500) was 123 percent of the 18-year average.

Snowpack on April 1 was above 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 occurred on February 21 and had an exceedance probability of about 10 percent, which indicates a fairly low peak flow.

Concentrations of chemical constituents in the Minam River were not significantly different from previous years.

North-Central Region

Flows in the north-central part of the state were above average in the 1982 water year. The John Day River at McDonald Ferry (station 14048000) had an annual mean discharge which was 189 percent of the 77-year average. Mean discharge of Deschutes River at Moody, near Biggs (station 14103000) was 117 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 much above average. Peak discharge of John Day River at McDonald Ferry was 28,300 ft^3/s on February 22 and resulted primarily from a statewide rainstorm. That peak discharge has an exceedance probability of about 4 percent. A flood of this size is exceeded about every 25 years.

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, 1982 WATER YEAR

In eastern Oregon, ground-water levels generally were above 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.

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 ± 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 a group of coliform 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 ± 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 ± 1.0°C on M-enterrococcus medium (nutient 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/m^2 (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.

Cfs-day (ft^3/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.

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

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.

Instantaneous discharge is the discharge at a given time.

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

Dissolved refers to that material in a representative water sample which passes through a 0.45 um 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 um 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 millimeters (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.

Plankton is the community of suspended, floating or weakly swimming organisms that live in the open water of lakes and rivers.

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.

Chlorophyta (green algae) have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats of floating "moss" in lakes.

Chrysophyta (yellow-green algae, yellow-brown algae, and diatoms) have pigments in which yellow-green to golden-brown are predominate. The cell wall of these organisms, especially diatoms, often consists of two overlapping halves which are highly silicified.

Cryptophyta (cryptomonads) have pigments that are usually brown but also occur as red, blue or grass green. The cells are motile with two flagella and occur in freshwaters sometimes rich in organic and in nitrogenous materials.

Cyanophyta (blue-green algae) are 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.

Euglenophyta (euglenoids) are motile cells usually with one flagella and have a dominant grass-green pigment. They often occur in small pools rich in organic matter and are frequently present in sufficient amounts to color the water or the damp mud along river banks.

Pyrrhophyta (fire algae) have greenish tan to golden brown pigments. The cells are motile usually with two flagella. The fresh water forms are most abundant in pools, ditches, and small lakes with considerable vegetation.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the food web. The zooplankton community is dominated by small crustaceans and rotifers.

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.

Solute is any substance derived from the atmosphere, vegetables, soil, or rocks that dissolved in water.

Specific conductance is a measure of the ability of water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

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 that 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 hierarchial 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
Species	Hexagenia limbata

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 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.)

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 likly to produce different analytical results.

Turbidity of a sample is the reduction of transparency due to the presence of particulate matter. In this report it is expressed in Formazin turbidity units (FTU), obtained from the Nephelometric method for turbidity determination which measures the intensity of light scattered by suspended particles at 90 degrees from the path of an incident light source.

Water year in geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1981 is called "1981 water year.

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 indention, each indention representing one rank.

As an added means of indentification, 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 continous-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" the extremes for the period of record are given first; information available outside the period of record is given second; and last, those for the current year are given. 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 the time of occurrence and corresponding gage heights with "EXTREMES FOR THE CURRENT YEAR", if they are all independent peaks (including the maximum for the year) above the selected base. 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 tables 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, the stability of the control, 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 hundreth of a cubic foot per second for discharges of less than 1 ft^3/s, to tenths between 1.0 and 10 ft^3/s, to whole numbers between 10 and 1,000 ft^3/s, and to three significant figures greater than 1,000 ft^3/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 satisfacory 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 Reserouces 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 other than 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.

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 (lsd) 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 1963-82 in 12 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 (fig 1). 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 1S/32E-16CCB is in the NE¼NE¼NE¼ sec.16, T.1 S., R.32 E., and will be labeled as 16CCB.

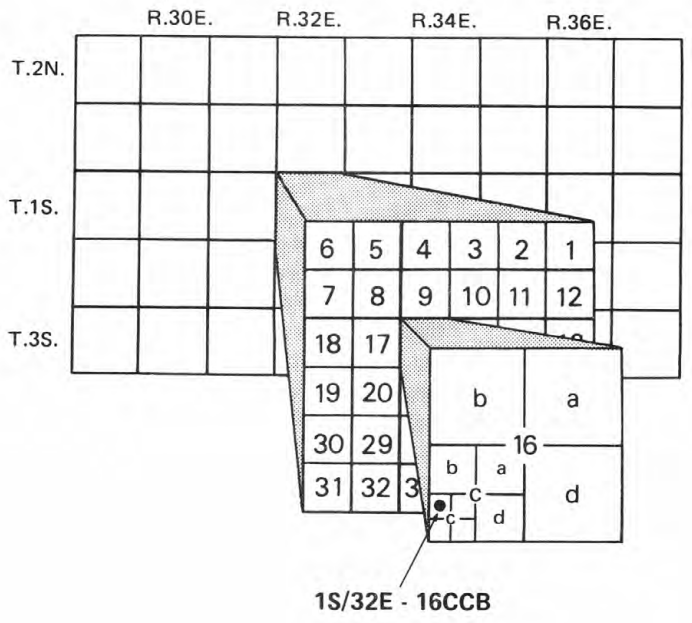


FIGURE 2. – Well-numbering system.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-seven 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 material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Pickett Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

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.

3-A9. MEASUREMENT OF TIME OF TRAVEL AND DISPERSION IN STREAMS BY DYE TRACING, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 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-B3. TYPE CURVES FOR SELECTED PROBLEMS OF FLOW TO WELLS IN CONFINED AQUIFERS, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 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. Ehlke, 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.

7-C3. A MODEL FOR SIMULATION OF FLOW IN SINGULAR AND INTERCONNECTED CHANNELS, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 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.

*These publications are available ONLY from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. They are in looseleaf format and are subscription items. Additional supplements will be issued to subscribers at no extra cost. Checks should be made payable to Superintendent of Documents. Requester should emphasize to Superintendent of Documents that this is a subscription item.

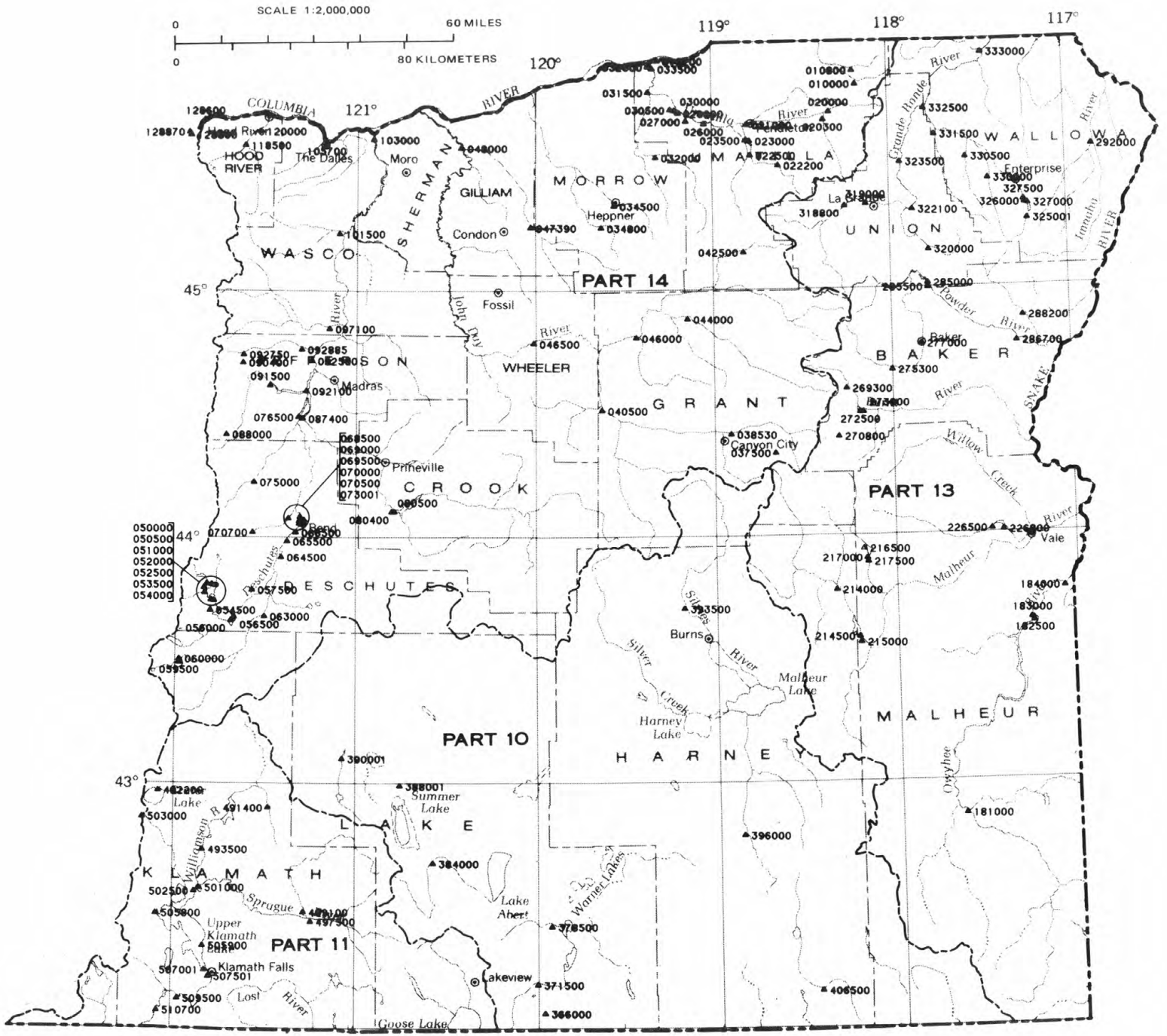


Figure 2.–Map of Eastern Oregon showing location of active gaging stations.

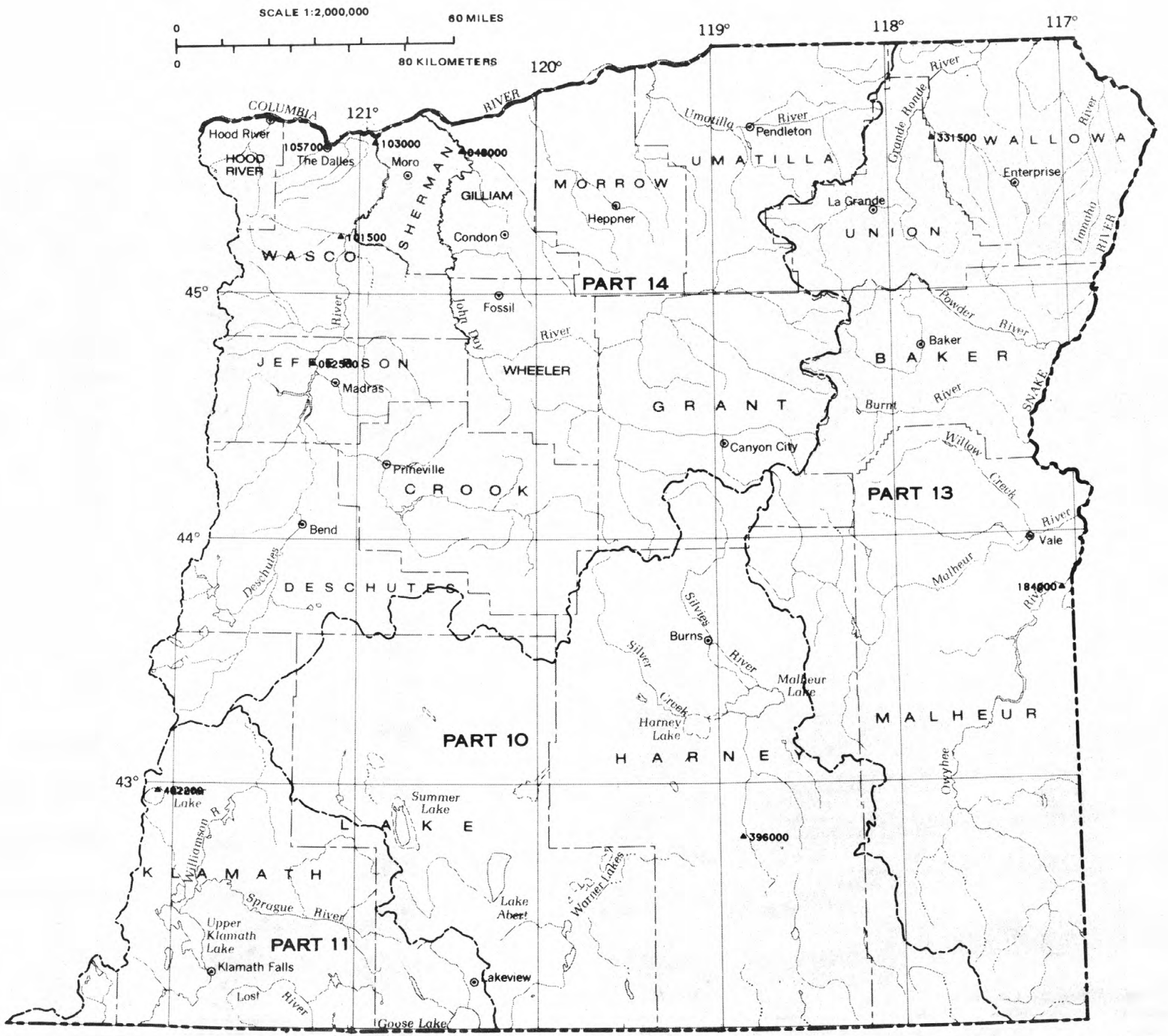


Figure 3.–Map of Eastern Oregon showing sites where water-quality data are obtained.

THE GREAT BASIN

WARNER LAKES BASIN

10366000 TWENTYMILE CREEK NEAR ADEL, OR

LOCATION.--Lat 42°04'20", long 119°57'42", in SW¼NW¼ 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.

DRAINAGE AREA.--194 mi² (502 km²), including 46 mi² (119 km²) in Cowhead Lake area.

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.

REVISED RECORDS.--WSP 1090: 1945. WSP 1514: 1951-53, 1954(M).

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.

REMARKS.--Records good. Some regulation by pumpage from Cowhead Lake. Diversions in Oregon for irrigation above station; considerable diversions for irrigation in Cowhead Lake area in California.

AVERAGE DISCHARGE. 47 years (water years 1911-15, 1919, 1941-44, 1946-82), 51.9 ft³/s (1.470 m³/s), 37,600 acre-ft/yr (46.4 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 24	0200	1,740	49.3	8.59	2.618	Feb. 19	1230	1,810	51.3	8.83	2.691
Dec. 19	2330	2,370	67.1	10.76	3.280	Apr. 11	1630	2,140	68.0	10.86	3.310
Feb. 16	0030	*2,720	77.0	*12.20	3.719						

Minimum, 1.3 ft³/s (0.037 m³/s) Feb. 4, Aug. 27, Sept. 9, but may have been less during periods of ice effect Jan. 29 to Feb. 1, Feb. 4-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	4.4	19	49	17	80	40	102	75	43	4.4	3.4
2	3.7	4.4	38	45	19	77	59	97	72	41	4.4	3.1
3	3.7	4.4	195	38	19	72	46	100	68	43	4.8	2.8
4	3.7	4.8	88	45	18	69	48	102	71	37	4.8	3.1
5	3.1	4.8	40	60	13	63	50	91	69	35	5.2	3.4
6	3.1	4.8	30	53	12	59	48	91	62	32	5.2	3.1
7	3.1	4.8	91	35	13	60	60	98	56	25	4.8	3.1
8	3.7	4.8	43	28	13	68	166	100	53	23	4.8	2.5
9	3.7	4.4	31	32	14	80	247	88	52	22	4.4	2.3
10	4.8	4.4	27	34	15	69	350	82	52	21	4.1	2.3
11	5.7	4.4	23	33	14	109	1740	74	55	19	4.1	3.1
12	4.8	6.7	21	31	15	74	670	74	59	19	4.1	4.4
13	4.4	12	22	26	28	59	295	77	62	18	3.7	5.2
14	4.4	33	59	25	1010	59	235	82	65	17	3.4	4.4
15	4.1	66	278	26	2040	95	182	78	65	14	3.4	6.7
16	3.7	107	78	23	2200	97	154	85	65	11	3.7	8.5
17	3.7	53	51	23	995	75	118	102	65	11	3.7	6.7
18	3.7	38	82	23	403	83	116	105	66	9.9	3.7	5.7
19	3.7	24	1250	24	1210	107	93	88	63	8.5	4.4	7.9
20	3.7	22	1680	24	757	93	107	86	62	7.9	4.4	7.3
21	3.7	29	451	22	609	71	82	90	60	7.3	3.7	5.7
22	3.7	80	180	21	480	60	103	97	68	7.3	3.1	5.2
23	3.7	377	116	20	233	74	109	103	72	6.7	2.5	4.4
24	3.7	833	83	20	156	90	118	110	57	6.2	2.3	5.7
25	3.7	78	71	21	131	86	127	127	53	5.7	2.3	6.7
26	3.7	36	65	23	110	85	119	132	49	5.7	2.5	5.2
27	3.7	29	56	22	93	53	95	110	47	6.7	2.3	5.7
28	6.2	23	53	21	85	52	100	90	49	7.3	2.5	6.2
29	6.7	26	53	21	---	51	102	80	49	6.2	3.1	6.2
30	5.2	21	59	18	---	50	98	75	45	5.2	4.1	6.2
31	4.8	---	52	16	---	46	---	72	---	4.8	3.7	---
TOTAL	126.7	1944.1	5385	902	10722	2266	5877	2888	1806	526.4	117.6	146.2
MEAN	4.09	64.8	174	29.1	383	73.1	196	93.2	60.2	17.0	3.79	4.87
MAX	6.7	833	1680	60	2200	109	1740	132	75	43	5.2	8.5
MIN	3.1	4.4	19	16	12	46	40	72	45	4.8	2.3	2.3
AC-FT	251	3860	10680	1790	21270	4490	11660	5730	3580	1040	233	290

CAL YR 1981 TOTAL 12789.00 MEAN 35.0 MAX 1680 MIN .98 AC-FT 25370
WTR YR 1982 TOTAL 32707.00 MEAN 89.6 MAX 2200 MIN 2.3 AC-FT 64870

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.--54 years, 130 ft³/s (3.682 m³/s), 94,180 acre-ft/yr (116 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 16	0500	1,230	34.8	3.75	1.143
Nov. 24	0300	974	27.6	3.42	1.042
Dec. 15	1030	1,390	39.4	3.91	1.192
Dec. 19	2030	*5,340	151	*6.52	1.987
Feb. 16	1730	4,180	118	5.88	1.792
Feb. 20	2000	2,760	78.2	4.97	1.515
Apr. 11	1700	3,840	109	5.68	1.731
May 4	0130	1,040	29.5	3.52	1.073
May 17	2330	908	25.7	3.36	1.024

Minimum, 6.2 ft³/s (0.18 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	29	128	151	65	410	167	783	445	242	26	21
2	7.0	30	173	130	74	386	175	853	420	202	25	23
3	8.3	28	192	120	74	341	141	900	381	217	26	22
4	8.3	26	168	115	65	317	156	900	430	164	25	23
5	7.4	25	144	130	55	302	164	825	465	137	22	23
6	8.3	24	173	130	50	277	162	811	368	116	20	22
7	15	23	435	120	50	270	162	839	309	97	20	21
8	22	22	224	170	54	267	162	853	281	79	20	22
9	18	21	189	175	54	267	178	755	263	74	20	21
10	82	21	184	175	60	284	425	690	253	72	19	20
11	59	22	133	167	60	359	3070	642	260	70	19	21
12	32	60	130	139	60	295	1320	624	270	66	19	24
13	26	133	133	130	70	277	797	642	281	57	19	29
14	24	234	237	134	440	305	672	642	295	49	18	27
15	21	255	925	127	1920	291	606	606	284	45	18	28
16	21	953	356	101	3270	260	510	630	284	45	18	34
17	21	475	255	94	1660	260	455	684	288	46	18	33
18	21	265	304	90	748	239	425	776	305	45	18	33
19	19	200	2400	80	1780	229	377	618	288	40	19	34
20	18	184	3270	72	1980	211	350	594	267	37	19	37
21	18	241	1290	65	2320	211	354	600	274	35	18	32
22	17	376	734	61	1500	193	415	612	256	33	18	31
23	17	388	564	61	900	196	495	636	246	31	18	28
24	17	744	445	81	678	205	600	636	223	30	17	29
25	17	293	377	88	600	226	636	678	211	29	18	32
26	17	224	302	86	510	220	654	684	184	28	17	30
27	17	181	246	81	455	199	702	618	170	30	17	33
28	35	171	253	70	410	187	797	535	178	31	18	35
29	41	133	242	60	---	184	741	490	208	30	18	34
30	30	120	211	55	---	153	734	445	211	29	19	35
31	28	---	208	60	---	116	---	425	---	27	21	---
TOTAL	698.9	5901	15025	3318	19962	7937	16602	21026	8598	2233	607	837
MEAN	22.5	197	485	107	713	256	553	678	287	72.0	19.6	27.9
MAX	82	953	3270	175	3270	410	3070	900	465	242	26	37
MIN	6.6	21	128	55	50	116	141	425	170	27	17	20
AC-FT	1390	11700	29800	6580	39590	15740	32930	41710	17050	4430	1200	1660

CAL YR 1981 TOTAL 42919.0 MEAN 118 MAX 3270 MIN 4.1 AC-FT 85130
WTR YR 1982 TOTAL 102744.9 MEAN 281 MAX 3270 MIN 6.6 AC-FT 203800

10378500 HONEY CREEK NEAR PLUSH, OR

LOCATION.--Lat 42°25'33", long 119°55'23", 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, 1.4 mi (2.2 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 reserviors, combined capacity, 870 acre-ft (1.07 hm³). Diversions for irrigation above station.

AVERAGE DISCHARGE.--56 years (water years 1911-14, 1931-82), 30.0 ft³/s (0.850 m³/s), 21,740 acre-ft/yr (26.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maxiumum 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 16	0700	255	7.22	4.14	1.262	Feb. 21	2200	685	19.4	5.50	1.676
Nov. 24	1000	275	7.99	4.22	1.286	Apr. 11	1700	1,360	38.5	6.81	2.076
Dec. 15	1530	211	5.98	3.93	1.198	May 3	0330	288	8.16	4.32	1.317
Dec. 19	2130	*2,390	67.7	*8.19	2.496	May 18	0530	272	7.70	4.26	1.298
Feb. 16	0300	1,120	31.7	6.42	1.957						

Minimum, 0.27 ft³/s (0.008 m³/s) Aug. 27-29, Aug. 31 to Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	2.8	22	49	22	106	42	223	102	57	4.1	.29
2	.35	2.9	23	45	24	102	49	245	98	49	4.0	.29
3	.35	3.1	27	40	29	93	42	250	86	50	3.8	.29
4	.35	2.9	29	25	25	79	41	243	87	41	3.8	.29
5	.35	2.8	24	30	20	75	41	213	103	35	3.8	.29
6	.35	2.8	27	33	17	69	39	203	93	31	3.8	.33
7	1.0	2.8	66	30	17	71	37	207	80	26	3.4	.33
8	1.4	2.7	36	32	19	68	42	205	71	24	3.4	.35
9	1.9	2.6	31	35	19	63	47	183	65	23	3.4	.35
10	2.0	2.6	31	38	22	63	81	176	60	25	2.7	.35
11	2.4	2.7	27	39	22	80	852	163	60	23	2.5	1.7
12	2.7	2.8	27	35	21	67	484	151	65	18	2.6	1.4
13	2.6	4.0	27	35	84	71	323	146	66	15	2.7	1.2
14	2.5	11	28	35	466	72	265	153	66	16	2.5	1.4
15	2.4	16	111	34	564	73	199	151	63	15	3.5	1.5
16	2.3	160	73	30	681	68	172	153	55	12	5.2	1.9
17	2.1	79	55	35	320	67	146	180	52	12	5.0	2.5
18	2.1	43	51	32	178	65	130	235	53	11	5.0	2.5
19	2.2	29	539	27	250	55	113	187	54	9.2	5.2	3.7
20	2.3	23	658	25	363	54	98	158	53	7.2	5.2	4.8
21	2.3	24	328	27	529	55	93	151	59	6.6	4.8	4.3
22	2.2	101	181	26	406	52	114	151	54	6.3	2.8	3.5
23	2.1	66	143	27	250	56	160	151	55	6.6	1.6	2.9
24	2.2	153	120	28	183	72	209	151	56	6.3	.97	2.7
25	2.5	55	103	31	162	81	227	151	57	5.6	.59	2.7
26	2.6	39	93	34	141	67	221	162	50	4.8	.45	2.8
27	2.4	31	80	34	120	56	223	158	45	5.2	.33	3.1
28	3.1	33	74	29	106	49	245	149	43	6.6	.27	3.1
29	3.8	35	74	25	---	45	209	138	48	6.3	.31	1.9
30	3.1	27	63	20	---	43	211	119	47	5.4	.31	2.1
31	2.8	---	55	21	---	40	---	107	---	4.8	.29	---
TOTAL	61.10	962.5	3226	986	5060	2077	5155	5413	1946	563.9	88.32	54.86
MEAN	1.97	32.1	104	31.8	181	67.0	172	175	64.9	18.2	2.85	1.83
MAX	3.8	160	658	49	681	106	852	250	103	57	5.2	4.8
MIN	.35	2.6	22	20	17	40	37	107	43	4.8	.27	.29
AC-FT	121	1910	6400	1960	10040	4120	10220	10740	3860	1120	175	109

CAL YR 1981 TOTAL 9320.19 MEAN 25.5 MAX 658 MIN .27 AC-FT 18490
WTR YR 1982 TOTAL 25593.68 MEAN 70.1 MAX 852 MIN .27 AC-FT 50770

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 good. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--67 years, 144 ft³/s (4.078 m³/s), 104,300 acre-ft/yr (129 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 discharge above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 16	1430	933	26.4	3.49	1.064
Dec. 15	1430	735	20.8	3.25	0.991
Dec. 20	0230	2,520	71.4	4.98	1.518
Feb. 16	0300	1,880	53.2	4.49	1.369
Feb. 21	1730	*2,660	75.3	*5.08	1.548
Apr. 11	1930	1,950	55.2	4.47	1.362
May 4	0500	1,280	36.2	3.90	1.189
May 18	0500	1,280	36.2	3.90	1.189
May 26	0800	1,240	35.1	3.86	1.177
June 21	1000	566	16.0	2.91	0.887

Minimum, 26 ft³/s (0.74 m³/s) Oct. 1, 2, 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	40	132	214	99	485	208	1050	693	304	60	39
2	26	40	159	223	114	456	205	1130	633	269	58	37
3	29	39	186	189	114	415	181	1180	593	321	58	37
4	29	38	145	132	88	375	189	1170	599	242	56	40
5	27	38	130	165	64	332	194	1080	615	214	54	40
6	27	37	159	145	64	307	186	1060	535	194	51	38
7	41	36	232	130	70	311	186	1110	475	184	49	37
8	49	35	164	181	80	293	174	1120	433	174	49	37
9	36	34	159	194	83	286	202	1000	411	164	48	37
10	61	34	176	199	85	290	304	891	407	154	47	37
11	61	37	137	184	85	325	1420	828	429	150	48	37
12	44	49	134	166	99	279	891	814	456	141	48	40
13	40	74	141	152	110	283	657	842	460	132	44	43
14	38	105	202	152	311	304	669	877	460	126	43	42
15	35	124	500	159	940	297	530	898	451	118	42	43
16	33	723	265	141	1650	262	465	926	460	114	42	45
17	34	510	208	134	1020	276	470	1080	465	110	42	47
18	32	279	269	130	633	283	485	1150	460	105	42	45
19	31	208	1040	124	1060	262	470	980	447	97	42	47
20	31	179	1680	126	1180	245	460	948	438	92	47	53
21	30	189	877	122	2080	229	485	964	505	82	52	49
22	29	300	530	112	1590	208	545	1000	433	80	44	44
23	29	304	480	116	1090	208	645	1030	420	79	41	41
24	29	367	429	118	821	214	768	1040	379	77	39	41
25	29	223	395	124	711	220	849	1100	355	74	38	42
26	29	197	387	128	610	217	891	1190	311	72	37	41
27	29	171	375	114	530	205	933	1110	290	72	36	51
28	39	145	307	122	475	205	1040	972	293	76	37	52
29	54	103	304	96	---	214	988	849	332	72	41	49
30	43	110	283	85	---	205	996	761	286	68	42	48
31	40	---	232	90	---	171	---	693	---	63	40	---
TOTAL	1110	4768	10817	4467	15856	8662	16686	30843	13524	4220	1417	1279
MEAN	35.8	159	349	144	566	279	556	995	451	136	45.7	42.6
MAX	61	723	1680	223	2080	485	1420	1190	693	321	60	53
MIN	26	34	130	85	64	171	174	693	286	63	36	37
AC-FT	2200	9460	21460	8860	31450	17180	33100	61180	26820	8370	2810	2540

CAL YR 1981 TOTAL 42812 MEAN 117 MAX 1680 MIN 14 AC-FT 84920
WTR YR 1982 TOTAL 113649 MEAN 311 MAX 2080 MIN 26 AC-FT 225400

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 excellent. 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.--34 years (water years 1931-32, 1936, 1952-82), 91.2 ft^3/s (2.583 m^3/s), 66,070 acre-ft/yr (81.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 188 ft^3/s (5.32 m^3/s) Dec. 22, 1964, gage height, 2.81 ft (0.856 m), no flow in canal; minimum, 1.0 ft^3/s (0.028 m^3/s) Jan. 21, 22, 1970; minimum daily, 3.0 ft^3/s (0.085 m^3/s) Oct. 31, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 117 ft^3/s (3.31 m^3/s) Oct. 1, gage height, 2.33 ft (0.710 m), no flow in canal; minimum daily, 51 ft^3/s (1.44 m^3/s) May 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	89	90	89	91	92	90	90	84	86	68	88
2	112	88	90	89	91	92	90	90	86	83	72	87
3	102	88	90	89	91	92	90	90	86	81	78	86
4	98	88	90	89	91	92	90	90	87	81	79	85
5	96	88	90	89	91	92	90	90	85	83	82	84
6	96	88	90	89	91	92	90	90	85	83	82	84
7	97	88	90	89	91	92	90	90	81	83	81	83
8	97	88	89	89	91	92	90	90	82	83	79	88
9	96	88	89	89	91	92	90	90	83	76	79	89
10	95	89	89	89	91	92	90	70	84	76	80	85
11	94	89	89	89	91	92	90	61	86	79	81	85
12	92	90	89	89	91	92	90	51	87	78	81	85
13	91	90	89	89	91	91	90	52	87	75	82	84
14	91	90	89	89	91	91	90	77	88	75	82	84
15	90	91	89	89	91	91	90	81	87	77	82	84
16	89	91	89	89	91	90	90	81	86	80	84	86
17	89	91	89	90	91	90	90	81	85	80	84	89
18	89	91	90	90	91	91	90	81	85	86	83	87
19	89	91	91	90	91	90	90	81	84	85	83	89
20	89	90	91	91	91	89	90	81	84	85	80	91
21	89	90	89	91	92	89	90	81	86	84	79	90
22	89	90	89	91	91	89	90	81	85	84	80	87
23	89	90	89	90	90	89	90	81	84	84	81	86
24	90	90	89	90	90	89	90	81	84	82	81	81
25	90	90	89	90	91	90	90	81	84	82	81	80
26	90	90	89	91	92	90	90	81	85	82	81	80
27	90	90	89	91	92	90	90	81	85	82	81	79
28	90	90	89	91	92	90	90	81	84	82	82	81
29	89	90	89	91	---	90	90	81	85	81	80	80
30	89	90	89	91	---	90	90	82	86	77	79	79
31	89	---	89	91	---	90	---	83	---	69	90	---
TOTAL	2873	2686	2771	2783	2550	2813	2700	2501	2550	2504	2497	2546
MEAN	92.7	89.5	89.4	89.8	91.1	90.7	90.0	80.7	85.0	80.8	80.5	84.9
MAX	112	91	91	91	92	92	90	90	88	86	90	91
MIN	89	88	89	89	90	89	90	51	81	69	68	79
AC-FT	5700	5330	5500	5520	5060	5580	5360	4960	5060	4970	4950	5050

CAL YR 1981 TOTAL 31469 MEAN 86.2 MAX 112 MIN 55 AC-FT 62420
WTR YR 1982 TOTAL 31774 MEAN 87.1 MAX 112 MIN 51 AC-FT 63020

NOTE.--No gage-height record Mar. 25 to May 26.

10390001 SILVER CREEK NEAR SILVER LAKE, OR

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.

DRAINAGE AREA.--180 mi² (466 km²), approximately.

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

REVISED RECORDS.--WSP 1564: 1906, 1910, 1921(M). WSP 1734: Drainage area.

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 May, 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, 1966-82.

AVERAGE DISCHARGE.--70 years (water years 1906, 1910-27, 1930-41, 1944-82), 30.2 ft³/s (0.855 m³/s), 21,880 acre-ft/yr (27.0 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 discharge not determined, probably occurred about Apr. 11; maximum daily, 651 ft³/s (18.4 m³/s) Apr. 11; minimum, 1.0 ft³/s (0.028 m³/s) Nov. 1, no flow in canal.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.2	6.2	4.5	11	68	30	291	80	52	41	42
2	1.9	1.4	6.2	4.3	12	81	31	321	72	52	42	42
3	3.9	3.0	6.2	4.7	11	68	31	351	78	49	46	42
4	3.6	2.5	6.2	5.0	10	58	31	381	85	45	52	44
5	2.8	2.3	6.2	4.3	9.5	48	31	381	80	42	51	44
6	2.5	2.3	6.0	3.7	9.5	40	45	381	75	40	51	44
7	2.1	2.3	5.8	3.4	10	38	70	387	81	41	49	43
8	1.9	2.1	5.4	5.0	10	36	110	362	79	44	50	44
9	1.7	2.1	5.4	8.0	12	34	171	312	77	48	46	38
10	1.6	1.9	5.1	17	12	34	251	267	78	48	44	35
11	1.7	6.0	5.1	18	11	36	651	229	79	47	42	32
12	1.7	8.1	5.1	19	9.8	38	501	214	85	42	42	32
13	2.3	8.1	5.4	16	9.5	40	451	216	90	42	39	32
14	2.8	8.1	5.4	15	14	35	291	220	87	41	38	32
15	2.6	8.5	5.4	15	20	29	241	227	85	41	39	30
16	2.5	8.1	5.4	18	49	28	211	230	82	41	40	27
17	2.3	8.1	5.7	14	146	28	211	237	79	41	39	26
18	2.3	8.1	6.3	12	118	28	211	257	80	41	39	26
19	1.9	8.1	6.2	11	143	28	211	247	81	43	39	26
20	1.7	8.1	6.0	10	173	29	211	228	81	44	38	31
21	1.7	8.1	5.0	9.0	271	30	211	214	80	45	41	27
22	1.7	7.5	5.0	9.0	149	32	231	199	74	42	44	25
23	1.7	6.7	5.5	12	120	37	241	185	70	41	45	23
24	3.0	6.0	6.0	13	97	39	261	171	75	41	44	22
25	3.0	5.0	6.2	12	89	37	281	166	78	42	46	20
26	3.0	5.0	6.0	11	86	35	291	154	72	43	45	19
27	2.6	4.8	5.3	9.5	78	34	311	131	63	44	44	19
28	2.1	4.6	5.3	9.5	69	32	301	117	62	50	43	18
29	1.9	4.6	5.2	9.5	---	30	291	102	59	47	43	18
30	1.6	5.5	4.7	9.8	---	29	291	92	54	40	44	9.4
31	1.4	---	4.7	11	---	29	---	87	---	40	43	---
TOTAL	68.7	158.2	173.6	323.2	1759.3	1188	6701	7357	2301	1359	1349	912.4
MEAN	2.22	5.27	5.60	10.4	62.8	38.3	223	237	76.7	43.8	43.5	30.4
MAX	3.9	8.5	6.3	19	271	81	651	387	90	52	52	44
MIN	1.2	1.2	4.7	3.4	9.5	28	30	87	54	40	38	9.4
AC-FT	136	314	344	641	3490	2360	13290	14590	4560	2700	2680	1810

CAL YR 1981 TOTAL 4974.73 MEAN 13.6 MAX 62 MIN .93 AC-FT 9870
WTR YR 1982 TOTAL 23650.40 MEAN 64.8 MAX 651 MIN 1.2 AC-FT 46910

NOTE.--No gage-height record Dec. 11 to Jan. 12, Mar. 13 to Apr. 11.

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 mi^2 (2,419 km^2).

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 except those for January to March, which are fair. No regulation. Diversions for irrigation above station during periods of high flow only.

AVERAGE DISCHARGE.--69 years (water years 1904-5, 1910-12, 1918-21, 1923-82), 169 ft^3/s (4.786 m^3/s), 122,400 acre-ft/yr (151 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,960 ft^3/s (140 m^3/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 recorded discharge, 2,640 ft^3/s (74.8 m^3/s) Feb. 20, gage height, 13.07 ft (3.984 m); minimum, 13 ft^3/s (0.37 m^3/s) Oct. 1-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	28	60	95	125	1000	782	2190	527	233	70	39
2	13	29	60	90	125	900	746	2160	503	256	67	38
3	13	28	58	90	115	850	718	2130	500	298	65	38
4	13	27	53	100	90	780	685	2080	508	316	64	38
5	13	29	55	100	85	700	671	1960	535	264	63	37
6	13	28	66	95	85	650	655	1860	535	227	63	38
7	14	28	78	80	85	610	614	1750	512	203	60	38
8	14	27	85	60	85	580	574	1630	469	193	59	37
9	15	26	87	70	85	560	562	1500	418	194	57	37
10	16	26	93	80	85	550	592	1430	374	187	55	37
11	18	26	92	85	90	550	826	1380	326	180	54	37
12	21	28	63	85	110	560	1210	1340	290	177	54	36
13	20	31	65	87	140	580	1430	1280	274	168	52	36
14	19	38	80	95	179	600	1730	1180	260	155	52	37
15	26	48	91	110	206	620	1940	1110	252	144	52	39
16	30	60	99	110	643	640	1770	1060	240	137	51	40
17	25	82	83	130	1150	670	1690	1020	225	129	50	42
18	24	95	84	150	1450	680	1490	1100	205	121	49	43
19	25	83	157	130	1540	650	1320	1090	191	115	48	43
20	26	70	385	100	2300	600	1210	1010	187	108	48	47
21	27	65	324	95	2500	580	1190	994	185	103	47	53
22	26	61	247	95	2300	580	1230	928	187	98	47	55
23	25	62	219	120	2000	590	1400	826	207	93	46	56
24	25	70	215	160	1700	610	1700	742	213	88	45	57
25	24	78	201	190	1500	653	1910	686	198	83	43	58
26	25	74	181	215	1300	716	2070	635	182	79	43	59
27	25	66	141	215	1200	806	2210	592	162	76	41	58
28	26	61	120	200	1100	850	2300	578	150	73	41	56
29	28	58	115	160	---	868	2300	566	169	72	40	56
30	30	60	110	140	---	862	2230	551	200	71	39	56
31	29	---	100	130	---	838	---	529	---	70	39	---
TOTAL	661	1492	3867	3662	22373	21283	39755	37887	9184	4711	1604	1341
MEAN	21.3	49.7	125	118	799	687	1325	1222	306	152	51.7	44.7
MAX	30	95	385	215	2500	1000	2300	2190	535	316	70	59
MIN	13	26	53	60	85	550	562	529	150	70	39	36
AC-FT	1310	2960	7670	7260	44380	42210	78850	75150	18220	9340	3180	2660

CAL YR 1981 TOTAL 46730.0 MEAN 128 MAX 767 MIN 8.2 AC-FT 92690
WTR YR 1982 TOTAL 147820.0 MEAN 405 MAX 2500 MIN 13 AC-FT 293200

NOTE.--No gage-height record Feb. 21 to Mar. 24.

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

LOCATION.--Lat 42°47'28", long 118°52'00", in NW¼NW¼ sec.20, T.32 S., R.32-1/2 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 excellent. No regulation or diversion above station.

AVERAGE DISCHARGE.--52 years (water years 1912-13, 1915-16, 1918-21, 1939-82), 123 ft³/s (3.483 m³/s), 89,110 acre-ft/yr (110 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 19	0230	1,290	36.5	4.73	1.442	Feb. 19	1800	1,680	47.6	5.26	1.603
Feb. 16	0300	*2,340	66.3	*5.86	1.786	May 26	0030	726	20.6	3.86	1.177

Minimum, 9.8 ft³/s (0.28 m³/s) Feb. 5, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	48	63	112	58	146	122	406	353	400	85	52
2	42	48	59	107	63	158	117	436	324	351	80	51
3	44	47	60	86	61	142	115	460	322	300	77	51
4	43	47	68	93	38	142	117	443	313	231	76	54
5	43	47	71	84	39	129	115	400	293	206	73	52
6	42	47	77	60	45	124	116	394	265	197	71	51
7	43	46	77	42	56	125	118	412	241	212	69	50
8	46	46	64	46	48	123	111	407	224	209	71	50
9	45	45	59	50	58	115	108	371	228	189	72	49
10	76	45	64	52	48	115	113	342	249	182	71	49
11	62	45	56	56	47	130	229	323	307	188	66	50
12	50	47	57	60	45	119	262	300	362	191	64	57
13	50	54	63	64	58	124	221	303	361	191	62	65
14	48	56	90	68	311	141	212	341	398	191	61	55
15	47	53	309	68	848	253	207	387	431	156	60	55
16	47	75	102	69	1570	176	190	397	446	139	59	57
17	48	72	63	68	667	145	182	428	459	133	57	58
18	48	61	233	63	344	134	182	427	478	131	58	56
19	47	56	794	61	892	128	172	390	479	130	60	65
20	47	59	695	66	648	133	173	397	454	127	60	80
21	46	58	271	63	644	151	173	407	426	123	60	63
22	45	63	147	56	605	222	202	446	404	114	57	57
23	46	66	128	64	321	282	265	511	354	110	56	55
24	46	158	116	61	230	287	341	518	346	106	54	58
25	45	75	111	65	204	233	373	595	309	104	54	66
26	45	62	114	158	187	174	386	620	310	102	53	66
27	45	62	112	105	166	144	406	522	320	107	53	65
28	47	44	100	86	149	134	420	422	303	108	52	67
29	49	58	152	71	---	128	367	375	301	99	54	66
30	47	67	181	67	---	128	377	341	265	96	55	65
31	47	---	122	63	---	124	---	340	---	93	53	---
TOTAL	1468	1757	4678	2234	8450	4809	6492	12861	10325	5216	1953	1735
MEAN	47.4	58.6	151	72.1	302	155	216	415	344	168	63.0	57.8
MAX	76	158	794	158	1570	287	420	620	479	400	85	80
MIN	42	44	56	42	38	115	108	300	224	93	52	49
AC-FT	2910	3490	9280	4430	16760	9540	12880	25510	20480	10350	3870	3440

CAL YR 1981 TOTAL 48134 MEAN 132 MAX 794 MIN 38 AC-FT 95470
WTR YR 1982 TOTAL 61978 MEAN 170 MAX 1570 MIN 38 AC-FT 122900

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

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to September 1981.
WATER TEMPERATURES: October 1975 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
NOV											
04...	1100	42	94	7.8	6.5	--	K1	K11	34	8.3	3.3
DEC											
02...	1245	56	86	E7.6	3.5	11.4	K8	K19	33	8.0	3.1
FEB											
10...	1300	50	92	E7.7	1.0	12.6	K1	K11	34	8.3	3.3
APR											
14...	1300	208	74	E7.6	8.0	11.0	K2	K20	31	8.0	2.7
JUN											
16...	1200	428	45	E7.6	12.0	9.3	59	43	17	4.3	1.6
AUG											
04...	1200	78	79	--	16.0	9.4	K13	41	32	8.2	2.8

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (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, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV										
04...	4.8	1.5	42	<5.0	.5	.1	<.060	.24	.65	.06
DEC										
02...	4.6	1.3	34	5.0	.7	.1	.090	.35	.32	.12
FEB										
10...	5.0	1.2	45	5.0	1.2	.2	<.060	.23	.33	.03
APR										
14...	4.2	1.3	42	6.0	.7	.1	<.060	<.10	.60	.03
JUN										
16...	2.5	.7	25	<5.0	.5	<.1	<.060	<.10	1.00	.03
AUG										
04...	4.4	1.2	39	<5.0	.6	<.1	.090	<.10	.70	.03

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, TOTAL (MG/L AS P)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	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
NOV										
04...	.010	.010	29	75	--	8.5	2.2	4	.45	83
DEC										
02...	.010	.030	28	72	72	10.9	2.8	5	.76	86
FEB										
10...	.010	.020	29	70	80	9.5	2.9	4	.54	74
APR										
14...	<.010	.020	27	73	75	41.0	8.0	15	8.4	91
JUN										
16...	.030	.130	17	46	--	53.2	11	78	90	76
AUG										
04...	.010	.030	26	66	--	13.9	2.2	4	.84	89

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	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)	COBALT, DIS-SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)
NOV 04...	<1	1	9	<100	<1	<1	<10	<10	<3	<1
DEC 02...	1	1	7	<100	<1	<1	<10	<10	<3	1
FEB 10...	<1	<1	14	<100	<1	<1	<10	10	<3	1
APR 14...	<1	<1	15	<100	<1	<1	<10	<10	2	<1
AUG 04...	<1	1	11	<100	<1	1	<10	10	<1	<1

DATE	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)	MERCURY DIS-SOLVED (UG/L AS HG)
NOV 04...	2	6	38	160	1	2	3	10	<.1
DEC 02...	<1	5	42	350	1	4	4	10	<.1
FEB 10...	1	5	40	230	3	2	2	20	<.1
APR 14...	2	12	100	1200	1	6	5	30	<.1
AUG 04...	2	5	24	250	<1	2	3	10	<.1

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SELE-NIUM, TOTAL (UG/L AS SE)	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)
NOV 04...	.3	<1	<1	<1	<1	<1	<1	29	40
DEC 02...	.2	1	<1	<1	<1	<1	<1	24	40
FEB 10...	.3	2	1	<1	<1	<1	<1	<3	10
APR 14...	.3	1	1	<1	<1	<1	<1	20	30
AUG 04...	.3	<1	4	<1	<1	<1	<1	29	30

E - Estimated value, based on values reported by Denver Central Laboratory.
K - Results based on colony count outside acceptable range (non-ideal colony count).

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 December to February and April, which are fair. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--51 years (water years 1923, 1933-82), 15.7 ft³/s (0.445 m³/s), 11,370 acre-ft/yr (14.0 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):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 17a	--	unknown		unknown	
Feb. 22	0530	69	1.95	2.92	0.890
Apr. 11a	--	unknown(b)		unknown	
Apr. 26a	--	unknown		unknown	
May 8	0400	113	3.20	3.46	1.055
May 18	0800	98	2.78	3.35	1.021
May 25	0400	102	2.89	3.38	1.030
July 1	0230	126	3.57	3.34	1.018

Minimum daily, 3.3 ft³/s (0.093 m³/s) Sept. 9, 10, but may have been less during period of ice effect Dec. 22 to Feb. 14.

a About.
(b) Probably maximum for year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	6.5	9.0	5.5	7.5	33	29	41	46	64	7.5	4.5
2	4.2	6.5	9.7	5.5	7.2	32	27	58	47	32	7.2	4.2
3	4.8	6.3	9.7	6.5	6.0	29	28	82	42	25	6.3	4.2
4	4.8	6.3	9.0	8.0	4.8	28	28	93	45	28	6.8	4.2
5	4.8	6.1	8.5	7.0	4.8	25	28	91	44	26	6.8	4.2
6	4.7	6.1	9.2	6.0	5.0	23	26	91	38	23	6.5	4.2
7	5.2	5.9	9.7	5.3	5.2	23	24	98	33	22	6.1	4.2
8	5.2	5.4	9.7	5.3	5.2	22	22	98	28	22	6.3	3.8
9	5.0	4.8	9.7	5.3	5.2	21	24	92	28	20	6.5	3.3
10	6.5	5.0	9.7	5.3	5.2	20	40	86	27	19	5.9	3.3
11	8.6	5.4	9.2	7.0	5.2	21	450	73	29	17	5.9	3.8
12	7.0	6.8	8.0	7.0	6.5	20	300	64	32	16	5.9	4.7
13	7.0	10	7.5	7.0	9.0	21	180	63	31	19	5.7	5.7
14	6.1	11	7.5	7.0	14	23	95	65	30	22	5.0	5.4
15	5.7	8.0	8.0	7.0	20	23	70	66	29	20	5.0	6.8
16	5.7	8.3	9.7	12	29	22	60	70	29	19	5.2	7.8
17	5.7	8.3	12	12	100	23	50	76	28	18	5.2	7.2
18	5.7	7.8	13	9.5	60	25	45	86	28	17	5.2	6.5
19	5.4	6.8	14	7.5	43	24	40	76	28	16	5.4	8.6
20	5.2	8.0	18	6.2	37	22	35	66	29	12	5.2	9.7
21	5.2	7.8	24	6.2	54	20	32	61	32	9.4	5.0	7.0
22	5.7	9.4	25	6.2	69	23	34	62	29	9.2	4.7	6.3
23	5.4	11	22	6.2	65	23	40	76	29	9.4	4.7	5.9
24	5.4	14	18	9.0	59	23	48	80	31	9.7	4.5	6.1
25	5.4	12	14	10	51	25	60	89	27	9.4	4.5	7.0
26	5.4	11	12	7.5	45	26	63	86	23	9.4	4.5	8.9
27	5.4	12	10	6.8	40	28	63	62	22	9.7	4.3	7.5
28	6.1	10	9.0	6.8	36	29	63	53	27	10	4.5	7.5
29	6.8	9.0	7.0	7.0	---	29	57	48	33	9.2	5.2	8.9
30	6.5	8.5	5.5	7.5	---	29	51	46	36	8.3	5.4	8.9
31	6.3	---	5.5	8.0	---	29	---	46	---	7.8	5.0	---
TOTAL	174.9	244.0	352.8	223.1	798.8	764	2112	2244	960	558.5	171.9	180.3
MEAN	5.64	8.13	11.4	7.20	28.5	24.6	70.4	72.4	32.0	18.0	5.55	6.01
MAX	8.6	14	25	12	100	33	450	98	47	64	7.5	9.7
MIN	4.0	4.8	5.5	5.3	4.8	20	22	41	22	7.8	4.3	3.3
AC-FT	347	484	700	443	1580	1520	4190	4450	1900	1110	341	358

CAL YR 1981 TOTAL 4146.55 MEAN 11.4 MAX 58 MIN .60 AC-FT 8220
WTR YR 1982 TOTAL 8784.30 MEAN 24.1 MAX 450 MIN 3.3 AC-FT 17420

NOTE.--No gage-height record Apr. 3-27.

11491400 WILLIAMSON RIVER BELOW SHEEP CREEK, NEAR LENZ, OR

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.

DRAINAGE AREA.--205 mi^2 (531 km^2).

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 4,550 ft (1,387 m), from topographic map.

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

AVERAGE DISCHARGE.--9 years, 68.4 ft^3/s (1.937 m^3/s), 49,560 acre-ft/yr (61.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246 ft^3/s (6.97 m^3/s) May 9, 10, 1974, gage height, 3.51 ft (1.070 m); minimum, 16 ft^3/s (0.45 m^3/s) Dec. 13, 1980, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 202 ft^3/s (5.72 m^3/s) May 9, gage height, 3.18 ft (0.969 m); minimum, 31 ft^3/s (0.88 m^3/s) Nov. 29, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	52	62	65	59	138	108	193	136	117	71	65
2	42	52	63	64	59	137	108	196	133	115	69	65
3	42	52	64	64	59	125	110	199	129	126	71	65
4	42	52	62	66	58	118	108	199	139	117	72	65
5	42	51	62	60	55	111	108	199	142	111	72	65
6	42	51	67	55	55	108	107	197	136	107	72	65
7	45	51	68	50	56	108	108	198	129	110	71	64
8	43	51	64	51	55	107	108	200	124	105	71	63
9	44	51	64	58	55	105	110	199	120	100	71	64
10	46	51	64	60	54	105	122	193	118	97	70	64
11	49	51	62	60	54	118	159	186	116	94	68	62
12	57	54	62	68	54	111	167	181	119	92	68	65
13	58	54	63	65	57	110	167	177	121	90	69	65
14	58	55	66	62	66	120	176	176	120	88	68	65
15	57	59	73	61	75	121	173	175	119	86	68	65
16	56	69	68	61	90	116	169	174	118	85	69	64
17	54	66	66	61	92	118	166	177	118	82	68	64
18	51	60	71	62	88	121	161	190	120	73	67	67
19	45	60	84	61	100	116	158	186	119	71	66	68
20	44	61	86	61	108	112	155	179	122	69	66	77
21	44	63	81	61	134	110	154	175	123	69	65	73
22	44	66	77	60	145	109	155	175	123	70	65	69
23	47	68	76	61	147	107	158	172	114	70	64	67
24	51	71	76	60	137	105	164	167	110	71	63	68
25	51	70	76	62	135	104	172	164	107	71	62	67
26	53	66	76	64	134	105	179	163	104	70	62	68
27	54	63	76	64	136	104	183	162	114	70	64	72
28	54	61	74	64	134	106	187	159	114	71	63	73
29	54	60	75	62	---	109	188	154	123	70	64	72
30	53	60	74	62	---	108	190	146	121	72	66	70
31	53	---	72	60	---	109	---	139	---	71	65	---
TOTAL	1517	1751	2174	1895	2451	3501	4478	5550	3651	2710	2090	2006
MEAN	48.9	58.4	70.1	61.1	87.5	113	149	179	122	87.4	67.4	66.9
MAX	58	71	86	68	147	138	190	200	142	126	72	77
MIN	42	51	62	50	54	104	107	139	104	69	62	62
AC-FT	3010	3470	4310	3760	4860	6940	8880	11010	7240	5380	4150	3980

CAL YR 1981 TOTAL 19188 MEAN 52.6 MAX 130 MIN 34 AC-FT 38060
WTR YR 1982 TOTAL 33774 MEAN 92.5 MAX 200 MIN 42 AC-FT 66990

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 mi^2 (67.9 km^2), of which 20.5 mi^2 (53.1 km^2) is lake area at elevation 6,176 ft (1,882.4 m).

WATER-ELEVATION 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, 6,174.83 ft (1,882.088 m) Apr. 14; minimum, 6,170.84 ft (1,880.872 m) Oct. 6.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6170.95	6171.11	6171.79	6173.36	6173.56	6174.17	6174.29	6174.59	6174.36	6174.52	6174.27	6173.83
2	6170.95	6171.08	6171.80	6173.41	6173.54	6174.20	6174.43	6174.58	6174.34	6174.54	6174.24	6173.82
3	6170.91	6171.07	6171.79	6173.52	6173.52	6174.22	6174.49	6174.56	6174.34	6174.54	6174.22	6173.80
4	6170.89	6171.05	6171.79	6173.54	6173.49	6174.20	6174.49	6174.55	6174.36	6174.52	6174.20	6173.79
5	6170.88	6171.04	6171.99	6173.52	6173.47	6174.20	6174.54	6174.54	6174.34	6174.52	6174.18	6173.77
6	6170.98	6171.04	6172.11	6173.50	6173.46	6174.18	6174.54	6174.54	6174.33	6174.52	6174.18	6173.77
7	6170.98	6171.02	6172.08	6173.48	6173.45	6174.17	6174.54	6174.52	6174.31	6174.50	6174.17	6173.74
8	6171.00	6170.99	6172.05	6173.47	6173.42	6174.17	6174.52	6174.52	6174.31	6174.49	6174.16	6173.74
9	6171.11	6170.97	6172.13	6173.46	6173.40	6174.16	6174.50	6174.49	6174.30	6174.48	6174.16	6173.72
10	6171.14	6170.97	6172.11	6173.45	6173.39	6174.20	6174.59	6174.48	6174.30	6174.48	6174.14	6173.70
11	6171.13	6171.06	6172.09	6173.43	6173.38	6174.20	6174.63	6174.47	6174.30	6174.48	6174.13	6173.70
12	6171.11	6171.08	6172.13	6173.41	6173.38	6174.18	6174.66	6174.46	6174.30	6174.47	6174.11	6173.71
13	6171.07	6171.20	6172.25	6173.40	6173.56	6174.18	6174.74	6174.45	6174.30	6174.46	6174.11	6173.68
14	6171.05	6171.18	6172.41	6173.38	6173.63	6174.17	6174.83	6174.45	6174.30	6174.43	6174.08	6173.64
15	6171.02	6171.33	6172.39	6173.38	6173.74	6174.15	6174.80	6174.45	6174.30	6174.43	6174.06	6173.63
16	6171.02	6171.50	6172.38	6173.38	6173.79	6174.18	6174.79	6174.45	6174.30	6174.42	6174.04	6173.59
17	6171.02	6171.54	6172.38	6173.43	6173.75	6174.18	6174.77	6174.43	6174.31	6174.41	6174.02	6173.59
18	6171.02	6171.52	6172.61	6173.45	6173.93	6174.20	6174.74	6174.43	6174.32	6174.41	6174.02	6173.63
19	6171.02	6171.52	6172.88	6173.45	6173.92	6174.17	6174.73	6174.42	6174.32	6174.40	6173.99	6173.61
20	6171.02	6171.56	6172.88	6173.43	6174.02	6174.15	6174.71	6174.41	6174.34	6174.39	6173.98	6173.61
21	6171.00	6171.70	6172.86	6173.45	6174.05	6174.14	6174.70	6174.41	6174.36	6174.38	6173.96	6173.58
22	6171.00	6171.72	6172.88	6173.55	6174.08	6174.13	6174.70	6174.41	6174.36	6174.36	6173.96	6173.57
23	6170.99	6171.75	6172.88	6173.56	6174.06	6174.13	6174.68	6174.40	6174.38	6174.34	6173.95	6173.55
24	6170.98	6171.74	6172.95	6173.57	6174.05	6174.11	6174.66	6174.40	6174.38	6174.33	6173.93	6173.57
25	6170.97	6171.74	6172.97	6173.58	6174.02	6174.11	6174.65	6174.40	6174.38	6174.32	6173.91	6173.55
26	6170.93	6171.73	6173.13	6173.64	6174.07	6174.11	6174.64	6174.39	6174.41	6174.32	6173.88	6173.58
27	6171.06	6171.71	6173.15	6173.64	6174.04	6174.14	6174.63	6174.38	6174.41	6174.31	6173.86	6173.55
28	6171.11	6171.70	6173.17	6173.63	6174.08	6174.15	6174.63	6174.38	6174.45	6174.31	6173.84	6173.58
29	6171.14	6171.68	6173.27	6173.61	---	6174.17	6174.61	6174.36	6174.45	6174.31	6173.86	6173.55
30	6171.13	6171.74	6173.25	6173.59	---	6174.27	6174.61	6174.36	6174.47	6174.31	6173.86	6173.54
31	6171.11	---	6173.31	6173.56	---	6174.29	---	6174.36	---	6174.29	6173.84	---
MEAN	6171.02	6171.37	6172.51	6173.49	6173.72	6174.17	6174.63	6174.45	6174.35	6174.42	6174.04	6173.66
MAX	6171.14	6171.75	6173.31	6173.64	6174.08	6174.29	6174.83	6174.59	6174.47	6174.54	6174.27	6173.83
MIN	6170.88	6170.97	6171.79	6173.36	6173.38	6174.11	6174.29	6174.36	6174.30	6174.29	6173.84	6173.54

CAL YR 1981 MEAN 6172.13 MAX 6173.31 MIN 6170.88
WTR YR 1982 MEAN 6173.48 MAX 6174.83 MIN 6170.88

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.

INSTRUMENTATION.--Temperature recorder since October 1963.

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 Aug. 26; minimum, 2.0°C many days from February through April.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
OCT 14...	1030	108	7.3	9.0	28	2.0	6.9	2.5
JUL 07...	1230	115	7.4	9.0	28	.00	7.0	2.5
AUG 25...	1200	113	6.9	16.0	27	1.0	6.7	2.6

DATE	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)
OCT 14...	9.7	1.9	26	6.0	16	.1	<.10	<.060	<.10
JUL 07...	10	1.8	31	11	9.7	.2	<.10	.060	.60
AUG 25...	11	1.8	26	11	9.9	.1	--	--	--

DATE	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 14...	.080	<.21	<.010	.010	.9	18	74	77
JUL 07...	<.060	.40	.060	.050	1.0	18	76	79
AUG 25...	.100	.70	--	.460	.4	17	86	76

11492200 CRATER LAKE NEAR CRATER LAKE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	8.0	8.0	5.5	5.0	3.5	3.5	3.0	3.0	2.5	2.5
2	---	---	8.0	8.0	5.0	5.0	3.5	3.5	3.5	3.0	2.5	2.5
3	---	---	8.0	8.0	5.0	5.0	3.5	3.5	3.0	2.5	2.5	2.5
4	---	---	8.0	7.5	5.5	5.0	3.5	3.5	3.0	2.0	3.0	2.5
5	---	---	8.0	7.5	5.0	5.0	3.5	3.0	3.0	2.5	3.0	2.5
6	---	---	8.0	7.5	5.0	5.0	3.5	3.0	2.5	2.5	2.5	2.5
7	---	---	8.0	7.5	5.0	5.0	3.5	3.0	3.0	2.5	3.0	2.5
8	---	---	8.0	7.5	5.0	5.0	3.5	3.0	3.0	2.5	2.5	2.5
9	---	---	8.0	7.5	5.0	4.5	3.5	3.0	3.0	2.5	2.5	2.5
10	---	---	7.5	7.5	4.5	4.5	3.5	3.5	2.5	2.0	2.5	2.5
11	---	---	7.5	7.5	5.0	4.5	3.5	3.0	2.5	2.0	2.5	2.5
12	---	---	7.5	7.5	4.5	4.5	3.5	3.0	2.5	2.0	2.5	2.5
13	--	---	7.5	7.0	4.5	4.5	3.5	3.0	2.5	2.0	2.5	2.5
14	9.0	---	7.0	7.0	4.5	4.5	3.5	3.0	2.5	2.5	2.5	2.5
15	9.0	8.5	7.0	6.5	4.5	4.5	3.0	3.0	2.5	2.5	3.0	2.5
16	9.0	9.0	6.5	6.5	4.5	4.5	3.5	3.0	2.5	2.5	2.5	2.5
17	9.0	9.0	6.5	6.5	4.5	4.5	3.5	3.5	2.5	2.5	2.5	2.0
18	9.0	9.0	6.5	6.5	4.5	4.5	3.5	3.0	2.5	2.5	2.5	2.0
19	9.0	9.0	6.5	6.0	4.5	4.0	3.5	3.0	3.0	2.5	2.5	2.5
20	9.0	9.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	2.5	3.0	2.5
21	9.0	9.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	2.5	3.0	2.0
22	9.0	9.0	6.0	6.0	4.0	4.0	3.0	3.0	3.0	2.5	3.0	2.5
23	9.0	9.0	6.0	6.0	4.0	4.0	3.5	3.0	3.0	2.5	3.0	2.5
24	9.0	9.0	6.0	5.5	4.0	4.0	3.5	3.0	3.0	2.5	3.0	2.5
25	9.0	9.0	6.0	5.5	4.0	4.0	3.5	3.0	2.5	2.5	3.0	2.5
26	9.0	9.0	5.5	5.5	4.0	4.0	3.0	3.0	2.5	2.5	3.0	2.5
27	9.0	9.0	5.5	5.5	4.0	4.0	3.0	3.0	2.5	2.5	2.5	2.5
28	9.0	8.5	5.5	5.5	4.0	4.0	3.0	3.0	2.5	2.5	2.5	2.5
29	8.5	8.0	5.5	5.5	4.0	3.5	3.0	3.0	---	---	2.5	2.5
30	8.0	8.0	5.5	5.5	4.0	3.5	3.5	3.0	---	---	2.5	2.0
31	8.0	8.0	---	---	4.0	3.5	3.5	3.0	---	---	2.5	2.0
MONTH	9.0	8.0	8.0	5.5	5.5	3.5	3.5	3.0	3.5	2.0	3.0	2.0

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

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.--28 years (water years 1955-82), 200 ft³/s (5.664 m³/s), 144,900 acre-ft/yr (179 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, 1977-81.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 967 ft³/s (27.4 m³/s) Feb. 27, gage height, 5.37 ft (1.637 m); no flow Oct. 1 to Nov. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	21	341	180	896	527	480	245	133	40	12
2	.00	.00	25	331	179	906	495	466	236	134	39	12
3	.00	.00	28	303	177	904	497	451	229	135	37	12
4	.00	.00	30	278	170	897	508	451	227	131	36	12
5	.00	.00	29	270	155	892	515	444	226	128	34	12
6	.00	.00	46	260	150	874	511	433	220	124	32	12
7	.00	.00	63	250	150	849	520	421	218	122	30	11
8	.00	.00	73	240	150	812	523	414	212	119	30	8.5
9	.00	.00	72	250	145	781	517	404	206	116	27	6.1
10	.00	.00	84	257	140	770	520	390	199	113	27	5.2
11	.00	.00	98	250	135	755	508	381	195	109	25	4.0
12	.00	.00	105	245	131	740	502	373	193	105	24	3.0
13	.00	.00	117	240	132	723	471	362	193	99	21	2.8
14	.00	.00	128	230	173	724	493	354	192	95	20	2.7
15	.00	.00	134	220	191	703	536	348	187	92	19	3.1
16	.00	.00	155	216	273	682	565	339	176	89	18	3.4
17	.00	.00	164	214	374	688	567	337	170	86	16	3.4
18	.00	.00	186	210	441	674	575	340	165	80	14	3.8
19	.00	.00	248	206	529	645	587	333	163	76	12	4.6
20	.00	.00	305	202	605	631	590	325	163	72	11	6.7
21	.00	.00	323	197	699	625	580	321	164	68	10	7.5
22	.00	.00	321	195	708	617	574	316	160	66	10	7.9
23	.00	.00	321	190	785	609	560	312	151	64	9.0	7.9
24	.00	.00	322	191	843	602	542	306	144	61	8.7	8.0
25	.00	1.0	324	192	909	588	531	295	141	58	9.3	8.0
26	.00	7.4	328	194	946	561	524	284	138	55	9.8	7.9
27	.00	13	323	195	961	531	517	276	136	54	9.6	9.0
28	.00	15	335	193	958	513	499	270	136	52	10	8.4
29	.00	17	317	190	---	515	495	265	141	49	12	9.8
30	.00	19	321	185	---	514	488	256	139	45	13	10
31	.00	---	349	180	---	520	---	251	---	42	12	---
TOTAL	.00	72.40	5695	7115	11389	21741	15837	10998	5465	2772	625.4	224.7
MEAN	.000	2.41	184	230	407	701	528	355	182	89.4	20.2	7.49
MAX	.00	19	349	341	961	906	590	480	245	135	40	12
MIN	.00	.00	21	180	131	513	471	251	136	42	8.7	2.7
AC-FT	.00	144	11300	14110	22590	43120	31410	21810	10840	5500	1240	446

CAL YR 1981 TOTAL 26475.57 MEAN 72.5 MAX 349 MIN .00 AC-FT 52510
WTR YR 1982 TOTAL 81934.50 MEAN 224 MAX 961 MIN .00 AC-FT 162500

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 Sycan 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. No regulation. Diversions for irrigation above station in the vicinity of Bly.

AVERAGE DISCHARGE.--32 years (water years 1914-15, 1920, 1954-82), 309 ft³/s (8.751 m³/s), 223,900 acre-ft/yr (276 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, 50 ft³/s (1.42 m³/s) Aug. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,260 ft³/s (92.3 m³/s) Dec. 20, gage height, 9.38 ft (2.859 m); minimum, 95 ft³/s (2.69 m³/s) Aug. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	114	134	243	393	217	930	404	1270	614	401	141	123
2	104	134	297	396	228	972	475	1310	599	383	138	119
3	114	134	425	363	230	920	467	1360	554	453	134	123
4	114	136	358	334	207	864	447	1390	540	417	128	126
5	110	130	292	308	163	740	475	1350	596	365	123	128
6	114	130	276	263	173	671	461	1270	579	332	119	126
7	151	128	542	228	203	647	467	1250	528	313	116	123
8	165	128	409	272	186	620	489	1260	467	297	116	116
9	155	128	322	297	196	593	611	1210	414	278	117	110
10	175	138	341	294	182	590	827	1110	396	258	123	109
11	182	143	311	283	180	632	1240	1020	380	241	121	109
12	171	136	278	269	184	611	2200	958	391	232	138	116
13	159	140	288	245	194	576	1930	934	425	232	138	121
14	149	167	422	241	380	608	1470	937	428	219	125	119
15	143	207	647	236	1030	701	1230	930	422	207	114	117
16	140	728	937	245	1910	605	958	927	414	203	110	123
17	134	1710	450	256	2460	562	867	958	401	194	109	125
18	132	1070	439	254	1720	584	848	1130	391	192	117	125
19	128	436	927	243	1230	620	824	1130	401	194	119	130
20	128	324	2550	239	1560	570	788	1010	409	192	119	145
21	126	288	2850	236	1980	509	776	958	461	186	105	175
22	125	512	1690	224	3130	464	800	955	442	175	105	159
23	125	517	906	226	2700	444	867	941	425	173	107	163
24	125	934	722	228	1880	439	972	927	406	167	107	145
25	125	680	650	234	1450	442	1080	930	406	159	109	141
26	125	378	629	292	1300	450	1160	955	368	157	104	136
27	123	313	800	315	1150	447	1190	951	344	153	100	143
28	134	250	632	299	997	439	1230	878	334	159	100	149
29	141	213	545	245	---	458	1280	797	386	165	121	143
30	140	243	509	220	---	458	1260	734	383	157	125	143
31	134	---	428	200	---	430	---	650	---	140	121	---
TOTAL	4205	10709	21115	8378	27420	18596	28093	32390	13304	7394	3669	3930
MEAN	136	357	681	270	979	600	936	1045	443	239	118	131
MAX	182	1710	2850	396	3130	972	2200	1390	614	453	141	175
MIN	104	128	243	200	163	430	404	650	334	140	100	109
AC-FT	8340	21240	41880	16620	54390	36890	55720	64250	26390	14670	7280	7800

CAL YR 1981 TOTAL 92291 MEAN 253 MAX 2850 MIN 54 AC-FT 183100
WTR YR 1982 TOTAL 179203 MEAN 491 MAX 3130 MIN 100 AC-FT 355400

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. Diversions for irrigation above station.

AVERAGE DISCHARGE.--9 years, 165 ft³/s (4.673 m³/s), 119,500 acre-ft/yr (147 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,550 ft³/s (157 m³/s) Feb. 21 or 22, 1982, gage height, 12.22 ft (3.725 m), from floodmarks; minimum, 3.0 ft³/s (0.085 m³/s) Nov. 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,550 ft³/s (157 m³/s) Feb. 21 or 22, gage height, 12.22 ft (3.725 m), from floodmarks; minimum, 7.2 ft³/s (0.20 m³/s) Oct. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	22	79	220	94	1240	259	988	498	181	42	29
2	15	21	99	190	95	1290	305	999	458	183	41	28
3	15	22	214	175	94	1180	288	1020	413	189	42	29
4	14	20	259	160	109	975	288	1060	400	194	41	30
5	14	18	221	140	103	801	309	1120	395	197	40	30
6	14	19	213	130	87	717	305	1110	383	198	40	29
7	17	19	276	110	68	666	311	1080	366	195	38	29
8	18	21	264	130	64	623	322	1050	356	186	39	28
9	19	20	205	140	60	588	358	1070	338	172	41	27
10	28	20	169	140	60	580	415	1060	314	159	40	26
11	24	20	133	135	58	654	814	968	290	144	40	26
12	19	23	103	125	56	657	2000	838	275	133	40	27
13	16	27	112	120	63	598	1930	768	268	123	40	28
14	15	30	131	115	104	636	1530	750	264	116	39	28
15	14	35	406	108	219	672	1160	762	258	108	40	28
16	13	114	466	109	1130	595	999	756	251	103	38	28
17	12	258	306	107	2600	553	1010	759	241	96	38	29
18	12	268	318	107	3400	565	869	859	232	92	36	30
19	12	235	906	105	1900	533	726	893	224	84	35	31
20	12	189	1570	105	1400	493	657	872	222	79	32	34
21	12	154	1300	101	2300	443	633	797	234	75	31	41
22	11	165	900	103	4500	405	623	735	214	70	31	39
23	13	211	500	99	3500	388	628	702	208	67	30	37
24	11	398	400	100	2500	370	648	678	205	64	29	35
25	11	453	350	103	2000	362	684	654	198	60	29	33
26	13	352	340	110	1820	352	726	630	190	56	28	32
27	17	239	400	109	1480	334	768	603	180	54	28	33
28	22	163	370	110	1320	312	835	595	174	51	29	35
29	25	110	330	116	---	305	906	588	180	51	29	34
30	24	91	290	110	---	297	968	565	183	48	29	33
31	24	---	250	105	---	276	---	533	---	45	29	---
TOTAL	498	3737	11880	3837	31184	18460	22274	25862	8412	3573	1104	926
MEAN	16.1	125	383	124	1114	595	742	834	280	115	35.6	30.9
MAX	28	453	1570	220	4500	1290	2000	1120	498	198	42	41
MIN	11	18	79	99	56	276	259	533	174	45	28	26
AC-FT	988	7410	23560	7610	61850	36620	44180	51300	16690	7090	2190	1840

CAL YR 1981 TOTAL 31772.7 MEAN 87.0 MAX 1570 MIN 4.1 AC-FT 63020
WTR YR 1982 TOTAL 131747.0 MEAN 361 MAX 4500 MIN 11 AC-FT 261300

NOTE.--No gage-height record Feb. 17-25.

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.--61 years (water years 1922-82), 577 ft³/s (16.34 m³/s), 418,000 acre-ft/yr (515 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, 8,680 ft³/s (246 m³/s) Feb. 24, gage height, 8.20 ft (2.499 m); minimum, 201 ft³/s (5.69 m³/s) Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	256	290	485	1140	534	4060	1060	2300	1550	667	292	249
2	251	283	475	958	528	3500	1030	2380	1450	699	272	249
3	243	283	487	749	492	2980	997	2430	1360	703	269	235
4	234	283	527	665	500	2750	1070	2450	1290	678	282	228
5	230	281	648	630	492	2650	1090	2470	1250	676	285	230
6	234	283	743	580	420	2490	1090	2530	1180	690	284	234
7	256	279	710	640	474	2260	1090	2580	1160	662	278	231
8	260	278	656	660	455	2010	1090	2610	1140	622	273	222
9	266	276	768	640	461	1810	1100	2580	1080	593	264	223
10	294	274	856	680	423	1690	1230	2540	999	566	256	225
11	299	274	744	700	424	1650	1560	2500	918	534	250	241
12	299	288	674	660	407	1590	1920	2470	859	506	252	248
13	309	303	644	640	429	1590	2190	2400	821	473	238	250
14	306	309	614	640	562	1660	2840	2260	811	444	232	255
15	294	322	683	620	937	1650	4180	2090	812	422	244	254
16	287	400	785	610	1610	1640	4500	1960	805	397	242	245
17	282	523	1000	610	2220	1700	4120	1900	777	377	226	251
18	278	682	1270	610	2860	1700	3330	1880	741	371	226	260
19	274	980	1470	600	4390	1600	2670	1890	726	372	230	266
20	269	1270	1560	610	5510	1510	2370	1920	692	367	232	285
21	267	1250	1900	590	5750	1470	2190	2000	700	354	249	292
22	265	876	2650	580	6100	1420	2020	2060	708	338	250	302
23	265	686	3820	560	7700	1310	1890	2030	732	339	241	329
24	265	780	4200	522	8650	1210	1820	1940	742	324	226	334
25	265	940	3670	554	8170	1140	1810	1840	718	308	221	325
26	265	1120	2650	583	6820	1090	1850	1770	690	294	225	318
27	265	1270	2100	602	5490	1080	1920	1710	663	293	214	306
28	274	1090	1720	689	4590	1080	2020	1670	647	281	205	300
29	274	772	1600	694	---	1070	2110	1660	630	285	219	306
30	278	573	1540	705	---	1060	2200	1650	636	290	233	318
31	289	---	1370	554	---	1070	---	1610	---	292	241	---
TOTAL	8393	17518	43019	20275	77398	55490	60357	66080	27287	14217	7651	8011
MEAN	271	584	1388	654	2764	1790	2012	2132	910	459	247	267
MAX	309	1270	4200	1140	8650	4060	4500	2610	1550	703	292	334
MIN	230	274	475	522	407	1060	997	1610	630	281	205	222
AC-FT	16650	34750	85330	40220	153500	110100	119700	131100	54120	28200	15180	15890

CAL YR 1981 TOTAL 168654 MEAN 462 MAX 4200 MIN 95 AC-FT 334500
WTR YR 1982 TOTAL 405696 MEAN 1111 MAX 8650 MIN 205 AC-FT 804700

11502500 WILLIAMSON RIVER BELOW SPRAGUE RIVER, NEAR CHILOQUIN, OR

LOCATION.--Lat 42°34'15", long 121°52'35", in NE¼NE¼ sec.4, T.35 S., R.7 E., Klamath County, Hydrologic Unit 18010202, on 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.--65 years, 1,040 ft³/s (29.45 m³/s), 753,500 acre-ft/yr (929 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, 10,200 ft³/s (289 m³/s) Feb. 24, gage height, 8.45 ft (2.576 m); minimum, 482 ft³/s (13.7 m³/s) Aug. 27-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	580	630	834	1730	1000	5240	1900	3140	2040	1060	591	528
2	580	624	825	1500	1000	4750	1860	3210	1920	1100	572	528
3	567	623	841	1290	960	4320	1800	3240	1810	1100	565	516
4	567	622	876	1200	956	4060	1880	3250	1750	1070	571	508
5	561	622	986	1110	927	3940	1940	3260	1700	1060	572	509
6	580	622	1100	1030	792	3790	1920	3300	1630	1080	572	511
7	608	621	1080	1100	842	3570	1930	3340	1600	1060	567	509
8	601	616	1040	1160	873	3290	1930	3340	1580	1020	565	503
9	614	615	1130	1130	903	3040	1940	3310	1520	987	554	503
10	644	617	1230	1180	845	2890	2090	3250	1430	962	546	503
11	644	622	1140	1210	845	2850	2480	3190	1340	926	535	515
12	641	640	1090	1150	836	2750	2810	3150	1280	893	531	524
13	644	645	1070	1110	866	2730	3060	3070	1240	854	521	526
14	644	649	1060	1090	1020	2820	3670	2920	1230	816	511	533
15	637	680	1130	1070	1420	2800	4760	2740	1220	786	518	533
16	630	764	1220	1060	2180	2760	5200	2590	1210	757	520	522
17	626	864	1430	1060	2880	2820	4860	2520	1180	730	505	525
18	619	985	1730	1060	3560	2820	4210	2490	1140	704	501	540
19	615	1250	2040	1040	4990	2680	3650	2490	1130	706	505	544
20	611	1520	2180	1060	6430	2560	3360	2490	1090	698	504	565
21	608	1550	2500	1030	7240	2500	3170	2570	1100	690	514	573
22	607	1200	3190	1000	7470	2420	2980	2630	1110	664	521	580
23	608	1010	4170	1020	9010	2300	2840	2590	1120	658	510	608
24	608	1080	4550	1020	10100	2170	2750	2490	1130	641	499	631
25	608	1220	4170	1060	9560	2070	2720	2390	1110	620	491	616
26	609	1380	3360	1090	8190	1990	2740	2300	1080	603	494	608
27	612	1540	2770	1080	6790	1940	2800	2230	1060	595	488	597
28	626	1400	2340	1160	5810	1920	2890	2180	1050	584	482	594
29	626	1100	2210	1110	---	1910	2970	2160	1030	582	498	595
30	623	914	2060	1100	---	1890	3050	2140	1040	591	506	613
31	630	---	2000	1030	---	1900	---	2100	---	588	514	---
TOTAL	18978	27225	57352	35040	98295	89490	86160	86070	39870	25185	16343	16460
MEAN	612	908	1850	1130	3511	2887	2872	2776	1329	812	527	549
MAX	644	1550	4550	1730	10100	5240	5200	3340	2040	1100	591	631
MIN	561	615	825	1000	792	1890	1800	2100	1030	582	482	503
AC-FT	37640	54000	113800	69500	195000	177500	170900	170700	79080	49950	32420	32650

CAL YR 1981 TOTAL 303191 MEAN 831 MAX 4550 MIN 376 AC-FT 601400
WTR YR 1982 TOTAL 596468 MEAN 1634 MAX 10100 MIN 482 AC-FT 1183000

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.

AVERAGE DISCHARGE.--5 years, 2.87 ft^3/s (0.081 m^3/s), 2,080 acre-ft/yr (2.56 hm^3/yr), adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16 ft^3/s (0.45 m^3/s) June 22-24, 1982, gage height, 1.55 ft (0.472 m); minimum, 0.33 ft^3/s (0.009 m^3/s) Nov. 20, 22, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16 ft^3/s (0.45 m^3/s) June 22-24, gage height, 1.55 ft (0.472 m); minimum, 1.1 ft^3/s (0.031 m^3/s) Nov. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.3	1.4	3.4	1.7	3.3	1.9	1.9	8.9	14	8.0	3.9
2	1.5	1.3	1.4	3.3	1.7	3.3	1.9	1.9	8.7	14	7.8	3.8
3	1.6	1.3	1.3	3.3	1.7	3.3	1.9	2.0	8.7	14	7.7	3.8
4	1.5	1.2	1.3	3.1	1.5	3.2	1.9	2.1	9.0	13	7.3	3.6
5	1.5	1.2	1.3	2.9	1.5	3.2	1.8	2.2	8.7	13	7.1	3.5
6	1.6	1.2	1.4	2.7	1.6	3.1	1.8	2.3	8.6	13	6.8	3.5
7	1.6	1.2	1.5	2.5	1.6	3.1	1.8	2.4	8.6	13	6.7	3.4
8	1.5	1.2	1.6	2.4	1.5	3.0	1.7	2.8	8.6	13	6.7	3.4
9	1.6	1.2	1.7	2.4	1.5	3.0	1.7	3.0	8.6	13	6.6	3.4
10	1.6	1.2	1.8	2.4	1.5	2.9	1.8	3.1	8.6	12	6.5	3.4
11	1.5	1.2	1.8	2.3	1.5	2.8	1.7	3.1	8.6	12	6.4	3.4
12	1.5	1.2	1.8	2.3	1.5	2.5	1.7	3.2	8.9	12	6.1	3.3
13	1.5	1.2	1.8	2.2	1.5	2.5	1.7	3.3	9.4	11	5.8	3.2
14	1.4	1.2	1.8	2.2	1.6	2.5	1.7	3.3	9.5	11	5.6	3.3
15	1.4	1.3	1.9	2.1	1.6	2.4	1.7	3.3	9.8	11	5.5	3.2
16	1.3	1.3	1.9	2.1	1.7	2.4	1.6	3.4	10	11	5.3	3.2
17	1.4	1.3	2.0	2.1	1.8	2.4	1.6	3.5	11	11	5.0	3.1
18	1.3	1.3	2.1	2.0	1.8	2.4	1.6	3.7	12	11	5.0	3.2
19	1.4	1.4	2.3	2.1	1.9	2.3	1.6	3.7	12	10	4.8	3.1
20	1.3	1.4	2.9	2.0	2.1	2.2	1.6	3.8	14	9.8	4.8	3.1
21	1.3	1.4	3.6	2.1	2.4	2.3	1.6	3.9	15	9.5	4.7	3.0
22	1.3	1.4	3.6	2.1	2.8	2.1	1.6	4.0	15	9.4	4.7	3.0
23	1.2	1.4	3.8	2.0	3.3	2.2	1.6	4.1	15	9.2	4.6	3.0
24	1.3	1.4	3.8	1.9	3.4	2.1	1.6	4.9	14	9.0	4.5	2.9
25	1.2	1.5	3.8	2.0	3.6	2.1	1.6	5.6	13	9.1	4.3	2.9
26	1.2	1.5	3.6	1.9	3.6	2.1	1.6	6.2	13	9.0	4.1	2.9
27	1.2	1.4	3.6	1.9	3.5	2.0	1.7	7.0	13	8.8	4.1	2.9
28	1.3	1.4	3.5	1.9	3.4	2.0	1.7	7.3	13	8.5	4.0	2.9
29	1.3	1.4	3.4	1.8	---	2.0	1.7	7.7	14	8.4	4.0	2.9
30	1.3	1.4	3.3	1.8	---	1.9	1.8	7.7	14	8.2	4.0	2.8
31	1.3	---	3.3	1.8	---	1.8	---	7.9	---	8.0	4.0	---
TOTAL	43.5	39.3	74.3	71.0	58.8	78.4	51.2	124.3	331.2	338.9	172.5	97.0
MEAN	1.40	1.31	2.40	2.29	2.10	2.53	1.71	4.01	11.0	10.9	5.56	3.23
MAX	1.6	1.5	3.8	3.4	3.6	3.3	1.9	7.9	15	14	8.0	3.9
MIN	1.2	1.2	1.3	1.8	1.5	1.8	1.6	1.9	8.6	8.0	4.0	2.8
AC-FT	86	78	147	141	117	156	102	247	657	672	342	192
MEAN†	1.46	1.34	2.42	2.33	2.14	2.57	1.73	4.07	11.11	11.09	5.76	3.34
AC-FT†	89.6	79.6	149	143	119	158	103	250	661	682	354	199

CAL YR 1981 TOTAL 791.1 MEAN 2.17 MAX 4.2 MIN 1.2 AC-FT 1570 MEAN† 2.24 AC-FT† 1625
WTR YR 1982 TOTAL 1480.4 MEAN 4.06 MAX 15 MIN 1.2 AC-FT 2940 MEAN† 4.12 AC-FT† 2986

† 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) Bureau of Reclamation datum. Gage readings have been reduced to elevations Bureau of Reclamation 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 Bureau of Reclamation, 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 Bureau of Reclamation, 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, 4,143.27 ft (1,262.869 m) June 30; minimum daily, 4,137.48 ft (1,261.104 m) Oct. 6.

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 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4137.54	4138.29	4140.02	4141.80	4141.54	4142.83	4142.43	4142.65	4143.01	4143.24	4142.44	4141.60
2	4137.54	4138.31	4140.04	4141.80	4141.54	4142.88	4142.39	4142.69	4143.02	4143.23	4142.40	4141.57
3	4137.59	4138.34	4140.11	4141.75	4141.54	4142.86	4142.47	4142.73	4143.01	4143.23	4142.35	4141.55
4	4137.59	4138.46	4140.15	4141.71	4141.54	4142.85	4142.46	4142.75	4143.04	4143.21	4142.32	4141.55
5	4137.57	4138.44	4140.13	4141.67	4141.53	4142.79	4142.44	4142.77	4143.05	4143.19	4142.30	4141.53
6	4137.48	4138.42	4140.23	4141.60	4141.52	4142.73	4142.46	4142.77	4143.06	4143.16	4142.28	4141.52
7	4137.59	4138.45	4140.34	4141.55	4141.52	4142.69	4142.48	4142.78	4143.09	4143.17	4142.26	4141.49
8	4137.62	4138.48	4140.36	4141.54	4141.51	4142.61	4142.49	4142.81	4143.09	4143.15	4142.24	4141.47
9	4137.64	4138.51	4140.27	4141.52	4141.51	4142.56	4142.48	4142.81	4143.09	4143.13	4142.23	4141.46
10	4137.72	4138.50	4140.43	4141.52	4141.50	4142.52	4142.46	4142.80	4143.10	4143.12	4142.21	4141.46
11	4137.77	4138.46	4140.50	4141.51	4141.49	4142.52	4142.42	4142.82	4143.11	4143.11	4142.19	4141.42
12	4137.82	4138.60	4140.51	4141.50	4141.48	4142.41	4142.51	4142.82	4143.13	4143.09	4142.15	4141.41
13	4137.83	4138.55	4140.57	4141.50	4141.52	4142.36	4142.48	4142.83	4143.14	4143.07	4142.12	4141.41
14	4137.82	4138.62	4140.66	4141.50	4141.63	4142.34	4142.56	4142.86	4143.14	4143.06	4142.08	4141.40
15	4137.86	4138.76	4140.73	4141.50	4141.69	4142.27	4142.60	4142.89	4143.15	4143.04	4142.05	4141.38
16	4137.88	4138.91	4140.80	4141.50	4141.77	4142.22	4142.61	4142.91	4143.15	4143.02	4142.03	4141.36
17	4137.89	4139.05	4140.84	4141.50	4141.85	4142.24	4142.63	4142.91	4143.15	4142.98	4142.00	4141.35
18	4137.92	4139.16	4140.79	4141.52	4141.93	4142.28	4142.63	4142.90	4143.13	4142.94	4141.98	4141.34
19	4137.95	4139.22	4141.02	4141.54	4142.02	4142.29	4142.61	4142.89	4143.13	4142.93	4141.91	4141.37
20	4137.98	4139.27	4141.23	4141.55	4142.13	4142.29	4142.56	4142.89	4143.13	4142.91	4141.90	4141.38
21	4138.05	4139.38	4141.36	4141.55	4142.31	4142.30	4142.52	4142.92	4143.14	4142.89	4141.89	4141.39
22	4138.04	4139.47	4141.38	4141.55	4142.44	4142.29	4142.50	4142.94	4143.14	4142.88	4141.86	4141.40
23	4138.05	4139.61	4141.41	4141.55	4142.55	4142.30	4142.50	4142.96	4143.15	4142.84	4141.84	4141.39
24	4138.06	4139.71	4141.46	4141.50	4142.66	4142.30	4142.51	4142.98	4143.15	4142.78	4141.81	4141.38
25	4138.09	4139.73	4141.56	4141.50	4142.75	4142.31	4142.51	4142.97	4143.14	4142.75	4141.77	4141.39
26	4138.07	4139.78	4141.63	4141.52	4142.80	4142.30	4142.52	4142.98	4143.13	4142.71	4141.74	4141.37
27	4138.00	4139.89	4141.77	4141.52	4142.86	4142.27	4142.54	4142.97	4143.18	4142.68	4141.69	4141.40
28	4138.09	4139.96	4141.73	4141.53	4142.81	4142.32	4142.58	4142.95	4143.22	4142.66	4141.66	4141.41
29	4138.15	4139.98	4141.79	4141.54	---	4142.33	4142.59	4142.98	4143.25	4142.60	4141.65	4141.41
30	4138.21	4139.98	4141.82	4141.54	---	4142.34	4142.62	4142.98	4143.27	4142.55	4141.65	4141.40
31	4138.26	---	4141.82	4141.54	---	4142.41	---	4143.00	---	4142.50	4141.61	---
MEAN	4137.86	4139.01	4140.89	4141.56	4141.93	4142.45	4142.52	4142.87	4143.12	4142.96	4142.02	4141.43
MAX	4138.26	4139.98	4141.82	4141.80	4142.86	4142.88	4142.63	4143.00	4143.27	4143.24	4142.44	4141.60
MIN	4137.48	4138.29	4140.02	4141.50	4141.48	4142.22	4142.39	4142.65	4143.01	4142.50	4141.61	4141.34
(†)	144200	259100	402100	377200	475400	497400	466900	497400	522900	451800	382000	362300
(‡)	+30400	+114900	+143000	-24900	+98200	+22000	-30500	+30500	+25500	-71100	-69800	-19700

CAL YR 1981 MEAN 4140.74 MAX 4142.98 MIN 4137.44 AC-FT‡ +97100
WTR YR 1982 MEAN 4141.55 MAX 4143.27 MIN 4137.48 AC-FT‡ +266300

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

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 Bureau of Reclamation. 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.--78 years, 1,584 ft³/s (44.86 m³/s), 1,148,000 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, 9,200 ft³/s (261 m³/s) Mar. 4; minimum daily, 106 ft³/s (3.00 m³/s) Nov. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260	436	558	4780	2110	7450	2710	2100	909	1950	954	655
2	260	414	550	4770	2100	7810	3150	2150	838	1970	891	708
3	266	255	583	4710	2100	7870	3320	2380	782	1960	793	882
4	370	229	619	4720	2100	7970	3280	1860	720	1960	647	937
5	372	180	618	4700	2100	7680	3220	2260	640	1950	643	1010
6	423	150	590	4390	2010	7500	3300	2910	641	1830	645	1040
7	479	181	642	3610	2070	7320	3460	2580	522	1950	653	876
8	456	282	807	2840	2120	7110	3620	2530	402	1950	652	585
9	298	284	844	2700	2150	7060	3650	2530	397	1760	647	539
10	270	262	864	2620	2190	6950	3250	2510	592	1230	706	521
11	271	171	771	2580	2140	7200	2890	2380	907	1070	834	579
12	267	194	667	2510	1790	6820	3430	2510	740	1050	835	492
13	265	190	668	2280	2000	6560	4370	2380	632	848	971	488
14	263	191	709	2020	1660	6650	5110	1420	632	628	1030	393
15	263	155	573	2240	2140	6280	5560	1110	674	771	1000	476
16	302	132	772	2320	2420	5400	5910	2670	852	1070	933	570
17	372	130	1500	2320	2850	4220	5920	3380	930	842	924	564
18	372	112	1880	2350	3590	3250	5920	2640	1040	627	937	488
19	326	119	2240	2360	4560	3390	5910	2000	959	711	932	392
20	291	117	1780	2390	5700	3580	5500	1970	663	711	940	393
21	296	120	2160	2450	5310	3580	4600	1750	670	708	939	492
22	295	122	3060	2450	4690	3380	4010	1770	545	824	834	762
23	360	126	3580	2450	6280	2990	3280	1710	426	834	843	759
24	432	123	3590	2460	6930	2740	3010	2210	426	758	953	1090
25	433	107	3620	2390	7420	2630	3350	2300	420	674	962	1350
26	432	106	3620	2390	7600	2770	2410	1620	423	626	943	1330
27	426	110	3640	2210	7850	2600	1970	1050	428	667	948	1350
28	430	181	3850	2140	7430	2520	1970	908	423	903	943	1330
29	434	335	4080	2180	---	2510	2120	921	641	991	1020	1130
30	433	537	4420	2110	---	2550	2100	928	1250	994	1090	978
31	437	---	4800	2110	---	2600	---	923	---	997	987	---
TOTAL	10854	6051	58655	88550	103410	158940	112300	62360	20124	35814	27029	23159
MEAN	350	202	1892	2856	3693	5127	3743	2012	671	1155	872	772
MAX	479	537	4800	4780	7850	7970	5920	3380	1250	1970	1090	1350
MIN	260	106	550	2020	1660	2510	1970	908	397	626	643	392
AC-FT	21530	12000	116300	175600	205100	315300	222700	123700	39920	71040	53610	45940

CAL YR 1981 TOTAL 354591 MEAN 971 MAX 4800 MIN 106 AC-FT 703300
WTR YR 1982 TOTAL 707246 MEAN 1938 MAX 7970 MIN 106 AC-FT 1403000

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 mi^2 (10,200 km^2), approximately (not including Lost River or Lower Klamath Lake basins).

PERIOD OR 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.--62 years, 1,668 ft^3/s (47.24 m^3/s), 1,208,000 acre-ft/yr (1.49 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,200 ft^3/s (289 m^3/s) Feb. 24, 1982, gage height, 12.74 ft (3.883 m), caused by regulation from Keno Dam 0.9 mi (1.5 km) upstream; minimum, 26 ft^3/s (0.74 m^3/s) Sept. 23, 1956; minimum daily, 60 ft^3/s (1.70 m^3/s) May 19, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 15.3 ft (4.66 m), from floodmark (original datum), about May 10, 1904, discharge, 9,250 ft^3/s (262 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,200 ft^3/s (289 m^3/s) Feb. 24, gage height, 12.74 ft (3.883 m), caused by regulation from Keno Dam 0.9 mi (1.5 km) upstream; minimum, 270 ft^3/s (7.65 m^3/s) June 11; minimum daily, 279 ft^3/s (7.90 m^3/s) June 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	557	557	763	5640	2500	8010	3370	2320	551	2320	480	891
2	561	537	911	5480	2500	8160	4090	2320	322	2340	479	920
3	561	480	907	5360	2500	8290	4470	2320	312	2710	476	919
4	561	480	907	5180	2500	8470	4510	2310	312	2750	473	921
5	561	479	906	5240	2500	8490	4590	2290	312	2730	472	922
6	561	477	904	4890	2490	8170	4630	2320	312	2390	571	924
7	563	474	903	4060	2490	7860	4370	2360	311	2010	626	925
8	563	473	905	3290	2490	7950	4350	2360	305	2290	626	669
9	585	474	909	2910	2490	8000	4330	2360	303	1850	630	515
10	635	476	912	2810	2490	7750	4350	2360	302	1220	663	517
11	599	473	916	2810	2490	7680	4490	2370	291	1210	695	517
12	579	473	914	2690	2100	7860	6350	2340	286	1040	694	516
13	558	474	912	2490	2420	7410	7800	2210	286	661	693	508
14	557	475	910	2400	2780	7360	7450	2640	285	477	696	507
15	557	479	908	2400	3780	7030	7480	2620	284	475	697	574
16	557	688	1380	2260	4960	6210	7540	1600	280	477	693	701
17	557	1750	2090	2230	6650	5160	7240	1270	280	480	694	744
18	558	2190	2310	2330	6960	4330	6820	2100	279	474	720	745
19	559	1020	2800	2400	7050	4480	6840	1800	287	477	731	778
20	557	504	4290	2460	7660	4680	6330	1640	309	474	732	834
21	557	482	5560	2500	7590	4690	5410	1460	377	474	732	1000
22	557	481	5390	2530	8040	4480	5000	1470	335	477	732	1210
23	555	482	4350	2530	9210	4090	4280	1460	289	477	732	1210
24	556	588	4030	2550	8790	3660	3610	1750	292	478	764	1480
25	557	883	4120	2500	8810	3490	3640	1620	293	478	837	1630
26	557	1110	4500	2460	8540	3320	3120	995	293	477	834	1720
27	557	602	5210	2350	8510	3230	2580	671	293	477	835	1720
28	559	329	5800	2430	8590	3230	2450	549	325	475	830	1710
29	559	477	5020	2460	---	3230	2390	549	714	477	836	1670
30	559	661	5270	2500	---	3220	2320	549	1410	477	838	1280
31	558	---	5720	2500	---	3230	---	551	---	478	838	---
TOTAL	17477	19528	81327	96640	139880	183220	146200	55534	10830	34100	21349	29177
MEAN	564	651	2623	3117	4996	5910	4873	1791	361	1100	689	973
MAX	635	2190	5800	5640	9210	8490	7800	2640	1410	2750	838	1720
MIN	555	329	763	2230	2100	3220	2320	549	279	474	472	507
AC-FT	34670	38730	161300	191700	277500	363400	290000	110200	21480	67640	42350	57870

CAL YR 1981 TOTAL 341028 MEAN 934 MAX 5800 MIN 247 AC-FT 676400
WTR YR 1982 TOTAL 835262 MEAN 2288 MAX 9210 MIN 279 AC-FT 1657000

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.--23 years, 1,829 ft³/s (51.80 m³/s), 1,325,000 acre-ft/yr (1.63 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, 10,600 ft³/s (300 m³/s) Feb. 23, gage height, 9.21 ft (2.807 m); minimum, 336 ft³/s (9.52 m³/s) Nov. 10, 11, Nov. 28 to Dec. 6, Dec. 9-11, 13, 14; minimum daily, 360 ft³/s (10.2 m³/s) June 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	801	710	931	5460	2670	8250	3490	2690	817	2350	709	1220
2	807	749	1140	5340	2670	8370	4110	2680	593	2620	706	1400
3	712	703	1160	5150	2680	8500	4460	2690	365	2860	738	1140
4	717	708	1140	5020	2670	8700	4440	2690	798	2990	722	1170
5	800	708	1100	5080	2670	8840	4540	2680	824	2900	702	1140
6	814	706	1110	4880	2670	8330	4560	2650	364	2870	947	1130
7	802	702	1180	4240	2670	8010	4480	2710	682	2210	959	1180
8	808	661	1360	3410	2670	8070	4330	2740	813	2470	914	908
9	805	707	1210	3220	2670	8120	4320	2750	361	2130	821	768
10	718	754	1190	3050	2670	7910	4330	2750	811	1570	912	818
11	711	701	799	3100	2670	7810	4460	2750	364	1570	959	726
12	1010	709	1430	2970	2640	8050	5780	2750	905	1200	957	721
13	798	757	1270	2820	2690	7500	6620	2750	362	904	956	818
14	797	661	765	2640	2890	7410	6660	2640	774	720	917	817
15	801	671	1450	2770	3880	6930	6660	2790	363	721	871	855
16	839	1100	1480	2630	4860	6280	6660	2130	360	853	969	955
17	702	2020	2210	2560	6830	5100	6630	1700	815	858	959	999
18	712	2490	2450	2620	7170	4300	6560	2260	362	839	1010	863
19	843	1380	3000	2720	7350	4470	6610	2190	778	606	980	1080
20	798	697	4650	2710	7990	4680	6210	1990	364	361	1140	1170
21	799	702	5470	2790	8250	4650	5480	1690	686	724	867	1190
22	800	702	5380	2760	8950	4530	4990	1700	864	715	867	1440
23	804	840	4340	2750	10000	4170	4360	1740	364	720	958	1480
24	709	931	4040	2750	9390	3640	3830	2010	729	711	1050	1550
25	712	1050	4030	2720	9200	3580	3830	2040	364	711	1100	1920
26	802	1370	4460	2750	8870	3530	3500	1440	730	713	1090	1910
27	797	748	5090	2670	8800	3390	2900	1000	367	717	1100	1900
28	803	741	5790	2660	8910	3390	2880	914	732	750	1050	1950
29	804	655	5070	2660	---	3410	2740	917	1130	714	1050	1770
30	795	876	5080	2670	---	3410	2680	914	1420	702	1140	1530
31	750	---	5560	2670	---	3410	---	919	---	735	1140	---
TOTAL	24370	26909	85335	102240	148050	186740	143100	66264	19261	41514	29260	36518
MEAN	786	897	2753	3298	5288	6024	4770	2138	642	1339	944	1217
MAX	1010	2490	5790	5460	10000	8840	6660	2790	1420	2990	1140	1950
MIN	702	655	765	2560	2640	3390	2680	914	360	361	702	721
AC-FT	48340	53370	169300	202800	293700	370400	283800	131400	38200	82340	58040	72430

CAL YR 1981 TOTAL 420769 MEAN 1153 MAX 5790 MIN 344 AC-FT 834600
WTR YR 1982 TOTAL 909561 MEAN 2492 MAX 10000 MIN 360 AC-FT 1804000

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.--22 years, 2,188 ft³/s (61.96 m³/s), 1,585,000 acre-ft/yr (1.95 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, 18,700 ft³/s (530 m³/s) Feb. 21, gage height, 11.60 ft (3.536 m); minimum daily, 707 ft³/s (20.0 m³/s) July 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	847	851	1310	6590	3080	10100	4210	3100	936	1770	1000	1330
2	848	850	1310	6440	3070	9710	4730	3080	754	1890	1000	1330
3	847	849	1310	6110	3020	9670	5440	3160	752	3120	1020	1330
4	847	848	1310	5930	2920	9710	5300	3090	752	3490	1040	1330
5	847	850	1310	5660	2870	9830	5300	3200	748	3570	1040	1330
6	850	848	1540	5560	2870	9470	5380	3030	749	3380	1040	1330
7	855	851	1830	5090	2880	9020	5370	3030	891	2870	1040	1340
8	852	850	1810	4060	2870	8660	5180	3180	881	2380	1040	1340
9	854	850	1820	3580	2950	8820	5060	3180	718	2220	1040	1340
10	858	850	1820	3480	3020	8900	5280	3030	715	1800	1040	1340
11	854	850	1810	3340	3010	8720	6000	3020	714	1770	1040	1340
12	852	855	1810	3190	2940	8780	7120	2910	721	1770	1040	1340
13	852	856	1820	3160	2940	8460	9380	2880	814	1460	1040	1340
14	852	861	1820	3160	4950	8230	10000	2630	899	714	1040	1340
15	852	1190	1860	3150	5990	8070	8930	2650	847	711	1040	1340
16	856	1960	1820	3140	8210	7100	9310	2620	724	709	1030	1350
17	846	2260	1820	3140	8520	6290	8960	2650	728	713	1040	1350
18	847	2970	2700	3000	8830	5080	8310	2580	726	713	1040	1370
19	847	2340	6960	2910	9540	4910	7930	2470	733	714	1050	1420
20	849	1680	10400	2770	10100	5660	7810	2400	744	713	1040	1420
21	851	1320	8660	3090	16100	5510	6480	2210	738	711	1040	1380
22	851	1590	7140	3090	13600	5410	5800	2190	733	711	1040	1330
23	852	1270	5590	3090	12600	5190	5470	1910	736	710	1040	1330
24	852	1510	4420	3100	11800	4610	4520	1950	739	710	1040	1320
25	852	1730	4550	3120	10600	4040	4520	2340	757	711	1040	1320
26	853	1660	5950	3400	10800	4180	4460	1790	731	709	1040	1320
27	854	1460	7280	3250	9720	4070	3260	1410	724	711	1040	1330
28	859	1460	7020	3180	9950	4060	2990	1020	728	710	1040	1320
29	857	1450	7210	3130	---	4050	3270	1020	1050	709	1050	1320
30	855	1400	6260	3110	---	4070	3350	1030	1630	707	1050	1440
31	851	---	6660	3090	---	4230	---	1030	---	728	1080	---
TOTAL	26399	39169	118930	118110	189750	214610	179120	75790	24112	44304	32200	40360
MEAN	852	1306	3836	3810	6777	6923	5971	2445	804	1429	1039	1345
MAX	859	2970	10400	6590	16100	10100	10000	3200	1630	3570	1080	1440
MIN	846	848	1310	2770	2870	4040	2990	1020	714	707	1000	1320
AC-FT	52360	77690	235900	234300	376400	425700	355300	150300	47830	87880	63870	80050

CAL YR 1981 TOTAL 509523 MEAN 1396 MAX 10400 MIN 723 AC-FT 1011000
WTR YR 1982 TOTAL 1102854 MEAN 3022 MAX 16100 MIN 707 AC-FT 2188000

12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA

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).

DRAINAGE AREA.--96,000 mi² (249,000 km²), approximately.

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."

REVISED RECORDS.--WSP 1933: Drainage area.

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).

REMARKS.--Records excellent. Diversions for irrigation of about 500,000 acres (2,020 km²) above station. Flow regulated by 10 major reservoirs and numerous smaller reservoirs and powerplants. Records of water temperatures for the current year are published in the Washington district report.

AVERAGE DISCHARGE.--65 years, 120,100 ft³/s (3,401 m³/s), 87,010,000 acre-ft/yr (107,300 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft³/s (19,600 m³/s) June 12, 1948, gage height, 59.35 ft (18.090 m), site and datum then in use; minimum, 4,120 ft³/s (117 m³/s) Feb. 10, 1932, gage height, 11.40 ft (3.475 m) site and datum then in use.

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, 322,000 ft³/s (9,120 m³/s) July 2, elevation, 418.30 ft (127.498 m); minimum, 37,300 ft³/s (1,060 m³/s) Sept. 29, elevation, 396.54 ft (120.865 m).

REVISIONS.--The minimum discharges for the water years 1965 and 1971 have been revised to 35,900 ft³/s (1,017 m³/3) Dec. 21, 1964, gage height, 396.21 ft (120.765 m), and 35,700 ft³/s (1,011 m³/s) Jan. 30, 1971, gage height, 396.16 ft (120.750 m), superseding figures published in reports for 1965 and 1971.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73500	66500	91900	107000	103000	181000	191000	135000	193000	228000	138000	90900
2	64500	93100	113000	108000	104000	174000	157000	146000	196000	243000	124000	89500
3	65800	84400	127000	121000	96000	203000	173000	171000	198000	210000	148000	85700
4	86900	96200	111000	127000	129000	180000	185000	176000	192000	215000	152000	88000
5	115000	105000	75800	133000	142000	171000	189000	169000	176000	227000	196000	68100
6	90300	103000	78400	148000	150000	187000	168000	159000	179000	215000	179000	108000
7	88700	84400	95700	157000	121000	174000	160000	164000	177000	216000	168000	119000
8	91100	88700	105000	149000	130000	194000	152000	185000	182000	215000	138000	116000
9	94700	103000	97400	92800	142000	192000	162000	191000	171000	222000	147000	107000
10	89100	94400	119000	119000	144000	172000	149000	202000	189000	215000	126000	121000
11	78300	85600	126000	137000	148000	205000	156000	183000	190000	185000	134000	110000
12	89800	100000	101000	126000	140000	201000	165000	174000	185000	199000	135000	110000
13	101000	100000	97600	134000	116000	214000	196000	168000	190000	209000	151000	98600
14	103000	83600	112000	116000	75200	220000	199000	155000	207000	204000	144000	98800
15	91900	64800	111000	97700	78700	217000	172000	162000	214000	173000	129000	87600
16	90300	85100	108000	122000	70100	221000	169000	181000	213000	177000	126000	99800
17	80900	67400	120000	122000	88200	215000	176000	189000	180000	160000	126000	92000
18	74400	77500	123000	121000	163000	210000	182000	192000	209000	166000	130000	75500
19	87700	105000	80700	139000	154000	206000	192000	207000	201000	171000	128000	62900
20	81000	97900	58300	132000	86400	204000	165000	204000	204000	163000	127000	78400
21	78800	91700	79700	140000	112000	199000	153000	200000	207000	170000	104000	67700
22	98900	70600	108000	151000	129000	201000	153000	193000	229000	153000	97700	70100
23	113000	89800	115000	103000	118000	196000	155000	197000	242000	167000	112000	65200
24	85500	85600	90100	85200	124000	188000	145000	205000	246000	167000	101000	64200
25	59500	85200	68100	103000	125000	187000	120000	211000	245000	151000	97100	54500
26	76800	66900	80300	98900	189000	180000	128000	198000	210000	153000	101000	56200
27	80100	110000	82300	112000	186000	180000	138000	197000	218000	169000	97000	73600
28	88700	95600	101000	114000	189000	178000	131000	199000	217000	161000	86800	67800
29	103000	96400	107000	114000	---	180000	131000	196000	239000	176000	82700	54000
30	110000	101000	121000	98800	---	182000	117000	202000	244000	161000	94400	69500
31	81200	---	118000	86400	---	181000	---	183000	---	147000	92900	---
TOTAL	2713400	2678400	3122300	3714800	3552600	5993000	4829000	5694000	6143000	5788000	3912600	2549600
MEAN	87530	89280	100700	119800	126900	193300	161000	183700	204800	186700	126200	84990
MAX	115000	110000	127000	157000	189000	221000	199000	211000	246000	243000	196000	121000
MIN	59500	64800	58300	85200	70100	171000	117000	135000	171000	147000	82700	54000
AC-FT	5382000	5313000	6193000	7368000	7047000	11890000	9578000	11290000	12180000	11480000	7761000	5057000

CAL YR 1981 TOTAL 47752800 MEAN 130800 MAX 281000 MIN 53400 AC-FT 94720000
WTR YR 1982 TOTAL 50690700 MEAN 138900 MAX 246000 MIN 54000 AC-FT 100500000

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.--33 years, 916 ft³/s (25.94 m³/s), 663,600 acre-ft/yr (818 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft³/s (949 m³/) 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 21	0530	10,000	283	10.23	3.118
Feb. 17	1130	*21,300	603	*14.78	4.505
Feb. 22	1500	19,100	541	14.07	4.289
Mar. 2	2200	7,560	214	8.84	2.694
Mar. 12	2030	5,430	154	7.39	2.252
Mar. 15	2200	5,940	168	7.74	2.359
Apr. 12	1730	12,300	348	11.36	3.463

Minimum, 117 ft³/s (3.31 m³/s) Oct. 5-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	126	279	475	500	3080	2370	4160	1420	809	303	187
2	132	127	254	548	473	4930	2590	4070	1290	1250	317	186
3	126	129	259	494	492	5750	2600	4040	1240	1230	299	208
4	120	131	256	415	449	4200	2810	4100	1230	1030	271	219
5	120	132	263	460	376	3500	3950	4110	1160	870	254	212
6	120	132	266	546	358	3090	3320	3900	1120	774	231	203
7	120	132	268	482	324	2910	2920	3500	1050	754	212	205
8	141	135	300	418	372	2730	2550	3240	1080	771	208	206
9	153	131	296	355	413	2750	2200	3070	1060	746	210	193
10	160	129	347	387	422	3040	2230	2940	965	665	202	187
11	166	131	423	475	407	3510	3020	2820	859	673	194	180
12	163	139	385	580	414	4630	10400	2670	743	564	188	198
13	169	145	332	624	411	4080	9510	2510	689	478	183	200
14	166	154	309	586	549	3350	7570	2290	638	441	180	204
15	163	180	284	556	1980	4360	6900	2100	615	379	188	220
16	163	161	1610	536	7630	4980	5940	2010	660	336	196	227
17	166	158	1660	514	18600	4040	5240	2050	730	319	176	232
18	173	172	795	510	14200	3460	4740	2050	754	328	176	241
19	169	173	878	506	11900	3170	4460	2100	705	304	180	247
20	163	175	5650	478	14400	2790	3910	2280	645	279	188	273
21	153	168	9210	450	17000	2570	3480	2310	605	265	187	273
22	145	182	8200	440	18100	2390	3280	2090	562	241	187	255
23	143	253	5280	440	13700	2300	3300	1940	565	257	181	231
24	138	403	1340	444	8840	2280	3580	1880	580	275	197	231
25	135	2050	930	455	5930	2370	3900	1890	631	276	195	230
26	135	1620	828	499	4550	2710	4120	1840	758	253	186	233
27	134	761	703	536	3800	3120	4250	1750	736	244	176	214
28	131	530	581	565	3220	3520	4310	1700	687	243	172	210
29	128	400	539	569	---	3380	4370	1680	673	251	166	214
30	128	298	541	539	---	2900	4340	1610	673	259	164	217
31	126	---	492	507	---	2550	---	1520	---	253	170	---
TOTAL	4487	9557	43758	15389	149810	104440	128160	80220	25123	15817	6337	6536
MEAN	145	319	1412	496	5350	3369	4272	2588	837	510	204	218
MAX	173	2050	9210	624	18600	5750	10400	4160	1420	1250	317	273
MIN	120	126	254	355	324	2280	2200	1520	562	241	164	180
AC-FT	8900	18960	86790	30520	297100	207200	254200	159100	49830	31370	12570	12960

CAL YR 1981 TOTAL 161370 MEAN 442 MAX 9210 MIN 83 AC-FT 320100
WTR YR 1982 TOTAL 589634 MEAN 1615 MAX 18600 MIN 120 AC-FT 1170000

13182500 LAKE OWYHEE NEAR NYSSA, OR

LOCATION.--Lat at 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 Bureau of Reclamation). 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 Bureau of Reclamation.

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, 1,123,000 acre-ft (1,380 hm³) May 21; maximum elevation, 2,670.17 ft (813.868 m) May 22, affected by wind; minimum contents, 670,000 acre-ft (826 hm³) Oct. 16, elevation, 2,627.01 ft (800.713 m).

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

2,590	405,700	2,640	787,300
2,600	466,300	2,650	888,300
2,610	535,400	2,660	999,700
2,620	611,900	2,670	1,122,000
2,630	695,800	2,671	1,135,000

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2628.33	2627.94	2631.08	2640.28	2644.15	2667.60	2668.92	2668.72	2670.04	2666.77	2662.13	2655.11
2	2628.20	2628.00	2631.19	2640.46	2644.30	2667.69	2669.06	2668.92	2669.99	2666.72	2661.87	2654.85
3	2628.10	2628.05	2631.26	2640.70	2644.39	2667.77	2669.15	2669.18	2669.95	2666.78	2661.67	2654.64
4	2627.97	2628.10	2631.35	2640.68	2644.51	2667.61	2669.15	2669.35	2669.94	2666.80	2661.48	2654.39
5	2627.84	2628.15	2631.54	2640.78	2644.57	2667.49	2669.28	2669.57	2669.84	2666.80	2661.27	2654.21
6	2627.74	2628.21	2631.53	2640.90	2644.71	2667.45	2668.99	2669.69	2669.81	2666.78	2661.04	2653.97
7	2627.64	2628.28	2631.60	2640.92	2644.76	2667.46	2668.54	2669.76	2669.70	2666.78	2660.80	2653.82
8	2627.56	2628.32	2631.68	2641.08	2644.84	2667.43	2668.06	2669.78	2669.66	2666.72	2660.55	2653.65
9	2627.45	2628.40	2631.87	2641.20	2644.91	2667.41	2667.49	2669.79	2669.58	2666.68	2660.34	2653.43
10	2627.36	2628.44	2631.88	2641.26	2644.99	2667.45	2667.24	2669.83	2669.54	2666.64	2660.07	2653.23
11	2627.29	2628.51	2631.96	2641.35	2645.09	2667.50	2667.33	2669.88	2669.46	2666.58	2659.86	2653.05
12	2627.20	2628.60	2632.08	2641.47	2645.19	2667.63	2667.63	2669.97	2669.33	2666.47	2659.66	2652.86
13	2627.15	2628.75	2632.22	2641.60	2645.35	2667.77	2668.29	2669.97	2669.24	2666.32	2659.46	2652.69
14	2627.10	2628.73	2632.35	2641.77	2645.61	2667.71	2668.52	2669.98	2669.07	2666.09	2659.22	2652.50
15	2627.04	2628.84	2632.48	2641.91	2646.33	2667.66	2668.53	2669.92	2668.94	2665.89	2659.01	2652.36
16	2627.04	2628.90	2632.55	2642.03	2648.52	2667.80	2668.49	2669.91	2668.82	2665.71	2658.79	2652.24
17	2627.10	2629.06	2633.03	2642.20	2651.87	2667.75	2668.32	2669.98	2668.64	2665.50	2658.56	2652.11
18	2627.14	2629.05	2633.39	2642.32	2655.05	2667.68	2668.08	2670.02	2668.47	2665.30	2658.35	2651.93
19	2627.21	2629.10	2633.71	2642.48	2657.44	2667.57	2667.78	2670.09	2668.31	2665.11	2658.16	2651.89
20	2627.26	2629.19	2634.34	2642.60	2659.90	2667.56	2667.46	2670.10	2668.15	2664.89	2657.86	2651.77
21	2627.33	2629.34	2636.27	2642.75	2662.49	2667.59	2667.20	2670.12	2668.01	2664.61	2657.61	2651.68
22	2627.39	2629.36	2637.59	2642.88	2664.75	2667.64	2667.26	2670.06	2667.83	2664.40	2657.40	2651.55
23	2627.45	2629.46	2638.30	2643.02	2666.20	2667.82	2667.24	2670.04	2667.78	2664.14	2657.15	2651.44
24	2627.50	2629.57	2638.79	2643.11	2666.71	2667.97	2667.25	2670.03	2667.56	2663.91	2656.94	2651.34
25	2627.56	2629.66	2639.05	2643.20	2666.76	2668.21	2667.31	2670.05	2667.38	2663.70	2656.72	2651.32
26	2627.63	2630.21	2639.34	2643.39	2666.84	2668.52	2667.37	2670.06	2667.22	2663.48	2656.49	2651.23
27	2627.67	2630.55	2639.53	2643.47	2667.07	2668.73	2667.58	2670.08	2667.07	2663.27	2656.23	2651.14
28	2627.78	2630.73	2639.66	2643.65	2667.28	2669.01	2667.86	2670.04	2666.95	2663.06	2655.99	2651.02
29	2627.81	2630.88	2639.86	2643.79	---	2669.05	2668.16	2670.04	2666.86	2662.83	2655.75	2650.95
30	2627.83	2630.99	2640.00	2643.89	---	2669.03	2668.45	2670.04	2666.70	2662.58	2655.52	2650.87
31	2627.88	---	2640.15	2644.06	---	2668.92	---	2670.03	---	2662.39	2655.33	---
MEAN	2627.53	2629.05	2634.57	2642.10	2652.66	2667.89	2668.07	2669.84	2668.66	2665.28	2658.75	2652.57
MAX	2628.33	2630.99	2640.15	2644.06	2667.28	2669.05	2669.28	2670.12	2670.04	2666.80	2662.13	2655.11
MIN	2627.04	2627.94	2631.08	2640.28	2644.15	2667.41	2667.20	2668.72	2666.70	2662.39	2655.33	2650.87
(†)	677400	704500	788800	827100	1088000	1108000	1102000	1122000	1080000	1028000	946400	897600
(‡)	-5000	+27100	+84300	+38300	+260900	+20000	-6000	+20000	-42000	-52000	-81600	-48800

CAL YR 1981 MEAN 2646.69 MAX 2663.53 MIN 2627.04 AC-FT‡ -119900
WTR YR 1982 MEAN 2653.07 MAX 2670.12 MIN 2627.04 AC-FT‡ +215200

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

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 Bureau of Reclamation).

REMARKS.--Records good. Flow regulated since October 1932 by Lake Owyhee (see station 13182500), and by many smaller reservoirs. Diversion of 429,100 acre-ft (529 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.--50 years (water years 1933-82), 356 ft³/s (10.08 m³/s), 257,900 acre-ft/yr (318 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, 9,220 ft³/s (261 m³/s) Feb. 23, gage height, 10.94 ft (3.335 m); minimum recorded, 1.6 ft³/s (0.045 m³/s) Nov. 30, but may have been less during period of ice effect Dec. 23 to Feb. 3 or no gage-height record Feb. 4-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	2.6	2.1	2.0	2.1	1900	2450	1480	183	150	183	199
2	69	2.6	2.4	2.0	2.0	4460	1760	1480	183	155	183	199
3	70	2.6	2.4	2.0	1.8	6290	2070	1280	183	155	183	199
4	70	2.5	2.6	2.0	1.7	6660	2410	1290	185	155	183	202
5	70	2.5	2.6	1.8	1.7	5210	3360	1480	183	155	183	202
6	70	2.4	2.7	1.8	1.7	3780	4750	1680	183	155	183	202
7	70	2.5	2.9	1.8	1.7	3500	5290	1810	185	155	183	196
8	70	2.4	3.0	1.8	1.7	3500	5200	1840	190	155	180	178
9	70	2.5	2.9	1.8	1.7	3280	5150	1710	183	153	180	211
10	70	2.1	3.0	1.8	1.7	3240	3360	1450	173	153	180	185
11	70	2.0	2.9	1.8	1.7	3350	2420	1020	173	158	178	185
12	69	2.1	3.0	1.9	1.9	3540	3910	996	178	173	175	185
13	69	2.1	3.0	2.2	2.2	4150	5440	1200	190	173	175	183
14	69	1.9	3.0	2.4	2.4	4620	5450	1160	196	175	175	185
15	57	2.2	3.4	2.4	2.8	4040	5440	1180	196	173	175	185
16	25	2.1	3.6	2.4	3.1	4690	5420	780	173	173	173	185
17	3.9	2.0	3.6	2.4	3.4	4980	5340	298	158	173	202	185
18	3.2	1.9	3.6	2.4	7.0	4990	5320	208	160	170	211	185
19	3.1	2.0	3.9	2.0	13	4020	5310	256	165	170	211	188
20	3.1	2.0	3.9	1.8	83	3200	5020	775	158	173	214	190
21	3.2	2.3	3.6	1.8	1300	2630	4070	984	160	170	217	150
22	3.1	2.5	3.3	1.8	5410	2200	2350	1140	165	173	217	180
23	3.1	2.3	2.8	2.0	7530	1640	2540	942	168	175	217	175
24	3.0	2.3	2.4	2.4	7350	1260	2530	524	168	178	208	170
25	3.0	2.3	2.2	2.2	7400	885	2560	325	165	178	202	165
26	2.9	2.3	2.1	2.1	5580	870	2680	394	160	180	202	158
27	2.7	2.3	2.1	2.1	3280	1520	1700	397	160	183	199	155
28	2.9	2.2	2.0	2.1	2460	1980	1210	274	158	180	199	148
29	2.7	2.2	2.0	2.1	---	2830	1230	265	150	183	199	158
30	2.7	2.1	2.0	2.1	---	3360	1250	202	138	183	199	150
31	2.6	---	2.0	2.1	---	3290	---	183	---	183	196	---
TOTAL	1107.2	67.8	87.0	63.3	40448.3	105865	106990	29003	5170	5218	5965	5438
MEAN	35.7	2.26	2.81	2.04	1445	3415	3566	936	172	168	192	181
MAX	74	2.6	3.9	2.4	7530	6660	5450	1840	196	183	217	211
MIN	2.6	1.9	2.0	1.8	1.7	870	1210	183	138	150	173	148
AC-FT	2200	134	173	126	80230	210000	212200	57530	10250	10350	11830	10790
MEAN†	245	458	1374	625	6142	3741	3892	2627	870	562	240	331
AC-FT†	15040	27230	84470	38430	341100	230000	231600	161500	51750	34540	14730	19720

CAL YR 1981 TOTAL 28370.0 MEAN 77.7 MAX 205 MIN 1.9 AC-FT 56270
WTR YR 1982 TOTAL 305422.6 MEAN 837 MAX 7530 MIN 1.7 AC-FT 605800

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

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 good. 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); no flow July 7, 19, Aug. 14-16, 1924, July 5, 6, 1926. Maximum discharge recorded since construction of Owyhee Dam in 1932, 7,790 ft³/s (221 m³/s) Feb. 23, 1982, gage height, 11.91 ft (3.630 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,790 ft³/s (221 m³/s) Feb. 23, gage height, 11.91 ft (3.630 m); minimum, 42 ft³/s (1.19 m³/s) Oct. 18, Jan. 12-15, Feb. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	53	50	51	48	1930	3250	1280	128	141	106	119
2	53	54	51	50	48	3010	1930	1470	131	125	101	113
3	53	54	49	49	48	5540	2070	1310	126	91	100	95
4	52	54	50	48	47	6740	2490	1160	134	81	103	90
5	53	52	49	47	46	6060	2990	1320	140	78	102	101
6	51	53	49	47	47	4300	4830	1570	136	72	100	114
7	51	52	48	56	46	3640	5900	1750	130	64	101	113
8	49	52	48	48	44	3640	5940	1830	141	65	104	107
9	48	52	48	45	44	3500	5910	1780	129	71	106	97
10	49	52	48	46	43	3330	4960	1560	123	76	102	114
11	52	52	47	48	43	3420	2620	1080	109	71	104	96
12	49	52	46	44	43	3580	3120	911	109	73	110	102
13	49	52	47	43	44	3930	6090	1060	115	87	109	99
14	48	52	47	43	44	4880	6150	1070	116	98	107	94
15	48	52	54	44	49	4290	6100	1170	118	100	104	94
16	48	52	51	44	120	4390	6150	883	118	100	103	96
17	45	52	50	45	80	5210	6020	529	106	103	96	93
18	50	52	51	46	55	4980	6000	206	93	105	133	88
19	63	52	62	48	52	4780	6030	181	91	101	125	91
20	58	51	69	47	52	3670	5870	392	92	95	105	115
21	56	51	70	46	222	2880	5260	885	91	95	123	99
22	55	51	59	46	3410	2490	2770	972	87	95	127	86
23	55	51	56	49	7290	2000	2660	964	93	95	127	82
24	56	51	55	55	7250	1460	2650	679	91	97	128	82
25	55	51	53	57	7470	1120	2640	357	92	104	122	79
26	52	51	53	55	6640	842	2750	286	94	104	110	79
27	53	50	52	54	4070	1270	2310	387	93	105	116	71
28	53	50	50	51	2900	1900	1150	263	101	109	118	71
29	52	50	51	50	---	2810	1130	227	112	106	123	65
30	52	50	52	49	---	3530	1170	207	110	106	147	65
31	54	---	51	49	---	3790	---	144	---	108	119	---
TOTAL	1614	1553	1616	1500	40295	108912	118910	27883	3349	2921	3481	2810
MEAN	52.1	51.8	52.1	48.4	1439	3513	3964	899	112	94.2	112	93.7
MAX	63	54	70	57	7470	6740	6150	1830	141	141	147	119
MIN	45	50	46	43	43	842	1130	144	87	64	96	65
AC-FT	3200	3080	3210	2980	79930	216000	235900	55310	6640	5790	6900	5570

CAL YR 1981 TOTAL 21905 MEAN 60.0 MAX 163 MIN 42 AC-FT 43450
WTR YR 1982 TOTAL 314844 MEAN 863 MAX 7470 MIN 43 AC-FT 624500

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1979 to September 1982 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1980 to September 1982 (discontinued).
WATER TEMPERATURES: July 1979 to September 1982 (discontinued).

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,290 micromhos Feb. 11, 1982; minimum recorded, 198 micromhos Apr. 21, 1982.
WATER TEMPERATURES: Maximum, 25.0°C July 19, 1979; minimum, 0.5°C Jan. 28, 30, 1980.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,290 micromhos Feb. 11; minimum, 198 micromhos Apr. 21.
WATER TEMPERATURES: Maximum, 23.5°C June 17, 26, 27; minimum, 1.0°C Jan. 2, 6-11, 23, Feb. 6, 10, 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
NOV											
02...	1430	54	1175	8.1	10.5	--	K50	860	302	2.0	83
30...	1500	51	1260	8.1	5.5	13.0	K33	1000	311	21	85
FEB											
08...	1500	45	1369	--	1.5	14.5	K1	K210	328	18	90
APR											
12...	1500	2800	210	7.6	7.5	11.0	K14	50	57	.00	16
28...	1100	1200	224	8.0	4.0	11.8	--	--	62	.00	17
JUN											
14...	1500	103	588	7.8	18.0	8.5	770	1700	146	.00	42
AUG											
02...	1430	99	613	8.0	18.0	8.6	440	6000	174	5.0	50

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (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, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV											
02...	23	150	11	300	270	35	1.5	.110	3.3	.88	.25
30...	24	160	11	290	280	45	1.4	.100	3.5	.88	.28
FEB											
08...	25	160	11	310	290	50	1.4	<.060	3.7	.84	.15
APR											
12...	4.2	22	3.0	74	7.0	9.2	.8	<.060	.36	.75	.18
28...	4.7	24	3.8	78	26	7.4	.8	--	1.2	--	--
JUN											
14...	10	57	6.6	158	85	17	1.0	.070	1.3	1.30	.21
AUG											
02...	12	69	7.2	169	110	28	.9	.160	1.4	1.60	.21

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, TOTAL (MG/L AS P)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	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
NOV										
02...	.050	.070	47	774	801	113	7.5	98	14	50
30...	.050	.070	49	862	830	118	5.5	75	10	20
FEB										
08...	.050	.060	47	801	861	97.1	8.0	55	6.7	32
APR										
12...	.040	.100	23	148	130	1120	37	28	212	88
28...	--	.180	23	--	155	502	--	--	--	--
JUN										
14...	.080	.240	29	367	343	102	140	206	57	84
AUG										
02...	.090	.210	33	407	412	108	62	124	33	76

OWYHEE RIVER BASIN

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	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)	COBALT, DIS-SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)
NOV										
02...	52	60	53	100	<1	<1	<10	<10	<1	<1
30...	57	62	54	<100	<1	<1	10	<10	<3	1
FEB										
08...	54	60	48	100	<1	<1	<10	10	<3	12
APR										
12...	5	6	26	<100	<1	<1	<10	10	<1	1
28...	--	--	29	--	--	--	--	--	--	--
AUG										
02...	28	27	43	100	<1	<1	<10	10	<1	1

DATE	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)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)
NOV										
02...	2	6	<10	790	1	3	--	38	60	<.1
30...	1	3	<10	300	<1	4	--	32	50	<.1
FEB										
08...	1	10	<10	670	<1	7	--	50	80	.4
APR										
12...	3	12	230	3800	1	10	--	6	50	<.1
28...	--	--	--	--	--	--	27	--	--	--
AUG										
02...	2	11	74	4700	<1	9	--	34	150	<.1

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SELE-NIUM, TOTAL (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	ZINC, DIS-SOLVED (UG/L AS ZN)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)
NOV										
02...	.2	2	2	6	5	<1	<1	--	20	40
30...	.4	3	1	5	5	<1	<1	--	17	30
FEB										
08...	.6	3	6	6	6	<1	<1	--	<3	30
APR										
12...	.2	1	3	<1	<1	<1	<1	--	<7	30
28...	--	--	--	--	--	--	--	79	120	--
AUG										
02...	.3	1	8	2	1	<1	<1	--	33	50

K - Results based on colony count outside acceptable range (non-ideal colony count).

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	976	1180	1250	1190	1200	238	208	243	---	676	---	657
2	989	1190	1250	1200	1210	231	215	241	---	---	---	658
3	987	1210	1250	1210	1210	223	217	242	---	---	643	705
4	990	1210	1250	1210	1220	228	212	245	---	---	619	738
5	985	1210	1260	1210	1230	230	208	242	---	---	610	751
6	991	1210	1260	1220	1230	232	208	241	---	---	638	714
7	992	1200	1250	1260	1230	233	205	237	---	---	639	715
8	1010	1210	1260	1230	1250	234	206	235	---	---	638	722
9	1000	1210	1260	1240	1270	233	208	235	---	---	636	715
10	991	1210	1260	1240	1270	231	208	239	---	---	653	691
11	997	1210	1260	1250	1270	229	213	249	625	---	653	716
12	994	1210	1250	1240	1260	228	220	256	644	---	660	722
13	963	1210	1240	1240	1250	224	215	255	---	---	653	718
14	977	1210	1230	1240	1240	218	209	256	---	---	659	725
15	986	1200	1220	1230	1230	217	206	257	576	---	668	728
16	972	1210	1230	1230	845	213	207	265	580	---	674	725
17	1040	1200	1230	1220	901	210	207	291	586	---	677	735
18	1070	1210	1230	1220	1050	209	206	371	611	---	664	743
19	1090	1220	1170	1200	1100	208	206	426	639	---	647	746
20	1110	1220	1150	1200	1120	206	205	406	650	---	653	748
21	1130	1220	1160	1200	871	207	206	309	667	---	659	730
22	1140	1210	1190	1200	385	208	216	289	677	---	635	732
23	1150	1220	1200	1160	292	211	212	280	674	---	627	737
24	1150	1210	1200	1160	267	218	213	293	701	---	631	733
25	1160	1220	1200	1160	248	223	212	338	685	---	640	734
26	1170	1230	1190	1170	239	235	214	375	696	---	665	743
27	1190	1220	1200	1180	235	232	221	355	693	---	664	746
28	1190	1240	1210	1180	237	225	241	374	663	---	655	751
29	1200	1240	1200	1190	---	218	241	402	660	---	641	757
30	1190	1250	1190	1190	---	211	243	---	676	---	620	765
31	1170	---	1200	1200	---	209	---	---	---	---	653	---
MEAN	1060	1210	1220	1210	941	222	214	291	650	676	647	727

13184000 OWYHEE RIVER AT OWYHEE, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	14.5	11.0	11.5	8.5	6.5	5.0	3.0	1.5	6.5	4.5	5.0	4.5
2	13.5	11.5	11.5	8.5	8.5	6.5	3.0	1.0	7.0	5.5	5.0	5.0
3	14.5	11.5	11.0	8.5	7.0	5.5	4.0	1.5	7.5	4.5	5.0	4.5
4	13.0	10.0	12.0	9.5	6.0	5.0	5.5	3.5	4.5	2.0	4.5	4.5
5	12.0	9.5	11.0	9.0	7.0	5.0	4.0	2.0	3.5	1.5	5.0	4.0
6	13.0	10.5	10.5	8.0	7.5	6.5	3.0	1.0	3.0	1.0	4.5	4.0
7	13.5	12.0	10.5	8.0	8.5	7.5	2.0	1.0	4.0	2.0	5.0	4.5
8	12.5	10.5	10.5	8.0	8.0	7.0	2.5	1.0	3.0	1.5	5.0	4.5
9	13.5	11.0	9.5	7.5	7.0	6.5	2.0	1.0	4.0	1.5	5.0	4.5
10	14.0	12.5	9.0	7.0	7.5	6.5	2.0	1.0	2.5	1.0	5.0	4.5
11	13.0	11.5	9.0	7.5	7.5	5.5	2.0	1.0	3.0	1.0	5.0	5.0
12	11.5	10.5	10.0	9.0	5.5	4.5	2.0	1.5	3.5	1.5	5.0	4.5
13	13.5	10.5	11.5	9.5	6.5	5.0	3.5	2.0	3.5	2.5	5.0	4.5
14	13.5	10.5	11.5	9.5	7.0	6.0	4.0	2.0	5.5	3.5	5.0	4.5
15	12.5	9.0	10.0	8.5	8.0	7.0	4.5	2.5	7.0	5.0	5.0	4.5
16	13.5	10.0	11.0	9.0	7.5	6.5	5.5	4.5	6.5	3.5	5.0	4.5
17	14.5	11.0	12.0	10.0	6.5	5.0	6.0	5.0	7.0	3.5	5.0	4.5
18	13.5	11.0	10.0	8.0	5.5	5.0	6.0	4.5	6.5	4.5	5.0	4.5
19	13.0	10.5	8.0	7.0	7.0	5.0	5.0	3.5	9.5	6.0	5.0	4.5
20	13.0	10.0	9.0	8.0	7.5	7.0	3.5	2.0	9.5	7.0	5.0	4.5
21	12.0	9.0	10.0	8.5	8.0	6.0	3.5	1.5	9.0	6.0	5.5	4.5
22	11.0	8.0	10.0	9.0	6.0	4.5	3.5	2.0	6.0	4.0	5.5	5.0
23	11.0	8.0	9.5	8.5	5.0	3.5	5.0	1.0	5.0	4.5	6.0	5.5
24	12.5	9.0	9.5	8.0	5.0	3.5	6.0	4.5	4.5	4.0	7.0	6.0
25	12.0	9.0	8.0	7.0	4.5	4.0	6.0	4.5	4.0	4.0	7.0	6.5
26	12.5	10.5	7.0	5.5	4.0	2.5	6.5	4.5	4.0	4.0	7.5	6.5
27	12.5	10.0	7.0	6.0	4.0	3.0	6.0	4.0	4.5	4.0	7.5	7.0
28	12.0	11.0	7.0	6.5	4.0	2.0	6.5	4.5	4.5	4.0	7.5	6.5
29	11.5	10.0	6.5	6.0	3.0	2.0	6.0	4.0	---	---	7.0	6.0
30	11.5	8.5	6.0	5.0	4.0	2.0	6.5	4.5	---	---	6.5	6.0
31	12.5	10.0	---	---	2.0	1.5	7.0	5.0	---	---	6.5	6.0
MONTH	14.5	8.0	12.0	5.0	8.5	1.5	7.0	1.0	9.5	1.0	7.5	4.0

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

13214000 MALHEUR RIVER NEAR DREWSEY, OR

LOCATION.--Lat 43°47'05", long 118°19'50", in NE¼SE¼ 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 except those for March to July, which are fair. Slight regulation by small reservoirs above station. Diversions for irrigation above station.

AVERAGE DISCHARGE.--56 years (water years 1927-82), 184 ft³/s (5.211 m³/s), 133,300 acre-ft/yr (164 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 15	1500	976	27.6	5.78	1.762
Dec. 20	0400	2,420	68.5	8.71	2.655
Feb. 16	1030	4,090	116	10.62	3.237
Feb. 22	0030	*4,970	141	a*11.26	3.432
bMar. 11		Stage and discharge unknown			
bMar. 27		Stage and discharge unknown			
bApr. 14		Stage and discharge unknown			
Apr. 25	1030	1,510	42.8	7.29	2.222
May 18	1730	944	26.7	6.01	1.832

Minimum, 9.1 ft³/s (0.26 m³/s) Aug. 5, 28, 29.

a From floodmark.
b About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	68	118	170	194	850	750	1380	479	270	34	17
2	28	68	124	160	192	900	700	1340	440	300	32	19
3	35	68	194	170	201	850	640	1330	476	310	30	29
4	47	68	146	200	168	750	620	1150	467	310	28	52
5	50	68	132	215	152	700	600	1150	449	300	29	59
6	48	66	168	204	146	660	580	1150	434	290	23	54
7	50	66	305	154	134	680	560	1100	395	280	21	43
8	50	66	201	115	148	700	540	1070	275	270	24	35
9	53	66	164	100	132	720	700	1060	270	250	24	28
10	62	66	156	105	144	900	1200	1150	270	220	25	23
11	69	72	150	110	150	1100	1700	718	270	200	23	21
12	72	74	102	120	168	950	1800	836	270	185	20	23
13	65	86	106	130	164	850	1700	725	270	170	30	35
14	65	104	146	140	461	900	2000	718	270	160	32	44
15	62	134	515	150	1390	950	1700	708	270	145	37	39
16	63	162	347	160	3300	850	1500	687	270	135	50	46
17	62	228	194	170	2840	750	1350	676	270	125	49	49
18	60	166	164	177	2240	720	1300	840	270	115	39	50
19	62	124	780	170	2120	680	1200	760	270	105	22	58
20	60	106	1780	154	2980	620	1150	673	270	95	18	118
21	62	112	996	152	4030	560	1150	687	270	88	18	114
22	64	233	512	150	3400	550	1150	701	270	82	17	102
23	64	248	317	158	1980	540	1160	687	270	74	14	84
24	64	347	288	179	1200	600	1300	680	270	68	12	77
25	66	240	288	220	1000	660	1420	662	270	62	11	83
26	64	150	248	258	900	760	1440	662	260	60	12	100
27	68	134	223	275	800	850	1450	669	245	58	11	92
28	74	124	230	265	750	820	1440	652	230	52	9.1	92
29	78	122	215	235	---	800	1440	645	230	48	11	102
30	72	104	220	213	---	780	1410	365	250	42	14	94
31	68	---	210	204	---	820	---	452	---	36	15	---
TOTAL	1833	3740	9739	5383	31484	23820	35650	26083	9220	4905	734.1	1782
MEAN	59.1	125	314	174	1124	768	1188	841	307	158	23.7	59.4
MAX	78	347	1780	275	4030	1100	2000	1380	479	310	50	118
MIN	26	66	102	100	132	540	540	365	230	36	9.1	17
AC-FT	3640	7420	19320	10680	62450	47250	70710	51740	18290	9730	1460	3530

CAL YR 1981	TOTAL	57726.4	MEAN 158	MAX 1780	MIN 5.1	AC-FT	114500	
WTR YR 1982	TOTAL	154373.1	MEAN 423	MAX 4030	MIN 9.1	AC-FT	306200	

NOTE.--No gage-height record Feb. 25 to Apr. 22, June 9 to Aug. 4.

13214500 WARMSPRINGS RESERVOIR NEAR RIVERSIDE, OR

LOCATION.--Lat 43°35'07", long 118°12'30", on line between NW¼SW¼ and SW¼SW¼ sec.8, T.23 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on Bureau of Reclamation 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 Bureau of Reclamation); gage readings have been reduced to elevations NVGD.

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 Bureau of Reclamation.

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, 191,000 acre-ft (236 hm³) June 4, elevation, 3,406.00 ft (1,038.149 m); minimum, 70,730 acre-ft (87.2 hm³) Oct. 9, elevation, 3,373.65 ft (1,028.289 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 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3373.84	3374.79	3377.52	---	3388.72	3399.38	3400.81	3404.12	3405.87	3404.63	3402.69	3396.23
2	3373.81	3374.85	3377.59	---	3388.84	3399.09	3400.98	3404.14	3405.88	3404.46	3402.46	3396.02
3	3373.78	3374.89	3377.72	---	3388.98	3398.74	3401.16	3404.33	3405.96	3404.31	3402.27	3395.81
4	3373.75	3374.93	3377.82	---	3389.07	3398.30	3401.32	3404.57	3405.97	3404.14	3402.11	3395.61
5	3373.73	3374.96	3377.92	---	3389.11	3397.79	3401.45	3404.74	3405.98	3403.97	3401.94	3395.44
6	3373.72	3375.00	3378.00	---	3389.17	3397.24	3401.58	3404.78	3405.97	3403.80	3401.75	3395.25
7	3373.68	3375.03	3378.19	---	3389.24	3396.67	3401.71	3404.76	3405.97	3403.64	3401.54	3395.09
8	3373.66	3375.06	3378.34	---	3389.31	3396.51	3401.84	3405.12	3405.97	3403.48	3401.34	3394.92
9	3373.66	3375.17	3378.50	---	3389.38	3396.55	3401.97	3405.48	3405.96	3403.31	3401.14	3394.78
10	3373.75	3375.23	3378.57	---	3389.44	3396.68	3402.15	3405.45	3405.95	---	3400.95	3394.60
11	3373.79	3375.27	3378.67	---	3389.51	3396.85	3402.53	3405.35	3405.94	---	3400.73	3394.46
12	3373.85	3375.32	3378.75	---	3389.56	3397.00	3402.82	3405.23	3405.83	---	3400.53	3394.34
13	3373.91	3375.38	3378.84	---	3389.68	3396.97	3402.86	3405.19	3405.91	---	3400.32	3394.19
14	3373.94	3375.45	3378.97	---	3390.06	3396.95	3402.88	3405.21	3405.91	---	3400.12	3394.05
15	3373.99	3375.60	3379.32	---	3391.26	3397.14	3402.81	3405.26	3405.90	---	3399.92	3393.95
16	3374.04	3375.72	3379.64	---	3393.73	3397.33	3402.65	3405.31	3405.87	---	3399.72	3393.89
17	3374.07	3375.84	3379.79	---	3396.00	3397.58	3402.68	3405.40	3405.83	---	3399.53	3393.85
18	3374.13	3375.94	3379.94	3386.76	3397.52	3397.85	3402.66	3405.52	3405.76	---	3399.33	3393.79
19	3374.16	3376.05	3380.63	3386.88	3397.82	3398.01	3402.60	3405.54	3405.68	---	3399.13	3393.76
20	3374.22	3376.12	3382.27	3386.97	3398.96	3398.18	3402.68	3405.46	3405.62	---	3398.93	3393.75
21	3374.26	3376.24	3383.10	3387.07	3400.67	3398.37	3402.85	3405.49	3405.57	---	3398.74	3393.75
22	3374.30	3376.37	3383.43	3387.19	3402.05	3398.63	3403.07	3405.56	3405.52	---	3398.52	3393.74
23	3374.34	3376.52	3383.99	3387.28	3401.92	3398.92	3403.37	3405.60	3405.50	---	3398.30	3393.72
24	3374.38	3376.83	3384.19	3387.42	3401.54	3399.24	3403.67	3405.64	3405.44	---	3398.06	3393.70
25	3374.42	3377.02	3384.34	3387.56	3401.19	3399.59	3403.94	3405.71	3405.40	---	3397.83	3393.68
26	3374.47	3377.14	3384.47	3387.76	3400.80	3399.87	3404.10	3405.75	3405.34	---	3397.61	3393.66
27	3374.54	3377.23	---	3387.96	3400.34	3400.12	3404.12	3405.77	---	---	3397.39	3393.61
28	3374.59	3377.30	---	3388.14	3399.85	3400.30	3404.11	3405.79	3405.13	3403.37	3397.15	3393.56
29	3374.65	3377.38	---	3388.31	---	3400.43	3404.06	3405.84	3404.94	3403.23	3396.94	3393.54
30	3374.69	3377.45	---	3388.45	---	3400.56	3404.09	3405.86	3404.79	3403.07	3396.68	3393.50
31	3374.73	---	---	3388.59	---	3400.68	---	3405.85	---	3402.89	3396.46	---
MEAN	3374.09	3375.87	---	---	3394.06	3398.31	3402.65	3405.28	---	---	3399.68	3394.34
MAX	3374.73	3377.45	---	---	3402.05	3400.68	3404.12	3405.86	---	---	3402.69	3396.23
MIN	3373.66	3374.79	---	---	3388.72	3396.51	3400.81	3404.12	---	---	3396.46	3393.50
(†)	74020	82470	106500	119400	163800	167400	182400	190300	185500	177000	149600	137800
(‡)	+2660	+8450	+24030	+12900	+44400	+3600	+15000	+7900	-4800	-8500	-27400	-11800

† 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°34'29", long 118°12'31", on line between NW¼SW¼ and SW¼NW¼ sec.17, T.23 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on left bank 0.9 mi (1.4 km) downstream from Warmsprings 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 Warmsprings 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 except those for Nov. 3 to Feb. 15, which are fair. Flow completely regulated since November 1919 by Warmsprings Reservoir (see station 13214500). Diversions for irrigation above station.

AVERAGE DISCHARGE --63 years (water years 1920-82), 180 ft³/s (5.098 m³/s), 130,400 acre-ft/yr (161 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, 2,730 ft³/s (77.3 m³/s) Feb. 23, gage height, 9.03 ft (2.752 m); minimum daily, 0.08 ft³/s (0.002 m³/s) Dec. 1 to Feb. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	.25	.08	.08	.08	1850	490	1680	395	252	425	435
2	73	.20	.08	.08	.08	1840	360	1680	355	210	405	430
3	73	.20	.08	.08	.08	1840	296	1370	355	189	380	430
4	73	.20	.08	.08	.08	1830	315	1200	420	185	375	415
5	77	.20	.08	.08	.08	1830	330	1200	460	150	375	405
6	80	.20	.08	.08	.08	1820	335	1270	425	164	390	405
7	80	.20	.08	.08	.08	1820	315	1310	355	220	425	385
8	80	.20	.08	.08	.08	1050	296	455	325	256	440	335
9	33	.20	.08	.08	.08	615	296	455	310	287	435	305
10	.48	.20	.08	.08	.08	470	296	1320	248	301	435	296
11	.25	.20	.08	.08	.08	535	605	1320	252	305	435	274
12	.20	.20	.08	.08	.08	765	1350	1160	320	325	435	265
13	.25	.20	.08	.08	.08	937	1610	882	355	360	435	260
14	.40	.20	.08	.08	.08	937	1610	765	355	425	435	260
15	.40	.20	.08	.08	.08	620	1810	690	375	460	435	236
16	.48	.15	.08	.08	.78	445	1720	675	410	460	435	178
17	.65	.15	.08	.08	7.1	228	1180	680	470	460	435	144
18	.78	.15	.08	.08	545	217	1210	680	515	460	435	154
19	.90	.15	.08	.08	1840	345	1220	910	500	440	435	168
20	.90	.15	.08	.08	1850	287	838	1030	490	430	435	141
21	.90	.15	.08	.08	1870	206	605	745	490	425	450	120
22	.78	.15	.08	.08	2250	61	605	590	490	425	455	117
23	.65	.15	.08	.08	2660	.35	605	590	490	425	455	117
24	.65	.15	.08	.08	2350	.48	838	590	490	425	450	117
25	.65	.15	.08	.08	2010	.78	1250	595	470	420	450	117
26	.78	.15	.08	.08	1890	171	1560	590	470	420	445	115
27	.48	.15	.08	.08	1860	330	1840	595	475	420	440	147
28	.48	.15	.08	.08	1850	435	1940	560	465	405	455	168
29	.40	.15	.08	.08	---	490	1940	540	410	390	465	141
30	.30	.15	.08	.08	---	490	1780	540	315	390	465	126
31	.25	---	.08	.08	---	490	---	490	---	410	445	---
TOTAL	654.01	5.30	2.48	2.48	20984.08	22955.61	29445	27157	12255	10894	13410	7206
MEAN	21.1	.18	.080	.080	749	741	982	876	409	351	433	240
MAX	80	.25	.08	.08	2660	1850	1940	1680	515	460	465	435
MIN	.20	.15	.08	.08	.08	.35	296	455	248	150	375	115
AC-FT	1300	11	4.9	4.9	41620	45530	58400	53870	24310	21610	26600	14290

CAL YR 1981 TOTAL 72699.32 MEAN 199 MAX 685 MIN .05 AC-FT 144200
WTR YR 1982 TOTAL 144970.96 MEAN 397 MAX 2660 MIN .08 AC-FT 287500

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

LOCATION.--Lat 43°57'01", long 118°10'28", in NW¼NE¼ 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.--46 years (water years 1937-82), 132 ft³/s (3.738 m³/s), 95,630 acre-ft/yr (118 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 19	2000	684	19.4	4.46	1.359	Mar. 15	0030	588	16.7	4.24	1.292
Feb. 15	0800	2,050	58.1	6.96	2.121	Apr. 12	0100	1,070	30.3	5.00	1.524
Feb. 21	1930	*2,470	70.0	*7.67	2.338	May 3	0230	1,140	32.3	5.13	1.564
Mar. 1	2100	608	17.2	4.33	1.320	May 18	0200	820	23.2	4.63	1.411
Mar. 11	1630	616	17.4	4.32	1.317	July 1	1630	556	15.7	3.99	1.216

Minimum, 20 ft³/s (0.57 m³/s) Feb. 5, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	55	71	74	94	442	373	951	451	394	88	64
2	51	55	117	82	93	451	334	1010	442	367	83	62
3	55	55	83	88	94	403	340	1080	436	397	87	62
4	51	55	80	87	58	382	308	984	451	322	84	69
5	52	54	78	60	35	355	293	855	424	290	84	68
6	51	54	97	57	38	328	295	780	403	268	82	65
7	53	54	99	54	36	340	283	775	373	265	75	63
8	55	54	85	60	40	352	263	770	346	278	75	62
9	53	54	80	54	38	358	308	785	319	250	80	59
10	59	53	82	52	35	385	376	688	322	226	79	61
11	64	54	68	54	40	560	845	612	319	208	80	64
12	56	58	57	60	47	460	923	552	346	194	84	71
13	55	71	80	66	80	421	865	540	382	182	79	71
14	54	100	88	74	320	460	989	568	391	168	78	71
15	53	79	127	78	1660	488	815	648	400	159	76	71
16	53	90	109	98	1440	400	700	672	409	152	75	73
17	52	105	68	96	1150	373	664	696	409	145	74	74
18	52	85	85	90	755	361	636	760	403	137	69	78
19	51	71	278	83	1010	334	584	740	388	138	69	87
20	51	68	328	68	1240	310	564	684	373	135	69	115
21	51	71	230	76	1940	278	560	676	373	128	73	88
22	51	88	140	80	1190	280	608	692	400	117	69	83
23	52	105	85	93	760	270	700	732	367	111	67	75
24	53	127	80	144	576	298	845	740	331	111	65	76
25	52	82	72	138	488	334	923	740	319	112	65	90
26	54	73	76	130	448	385	945	770	295	109	65	82
27	57	70	72	121	406	424	934	765	280	114	64	75
28	58	74	68	109	379	412	1000	684	278	117	65	78
29	62	64	66	100	---	394	1010	596	322	105	68	85
30	57	67	64	97	---	379	967	516	288	97	68	82
31	56	---	63	99	---	409	---	451	---	94	65	---
TOTAL	1673	2145	3176	2622	14490	11826	19250	22512	11040	5890	2304	2224
MEAN	54.0	71.5	102	84.6	518	381	642	726	368	190	74.3	74.1
MAX	64	127	328	144	1940	560	1010	1080	451	397	88	115
MIN	49	53	57	52	35	270	263	451	278	94	64	59
AC-FT	3320	4250	6300	5200	28740	23460	38180	44650	21900	11680	4570	4410

CAL YR 1981 TOTAL 40756 MEAN 112 MAX 568 MIN 37 AC-FT 80840
WTR YR 1982 TOTAL 99152 MEAN 272 MAX 1940 MIN 35 AC-FT 196700

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, Bureau of Reclamation 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 gage heights 3,263.21 ft (994.626 m), bottom of outlet tunnel, and 3,340.0 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 Bureau of Reclamation.

COOPERATION.--Prior to Mar. 28, 1979, daily gage heights furnished by Vale-Oregon Irrigation District. Capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 62,770 acre-ft (77.4 hm³) May 3, 1941, gage height, 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, 60,660 acre-ft (74.8 hm³) May 26, gage height, 3,340.39 ft (1,018.151 m); minimum, 16,540 acre-ft (20.4 hm³) Oct. 5, 8, gage height, 3,309.59 ft (1,008.763 m).

Capacity table (gage height, 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

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3309.73	3312.34	3316.72	3323.30	3328.24	3336.67	3339.03	3339.93	3339.94	3339.42	3332.45	3319.90
2	3309.71	3312.45	3316.92	3323.46	3328.41	3336.93	3338.85	3339.93	3339.95	3339.45	3332.02	3319.53
3	3309.67	3312.56	3317.07	3323.65	3328.53	3337.26	3338.64	3339.94	3340.01	3339.53	3331.61	3319.14
4	3309.64	3312.66	3317.21	3323.77	3328.59	3337.41	3338.41	3339.96	3340.03	3339.49	3331.20	3318.79
5	3309.63	3312.75	3317.39	3323.86	3328.65	3337.42	3338.17	3339.86	3340.10	3339.44	3330.78	3318.43
6	3309.63	3312.86	3317.55	3323.93	3328.74	3337.43	3337.92	3339.76	3340.15	3339.41	3330.37	3318.06
7	3309.61	3312.95	3317.74	3324.07	3328.85	3337.42	3337.88	3339.82	3340.10	3339.35	3329.93	3317.69
8	3309.65	3313.06	3317.88	3324.23	3328.98	3337.57	3337.90	3339.93	3340.05	3339.40	3329.48	3317.31
9	3309.76	3313.16	3318.05	3324.35	3329.09	3337.82	3337.97	3340.11	3339.94	3339.43	3329.09	3316.89
10	3309.90	3313.27	3318.18	3324.47	3329.18	3338.13	3338.13	3339.91	3339.82	3339.40	3328.68	3316.48
11	3310.03	3313.37	3318.28	3324.62	3329.30	3338.59	3338.94	3339.83	3339.72	3339.34	3328.25	3316.15
12	3310.14	3313.49	3318.39	3324.78	3329.45	3338.74	3339.39	3339.82	3339.67	3339.23	3327.88	3315.83
13	3310.26	3313.68	3318.56	3324.94	3329.64	3338.68	3339.56	3339.82	3339.70	3339.02	3327.49	3315.51
14	3310.38	3313.86	3318.77	3325.10	3329.97	3338.55	3339.77	3339.86	3339.75	3338.83	3327.09	3315.21
15	3310.50	3314.08	3319.02	3325.25	3331.11	3338.34	3339.82	3340.01	3339.82	3338.61	3326.67	3314.93
16	3310.62	3314.30	3319.22	3325.42	3333.75	3338.06	3339.67	3340.18	3339.86	3338.39	3326.30	3314.65
17	3310.73	3314.49	3319.35	3325.58	3335.61	3337.74	3339.36	3340.26	3339.90	3338.12	3325.93	3314.39
18	3310.84	3314.66	3319.55	3325.73	3336.60	3337.40	3338.99	3340.25	3339.95	3337.82	3325.56	3314.14
19	3310.94	3314.79	3320.23	3325.84	3337.85	3337.04	3338.86	3340.14	3339.95	3337.49	3325.17	3313.91
20	3311.03	3314.93	3320.91	3325.97	3338.87	3336.68	3339.02	3339.94	3339.91	3337.14	3324.77	3313.73
21	3311.12	3315.10	3321.34	3326.08	3340.24	3336.26	3339.31	3339.81	3339.88	3336.77	3324.41	3313.55
22	3311.22	3315.27	3321.58	3326.27	3339.98	3336.08	3339.67	3339.80	3339.91	3336.39	3324.01	3313.49
23	3311.33	3315.52	3321.74	3326.47	3339.43	3336.31	3340.04	3339.93	3339.91	3336.02	3323.60	3313.44
24	3311.44	3315.78	3321.95	3326.71	3338.62	3336.70	3340.17	3340.11	3339.81	3335.64	3323.19	3313.35
25	3311.56	3315.94	3322.14	3326.95	3337.75	3337.13	3340.22	3340.29	3339.76	3335.28	3322.78	3313.28
26	3311.66	3316.07	3322.35	3327.19	3337.24	3337.59	3340.18	3340.22	3339.66	3334.87	3322.38	3313.18
27	3311.78	3316.20	3322.52	3327.40	3337.02	3338.09	3340.11	3340.08	3339.53	3334.48	3321.95	3313.06
28	3311.88	3316.34	3322.70	3327.59	3336.77	3338.53	3340.04	3340.05	3339.39	3334.10	3321.53	3312.95
29	3311.99	3316.45	3322.89	3327.75	---	3338.88	3340.00	3340.02	3339.35	3333.74	3321.09	3312.87
30	3312.12	3316.57	3323.02	3327.93	---	3339.13	3339.97	3339.98	3339.29	3333.32	3320.69	3312.78
31	3312.24	---	3323.18	3328.07	---	3339.20	---	3339.94	---	3332.91	3320.29	---
MEAN	3310.67	3314.30	3319.75	3325.51	3333.09	3337.67	3339.20	3339.98	3339.83	3337.48	3326.34	3315.42
MAX	3312.24	3316.57	3323.18	3328.07	3340.24	3339.20	3340.22	3340.29	3340.15	3339.53	3332.45	3319.90
MIN	3309.61	3312.34	3316.72	3323.30	3328.24	3336.08	3337.88	3339.76	3339.29	3332.91	3320.29	3312.78
(†)	19230	24060	32470	39560	53960	58420	59860	59810	58580	47250	28630	19790
(‡)	+2510	+4830	+8410	+7090	+14400	+4460	+1440	-50	-1230	-11330	-18620	-8840

CAL YR 1981 MEAN 3322.99 MAX 3340.03 MIN 3309.61 AC-FT‡ +16080
WTR YR 1982 MEAN 3328.24 MAX 3340.29 MIN 3309.61 AC-FT‡ +3070

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

13217500 NORTH FORK MALHEUR RIVER AT BEULAH, OR

LOCATION.--Lat 43°54'28", long 118°09'08", in NW¼NE¼ 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 mi^2 (1,140 km^2), 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.--47 years (water years 1936-82), 142 ft^3/s (4.021 m^3/s), 102,900 acre-ft/yr (127 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft^3/s (198 m^3/s) May 7, 1942, gage height, 9.4 ft (2.87 m), present datum, from floodmark, caused by failure of gates at Agency Valley Dam, from rating curve extended above 1,100 ft^3/s (31.2 m^3/s) on basis of computation of peak flow over dam; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,740 ft^3/s (106 m^3/s) Feb. 22, gage height, 8.25 ft (2.515 m); minimum, 0.14 ft^3/s (0.004 m^3/s) Nov. 8-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	.18	.15	.15	.96	695	604	1050	434	339	406	294
2	61	.16	.15	.15	.96	385	600	1050	434	339	402	278
3	61	.18	.15	.15	.96	203	595	1050	388	336	402	275
4	61	.18	.15	.15	.96	346	591	1050	378	332	402	275
5	61	.16	.15	.15	.96	423	586	1050	374	329	402	272
6	63	.16	.15	.15	.96	423	582	970	371	287	402	272
7	59	.16	.15	.15	.96	420	399	800	402	242	399	272
8	37	.16	.15	.15	.96	281	304	720	416	208	395	272
9	16	.14	.15	.15	.96	205	304	800	430	208	378	272
10	3.4	.14	.15	.15	.96	205	304	982	430	225	374	263
11	1.5	.14	.15	.15	1.1	208	311	830	385	239	374	242
12	1.2	.14	.15	.15	1.3	450	538	670	364	266	374	236
13	1.1	.14	.15	.15	1.7	609	760	636	360	308	360	236
14	.90	.14	.15	.15	3.0	740	815	636	360	315	360	223
15	.80	.15	.15	.15	3.2	780	820	636	360	346	364	218
16	.72	.15	.15	.20	4.2	770	930	640	360	350	346	218
17	.56	.15	.15	.25	4.9	765	1010	675	360	399	325	218
18	.56	.15	.15	.25	106	760	1000	890	360	427	325	215
19	.42	.15	.15	.25	406	750	765	925	385	427	329	215
20	.42	.15	.15	.25	855	745	430	925	399	430	329	215
21	.36	.15	.15	.30	1430	735	278	840	395	430	325	200
22	.32	.15	.15	.35	2060	530	242	710	399	430	325	158
23	.28	.15	.15	.45	1630	153	367	604	395	427	325	104
24	.25	.15	.15	.60	1570	5.4	745	600	395	423	322	124
25	.22	.15	.15	.80	1390	5.4	952	600	395	423	322	124
26	.22	.15	.15	.90	970	5.1	1070	805	392	420	318	124
27	.22	.15	.15	.96	755	5.1	1130	915	388	420	318	130
28	.25	.15	.15	.96	750	5.4	1130	775	388	416	318	135
29	.22	.15	.15	.96	---	122	1130	645	392	416	318	135
30	.20	.15	.15	.96	---	190	1080	604	360	416	308	135
31	.20	---	.15	.96	---	442	---	486	---	406	301	---
TOTAL	500.32	4.58	4.65	11.65	11951.00	12361.4	20372	24569	11649	10979	10948	6350
MEAN	16.1	.15	.15	.38	427	399	679	793	388	354	353	212
MAX	67	.18	.15	.96	2060	780	1130	1050	434	430	406	294
MIN	.20	.14	.15	.15	.96	5.1	242	486	360	208	301	104
AC-FT	992	9.1	9.2	23	23700	24520	40410	48730	23110	21780	21720	12600

CAL YR 1981 TOTAL 32683.53 MEAN 89.5 MAX 395 MIN .09 AC-FT 64830
WTR YR 1982 TOTAL 109700.60 MEAN 301 MAX 2060 MIN .14 AC-FT 217600

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 except those for July and August, which are fair. No regulation. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--25 years (water years 1906, 1912-16, 1964-82), 46.0 ft³/s (1.303 m³/s), 33,330 acre-ft/yr (41.1 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 20	0200	2,930	83.0	4.79	1.460
Feb. 16	0900	*4,850	137	*6.18	1.884
Feb. 19	2345	4,700	133	6.11	1.862
Apr. 12	0130	663	18.8	2.74	0.835
June 25		Stage and discharge unknown			
July 1		Stage and discharge unknown			

Minimum recorded, 1.5 ft³/s (0.042 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	4.5	13	48	73	413	279	181	16	500	3.4	3.0
2	1.9	4.5	14	45	79	420	261	164	6.4	196	3.2	5.0
3	2.4	4.6	61	40	89	374	249	147	7.3	108	3.1	8.0
4	2.2	4.6	39	65	66	337	242	137	9.2	78	3.0	10
5	2.2	4.6	29	50	32	310	227	125	11	90	2.9	9.8
6	3.3	5.1	25	35	35	290	226	123	12	100	2.8	9.0
7	4.2	5.8	32	30	35	282	219	115	17	95	2.7	8.8
8	4.2	5.1	33	36	32	277	213	103	19	70	2.6	8.5
9	4.5	4.9	30	35	36	273	211	117	20	51	3.3	8.5
10	5.7	4.6	27	32	33	280	227	132	12	43	4.2	4.9
11	5.7	4.6	23	40	35	332	450	118	8.5	35	4.0	3.9
12	4.5	4.8	20	47	45	338	573	109	17	27	3.5	3.9
13	4.9	5.5	19	54	99	317	446	94	24	22	3.1	4.9
14	5.3	6.5	19	60	290	321	430	90	21	20	2.9	7.5
15	6.1	10	49	65	973	354	388	93	22	18	2.8	9.0
16	5.3	12	120	68	3330	311	337	90	20	16	2.7	17
17	5.7	16	63	71	2090	286	308	82	8.1	14	2.6	24
18	5.7	13	53	68	1420	285	278	87	11	12	2.5	25
19	5.7	11	236	59	1640	266	260	87	36	11	2.5	32
20	5.7	9.4	1280	47	2180	248	244	83	40	9.5	2.5	67
21	6.1	9.0	558	45	2710	234	233	74	39	8.5	2.4	43
22	6.1	10	265	44	1460	235	225	68	36	7.5	2.4	29
23	5.7	9.8	160	55	748	243	212	62	35	6.5	2.4	20
24	6.1	24	133	72	574	265	212	66	173	5.7	2.3	19
25	5.8	52	112	124	491	260	212	56	310	5.0	2.3	25
26	5.8	29	104	112	460	256	212	55	270	4.7	2.3	25
27	6.4	23	96	181	397	252	203	46	220	4.4	2.3	18
28	6.4	17	81	112	368	253	201	31	190	4.1	2.3	18
29	6.5	15	75	89	---	247	194	26	190	3.9	2.3	18
30	6.0	14	70	80	---	244	189	33	300	3.7	2.3	18
31	5.0	---	45	76	---	256	---	42	---	3.5	2.4	---
TOTAL	152.8	343.9	3884	1985	19820	9059	8161	2836	2100.5	1573.0	86.0	502.7
MEAN	4.93	11.5	125	64.0	708	292	272	91.5	70.0	50.7	2.77	16.8
MAX	6.5	52	1280	181	3330	420	573	181	310	500	4.2	67
MIN	1.7	4.5	13	30	32	234	189	26	6.4	3.5	2.3	3.0
AC-FT	303	682	7700	3940	39310	17970	16190	5630	4170	3120	171	997

CAL YR 1981 TOTAL 14865.89 MEAN 40.7 MAX 1280 MIN .72 AC-FT 29490
WTR YR 1982 TOTAL 50503.90 MEAN 138 MAX 3330 MIN 1.7 AC-FT 100200

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 mi^2 (1,417 km^2).

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 hm^3) 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 hm^3) 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 2,516.00 ft (766.877 m), spillway crest; no usable contents at times in 1973, 1977, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 30,790 acre-ft (38.0 hm^3) Apr. 27, elevation, 2,516.82 ft (767.127 m); minimum, 8,130 acre-ft (10.0 hm^3) Oct. 14, elevation, 2,486.50 ft (757.885 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 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2487.70	2488.98	2490.96	2504.21	2504.25	2506.58	2513.53	2516.33	2515.38	2513.25	2512.62	2505.44
2	2487.59	2488.99	2491.06	2504.34	2504.31	2506.11	2513.20	2516.10	2515.30	2513.76	2512.47	2505.24
3	2487.42	2489.01	2491.32	2504.53	2504.27	2505.92	2512.88	2515.85	2515.28	2514.19	2512.27	2505.02
4	2487.24	2489.02	2491.51	2504.57	2504.18	2505.83	2512.53	2515.65	2515.23	2514.49	2512.10	2504.85
5	2487.07	2489.03	2491.68	2504.30	2504.04	2505.94	2512.45	2515.69	2515.17	2514.77	2511.90	2504.69
6	2486.96	2489.05	2491.83	2503.87	2503.91	2506.13	2512.50	2515.81	2515.10	2514.97	2511.70	2504.53
7	2486.86	2489.07	2491.99	2503.49	2503.79	2506.29	2512.55	2515.86	2515.01	2515.09	2511.49	2504.37
8	2486.77	2489.09	2492.17	2503.13	2503.69	2506.75	2512.58	2515.91	2514.99	2515.33	2511.25	2504.26
9	2486.71	2489.11	2492.35	2502.79	2503.60	2507.36	2512.62	2516.03	2514.98	2515.56	2511.04	2504.16
10	2486.68	2489.13	2492.48	2502.46	2503.48	2507.98	2512.71	2516.13	2514.98	2515.70	2510.81	2504.03
11	2486.61	2489.15	2492.60	2502.17	2503.45	2508.69	2513.37	2516.13	2514.94	2515.81	2510.55	2503.91
12	2486.56	2489.19	2492.75	2501.91	2503.49	2509.46	2514.22	2516.10	2514.86	2515.85	2510.34	2503.78
13	2486.52	2489.22	2492.88	2501.67	2503.56	2510.18	2514.56	2516.10	2514.83	2515.79	2510.11	2503.65
14	2486.52	2489.26	2493.05	2501.45	2504.00	2510.88	2514.70	2516.06	2514.77	2515.70	2509.84	2503.49
15	2486.65	2489.35	2493.28	2501.24	2505.85	2511.58	2514.98	2516.06	2514.72	2515.57	2509.60	2503.36
16	2486.87	2489.45	2493.76	2501.04	2511.04	2511.98	2515.23	2516.05	2514.63	2515.44	2509.36	2503.24
17	2487.07	2489.52	2494.06	2500.88	2512.89	2512.31	2515.39	2516.01	2514.51	2515.29	2509.10	2503.16
18	2487.24	2489.57	2494.36	2500.92	2512.56	2512.63	2515.42	2516.07	2514.38	2515.15	2508.83	2503.04
19	2487.43	2489.62	2495.13	2501.05	2512.25	2512.83	2515.46	2516.09	2514.23	2515.00	2508.58	2503.02
20	2487.60	2489.69	2498.66	2501.16	2512.46	2513.01	2515.43	2516.09	2514.03	2514.84	2508.31	2503.03
21	2487.75	2489.78	2500.42	2501.28	2513.39	2513.17	2515.59	2516.10	2513.84	2514.64	2508.11	2503.00
22	2487.91	2489.84	2501.23	2501.42	2513.33	2513.35	2515.92	2516.05	2513.69	2514.42	2507.87	2503.00
23	2488.07	2489.93	2501.77	2501.61	2513.04	2513.47	2516.28	2516.00	2513.57	2514.24	2507.62	2503.01
24	2488.22	2490.05	2502.24	2501.79	2512.93	2513.57	2516.48	2516.00	2513.39	2514.06	2507.35	2503.01
25	2488.37	2490.25	2502.60	2502.07	2512.03	2513.67	2516.51	2515.99	2513.27	2513.89	2507.11	2502.98
26	2488.53	2490.44	2502.96	2502.39	2510.60	2513.77	2516.65	2515.91	2513.11	2513.71	2506.85	2502.94
27	2488.70	2490.57	2503.24	2502.92	2509.08	2513.84	2516.74	2515.81	2512.94	2513.53	2506.60	2502.88
28	2488.85	2490.68	2503.47	2503.27	2507.51	2513.90	2516.70	2515.71	2512.80	2513.35	2506.36	2502.83
29	2488.92	2490.77	2503.71	2503.55	---	2513.99	2516.71	2515.62	2512.72	2513.19	2506.12	2502.80
30	2488.94	2490.86	2503.89	2503.80	---	2514.06	2516.59	2515.56	2512.66	2513.00	2505.88	2502.76
31	2488.96	---	2504.08	2504.04	---	2513.86	---	2515.50	---	2512.83	2505.65	---
MEAN	2487.53	2489.59	2496.37	2502.56	2507.61	2510.62	2514.68	2515.95	2514.31	2514.59	2509.28	2503.65
MAX	2488.96	2490.86	2504.08	2504.57	2513.39	2514.06	2516.74	2516.33	2515.38	2515.85	2512.62	2505.44
MIN	2486.52	2488.98	2490.96	2500.88	2503.45	2505.83	2512.45	2515.50	2512.66	2512.83	2505.65	2502.76
(†)	9370	10420	19390	19360	22210	27910	30560	29490	26780	26940	20660	18350
(‡)	+590	+1050	+8970	-30	+2850	+5700	+2650	-1070	-2710	+160	-6280	-2310

CAL YR 1981 MEAN 2502.14 MAX 2515.43 MIN 2486.52 AC-FT‡ +6620
WTR YR 1982 MEAN 2505.54 MAX 2516.74 MIN 2486.52 AC-FT‡ +9570

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

13272500 UNITY RESERVOIR NEAR UNITY, OR

LOCATION.--Lat 44°30'13", long 118°10'45", in SE¼SW¼ 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 (Bureau of Reclamation 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 Bureau of Reclamation 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 elevation 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 Bureau of Reclamation.

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, 25,800 acre-ft (31.8 hm³) July 9, elevation, 3,820.63 ft (1,164.528 m); minimum, 4,740 acre-ft (5.84 hm³) Oct. 8, elevation, 3,791.48 ft (1,155.643 m).

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

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

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3792.18	3794.01	3799.27	3805.16	3808.27	3814.66	3812.11	3819.89	3819.80	3820.20	3818.20	3810.43
2	3792.04	3794.16	3799.43	3805.30	3808.38	3814.74	3811.89	3819.84	3819.89	3820.38	3817.96	3810.16
3	3791.88	3794.30	3799.57	3805.45	3808.45	3814.71	3811.62	3819.81	3819.99	3820.53	3817.74	3809.87
4	3791.75	3794.43	3799.76	3805.55	3808.46	3814.68	3811.31	3819.59	3820.22	3820.52	3817.52	3809.60
5	3791.64	3794.54	3799.92	3805.64	3808.50	3814.58	3810.99	3819.35	3820.31	3820.51	3817.32	3809.35
6	3791.63	3794.70	3800.15	3805.66	3808.57	3814.48	3810.65	3819.10	3820.33	3820.51	3817.09	3809.08
7	3791.53	3794.83	3800.39	3805.73	3808.62	3814.39	3810.31	3818.99	3820.24	3820.52	3816.86	3808.81
8	3791.54	3794.96	3800.63	3805.80	3808.70	3814.36	3809.98	3819.02	3820.16	3820.56	3816.69	3808.53
9	3791.63	3795.08	3800.87	3805.85	3808.70	3814.38	3809.69	3819.07	3820.10	3820.55	3816.47	3808.24
10	3791.78	3795.21	3801.05	3805.94	3808.74	3814.51	3809.58	3819.01	3820.06	3820.49	3816.22	3807.92
11	3791.88	3795.34	3801.22	3806.10	3808.76	3814.63	3810.87	3818.90	3820.04	3820.45	3816.01	3807.68
12	3791.95	3795.49	3801.36	3806.21	3808.81	3814.56	3812.63	3818.98	3820.08	3820.38	3815.80	3807.41
13	3792.02	3795.68	3801.57	3806.31	3808.86	3814.39	3813.91	3819.17	3820.21	3820.25	3815.57	3807.14
14	3792.11	3795.89	3801.82	3806.45	3808.91	3814.31	3815.29	3819.38	3820.28	3820.14	3815.33	3806.85
15	3792.19	3796.08	3802.04	3806.56	3808.95	3814.24	3815.94	3819.65	3820.32	3820.03	3815.12	3806.61
16	3792.26	3796.45	3802.17	3806.69	3809.17	3814.03	3816.34	3819.92	3820.32	3819.96	3814.88	3806.35
17	3792.34	3796.68	3802.31	3806.76	3809.77	3813.78	3816.73	3820.10	3820.28	3819.91	3814.63	3806.10
18	3792.41	3796.84	3802.52	3806.85	3810.33	3813.50	3816.98	3820.36	3820.25	3819.84	3814.37	3805.85
19	3792.48	3797.02	3802.71	3806.89	3810.89	3813.16	3817.10	3820.40	3820.18	3819.78	3814.07	3805.68
20	3792.55	3797.21	3802.97	3806.98	3811.74	3812.79	3817.18	3820.31	3820.19	3819.74	3813.76	3805.45
21	3792.62	3797.38	3803.24	3807.05	3812.93	3812.40	3817.35	3820.23	3820.16	3819.66	3813.52	3805.22
22	3792.69	3797.60	3803.46	3807.19	3813.98	3811.99	3817.73	3820.15	3820.16	3819.57	3813.22	3804.96
23	3792.77	3797.83	3803.59	3807.34	3814.58	3811.68	3818.50	3820.18	3820.10	3819.50	3812.95	3804.71
24	3792.88	3798.08	3803.85	3807.41	3814.86	3811.56	3819.47	3820.21	3820.03	3819.44	3812.67	3804.46
25	3792.99	3798.25	3803.99	3807.50	3814.95	3811.69	3820.05	3820.15	3820.01	3819.36	3812.42	3804.22
26	3793.14	3798.41	3804.25	3807.62	3814.99	3811.99	3820.18	3820.06	3819.94	3819.25	3812.13	3803.94
27	3793.27	3798.59	3804.39	3807.71	3814.89	3812.28	3820.29	3819.96	3819.89	3819.20	3811.84	3803.67
28	3793.41	3798.75	3804.55	3807.83	3814.76	3812.45	3820.31	3819.85	3819.84	3819.08	3811.56	3803.41
29	3793.56	3798.92	3804.73	3807.93	---	3812.53	3820.26	3819.82	3819.89	3818.90	3811.26	3803.20
30	3793.72	3799.09	3804.86	3808.06	---	3812.44	3820.07	3819.79	3819.91	3818.72	3810.97	3802.99
31	3793.88	---	3805.01	3808.17	---	3812.34	---	3819.79	---	3818.50	3810.71	---
MEAN	3792.41	3796.39	3802.18	3806.64	3810.63	3813.49	3815.18	3819.71	3820.11	3819.88	3814.67	3806.60
MAX	3793.88	3799.09	3805.01	3808.17	3814.99	3814.74	3820.31	3820.40	3820.33	3820.56	3818.20	3810.43
MIN	3791.53	3794.01	3799.27	3805.16	3808.27	3811.56	3809.58	3818.90	3819.80	3818.50	3810.71	3802.99
(†)	6000	9030	12970	15280	20560	18540	25280	25020	25130	23860	17230	11560
(‡)	+790	+3030	+3940	+2310	+5280	-2020	+6740	-260	+110	-1270	-6630	-5670

CAL YR 1981 MEAN 3809.56 MAX 3820.52 MIN 3791.53 AC-FT‡ -3960
WTR YR 1982 MEAN 3809.82 MAX 3820.56 MIN 3791.53 AC-FT‡ +6350

† 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 mi^2 (800 km^2).

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 excellent. Flow regulated since 1938 by Unity Reservoir (see station 13272500). Diversions for irrigation above station.

AVERAGE DISCHARGE.--54 years (water years 1929-82), 84.6 ft^3/s (2.396 m^3/s), 61,290 acre-ft/yr (75.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,220 ft^3/s (62.9 m^3/s) Apr. 17, 1943, gage height, 5.91 ft (1.801 m), site and datum then in use, from rating curve extended above 1,300 ft^3/s (36.8 m^3/s); maximum gage height, 6.41 ft (1.954 m), site and datum then in use, Apr. 16, 1943, just before concrete control washed out; no flow at times; minimum discharge before construction of Unity Dam, 1.6 ft^3/s (0.045 m^3/s) Aug. 31, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 871 ft^3/s (24.7 m^3/s) Apr. 29, gage height, 7.67 ft (2.338 m); minimum, 0.64 ft^3/s (0.018 m^3/s) Oct. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	1.9	1.4	12	40	263	372	824	156	98	138	130
2	53	1.9	2.7	12	41	263	367	812	156	103	137	129
3	47	1.9	3.9	19	41	263	361	812	163	134	136	129
4	47	1.8	4.0	23	40	263	353	811	181	148	136	127
5	47	1.9	4.1	24	40	261	345	726	193	133	136	127
6	47	1.9	4.1	24	40	259	336	676	198	130	136	126
7	47	1.9	4.1	24	40	258	327	609	198	136	136	126
8	23	1.9	4.2	24	45	258	317	541	187	143	136	126
9	4.7	1.8	4.5	25	56	259	308	522	168	146	136	125
10	4.9	1.8	4.4	25	57	300	301	522	151	146	135	124
11	5.2	1.8	4.3	24	57	368	312	486	134	145	135	124
12	4.5	1.9	4.3	25	62	390	363	368	127	138	135	126
13	4.3	1.9	4.5	25	73	398	389	321	127	127	134	128
14	4.5	1.9	4.5	26	74	385	388	328	127	127	134	127
15	5.4	2.0	4.7	26	86	384	425	345	127	124	133	127
16	5.7	1.8	4.7	29	94	379	428	363	127	107	133	126
17	6.0	1.7	4.7	32	96	373	434	388	127	100	133	125
18	6.0	1.7	4.5	34	107	368	448	396	127	98	136	125
19	6.0	1.7	7.3	34	98	362	447	440	126	94	158	125
20	6.9	1.6	9.4	34	101	353	452	446	122	80	155	124
21	7.0	1.7	9.7	34	101	351	457	420	119	79	143	125
22	7.3	1.7	9.7	35	125	360	482	396	119	79	136	126
23	7.5	1.6	9.7	35	179	352	503	371	119	73	136	125
24	5.6	1.6	9.7	36	191	343	539	369	119	77	135	124
25	2.5	1.6	9.7	37	227	348	679	378	112	88	135	123
26	2.0	1.5	9.5	37	244	365	810	369	100	88	135	122
27	2.4	1.6	9.9	38	260	378	831	360	98	88	134	121
28	2.3	1.6	10	38	266	379	857	334	97	103	134	116
29	2.0	1.6	11	39	---	381	864	256	98	124	133	103
30	2.0	1.4	12	40	---	379	852	230	98	124	131	103
31	1.8	---	12	40	---	376	---	189	---	129	130	---
TOTAL	478.5	52.6	203.2	910	2881	10419	14347	14408	4101	3509	4230	3714
MEAN	15.4	1.75	6.55	29.4	103	336	478	465	137	113	136	124
MAX	61	2.0	12	40	266	398	864	824	198	148	158	130
MIN	1.8	1.4	1.4	12	40	258	301	189	97	73	130	103
AC-FT	949	104	403	1800	5710	20670	28460	28580	8130	6960	8390	7370

CAL YR 1981 TOTAL 31546.3 MEAN 86.4 MAX 429 MIN 1.4 AC-FT 62570
WTR YR 1982 TOTAL 59253.3 MEAN 162 MAX 864 MIN 1.4 AC-FT 117500

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 mi^2 (435 km^2), approximately. Prior to Oct. 1, 1970, 170 mi^2 (440 km^2) 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 except those for period of no gage-height record July 19 to Sept. 28, which are fair. Flow completely regulated since Oct. 31, 1967, by Phillips Lake, active capacity, 90,540 acre-ft (112 hm^3). Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--17 years, 107 ft^3/s (3.030 m^3/s), 77,520 acre-ft/yr (95.6 hm^3/yr), not adjusted for storage in Phillips Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 971 ft^3/s (27.5 m^3/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 ft^3/s (45.3 m^3/s), approximately, Mar. 20, 1910, based on comparison with records for station downstream, near Baker.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 565 ft^3/s (16.0 m^3/s) June 24-27, gage height, 3.67 ft (1.119 m); minimum, 4.4 ft^3/s (0.12 m^3/s) Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	5.2	11	10	13	275	268	14	500	444	194	265
2	8.1	4.8	11	10	13	300	236	14	520	318	206	258
3	8.1	5.2	11	10	11	300	230	90	540	330	224	252
4	8.1	5.2	11	10	10	314	227	300	510	330	252	246
5	8.1	5.2	11	10	10	342	227	435	495	342	245	239
6	8.1	5.2	11	10	9.8	342	194	495	495	354	354	206
7	8.1	5.2	11	10	10	342	172	490	476	350	358	203
8	12	5.2	11	10	10	303	170	490	453	350	366	177
9	5.7	5.2	11	10	9.8	268	170	490	453	350	362	160
10	5.7	5.2	11	10	9.8	390	170	490	453	354	350	160
11	5.7	5.2	11	10	9.8	390	170	490	458	350	346	170
12	5.7	8.6	11	11	9.8	390	104	490	458	342	330	170
13	5.7	11	11	11	9.8	390	60	490	458	307	278	188
14	5.7	11	11	11	9.8	390	61	495	458	262	289	154
15	5.7	11	11	11	42	390	61	490	458	262	275	132
16	5.7	11	11	11	25	390	61	490	467	262	303	102
17	5.7	11	11	11	6.2	390	61	490	467	262	255	88
18	5.7	11	11	11	6.2	390	63	490	480	245	245	74
19	5.7	11	11	11	6.2	390	63	495	525	198	258	74
20	5.7	11	11	11	7.2	390	63	495	520	184	265	82
21	5.7	11	11	11	7.2	386	36	495	520	191	296	79
22	5.7	11	11	12	6.2	259	14	495	525	203	296	66
23	5.2	11	11	12	6.2	152	14	495	555	188	292	35
24	5.2	11	11	12	6.2	140	14	495	555	200	289	20
25	5.7	12	10	12	80	140	13	495	560	209	330	17
26	5.7	11	10	12	160	191	13	500	560	239	304	5.3
27	5.7	11	10	12	185	265	13	500	560	233	298	4.9
28	5.7	11	10	12	218	296	14	500	550	203	291	4.5
29	5.7	11	10	12	---	307	14	500	540	203	285	4.4
30	5.7	11	10	13	---	307	14	500	525	200	278	10
31	5.2	---	10	12	---	310	---	500	---	197	272	---
TOTAL	198.8	264.4	334	341	907.2	9829	2990	13698	15094	8462	8986	3646.1
MEAN	6.41	8.81	10.8	11.0	32.4	317	99.7	442	503	273	290	122
MAX	12	12	11	13	218	390	268	500	560	444	366	265
MIN	5.2	4.8	10	10	6.2	140	13	14	453	184	194	4.4
AC-FT	394	524	662	676	1800	19500	5930	27170	29940	16780	17820	7230

CAL YR 1981 TOTAL 37278.3 MEAN 102 MAX 420 MIN 4.8 AC-FT 73940
WTR YR 1982 TOTAL 64750.5 MEAN 177 MAX 560 MIN 4.4 AC-FT 128400

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 mi^2 (909 km^2).

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 excellent. Flow regulated since Oct. 31, 1967, by Phillips Lake, active capacity, 90,540 acre-ft (112 hm^3). Old Settlers Slough diverts from left bank 0.2 mi (0.3 km) upstream for irrigation below station.

AVERAGE DISCHARGE.--10 years, 108 ft^3/s (3.059 m^3/s), 78,250 acre-ft/yr (96.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft^3/s (31.7 m^3/s) Jan. 15, 1974, gage height, 5.55 ft (1.692 m); minimum, 0.7 ft^3/s (0.020 m^3/s) Oct. 28, 29, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 784 ft^3/s (22.2 m^3/s) July 1, gage height, 4.73 ft (1.442 m); minimum, 9.8 ft^3/s (0.28 m^3/s) Sept. 28, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	12	22	26	32	382	361	95	471	633	117	156
2	13	12	24	27	34	432	320	96	480	395	116	156
3	12	12	27	30	36	404	322	121	521	389	129	156
4	12	12	29	31	31	410	311	303	524	373	129	155
5	12	12	31	28	30	436	299	427	502	372	182	164
6	12	12	34	20	31	428	277	508	488	380	244	136
7	12	12	27	21	32	426	238	514	470	375	245	126
8	14	12	25	28	29	438	229	515	432	380	246	104
9	13	12	25	26	34	297	228	528	426	369	246	103
10	12	12	26	24	32	504	232	510	415	363	229	106
11	12	12	24	26	35	533	318	490	409	360	233	113
12	12	13	23	30	45	500	305	474	420	356	215	125
13	12	18	26	31	51	486	215	470	425	304	198	124
14	12	26	26	32	60	510	243	463	423	274	202	118
15	12	22	38	30	97	541	212	474	419	238	205	112
16	12	28	37	33	409	497	187	488	424	232	203	88
17	12	25	28	35	297	480	174	504	419	226	182	71
18	12	22	29	33	196	473	168	532	417	222	181	63
19	12	23	40	32	270	464	158	521	462	206	180	65
20	12	24	68	31	393	464	150	512	465	164	186	68
21	12	25	46	30	520	461	139	506	469	135	198	65
22	12	24	35	26	242	398	104	502	476	132	196	48
23	12	22	29	31	160	233	113	502	492	126	193	28
24	12	21	37	38	123	225	130	503	499	121	190	19
25	12	20	36	43	130	217	137	506	516	121	218	21
26	12	19	37	49	211	262	133	516	522	125	219	14
27	12	19	31	52	247	364	125	522	541	142	205	11
28	12	18	27	43	261	393	123	517	535	145	198	10
29	12	19	26	39	---	404	120	505	542	123	201	12
30	12	20	25	36	---	392	103	494	519	117	198	10
31	12	---	24	35	---	386	---	481	---	116	180	---
TOTAL	379	540	962	996	4068	12840	6174	14099	14123	8014	6064	2547
MEAN	12.2	18.0	31.0	32.1	145	414	206	455	471	259	196	84.9
MAX	15	28	68	52	520	541	361	532	542	633	246	164
MIN	12	12	22	20	29	217	103	95	409	116	116	10
AC-FT	752	1070	1910	1980	8070	25470	12250	27970	28010	15900	12030	5050

CAL YR 1981 TOTAL 33390 MEAN 91.5 MAX 365 MIN 12 AC-FT 66230
WTR YR 1982 TOTAL 70806 MEAN 194 MAX 633 MIN 10 AC-FT 140400

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, Bureau of Reclamation 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 current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation 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 PERIOD OF RECORD.--Maximum contents, 18,900 acre-ft (23.3 hm³) July 2, 1982, elevation, 3,134.99 ft (955.545 m); minimum recorded, 2,250 acre-ft (2.77 hm³) Oct. 1, 1981, elevation, 3,104.66 ft (946.300 m); minimum (estimated), 2,190 acre-ft (2.70 hm³) Sept. 30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 18,900 acre-ft (23.3 hm³) July 2, elevation, 3,134.99 ft (955.545 m); minimum, 2,250 acre-ft (2.77 hm³) Oct. 1, elevation, 3,104.66 ft (946.300 m).

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

3,104	2,040	3,125	11,880
3,110	4,170	3,130	15,210
3,115	6,370	3,135	18,910
3,120	8,950		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3104.87	3113.54	---	3133.13	3133.29	3134.02	3133.85	3133.76	3133.88	3134.79	3132.60	3129.54
2	3105.48	3113.77	---	3133.17	3133.18	3134.09	3133.83	3133.74	3133.86	3134.97	3132.42	3129.47
3	3105.90	3114.01	---	3133.20	3133.19	3134.04	3133.81	3133.72	3133.87	3134.79	3132.24	3129.31
4	3106.22	3114.21	---	3133.18	3133.18	3134.00	3133.79	3133.72	3134.01	3134.63	3132.06	3129.17
5	3106.47	3114.42	---	3133.16	3133.18	3133.98	3133.79	3133.81	3134.10	3134.51	3131.86	3129.08
6	3106.72	3114.66	3126.93	3133.14	3133.20	3133.96	3133.79	3133.90	3134.12	3134.38	3131.65	3129.01
7	3107.04	3114.88	3127.44	3133.12	3133.21	3133.95	3133.77	3133.92	3134.08	3134.33	3131.42	3128.99
8	3107.39	3115.09	3127.95	3133.14	3133.25	3133.93	3133.75	3133.90	3134.06	3134.33	3131.17	3128.94
9	3107.69	3115.28	3128.40	3133.15	3133.44	3133.95	3133.73	3133.88	3134.03	3134.35	3131.08	3128.76
10	3108.05	3115.48	3128.78	3133.15	3133.81	3133.89	3133.70	3133.90	3133.99	3134.29	3130.95	3128.54
11	3108.37	---	3129.13	3133.17	---	3133.98	3133.80	3133.90	3133.99	3134.27	3130.88	3128.38
12	3108.63	---	3129.44	3133.20	---	3134.01	3133.86	3133.88	3134.13	3134.22	3130.90	3128.22
13	3108.96	---	3129.82	3133.20	---	3134.00	3133.88	3133.87	3134.37	3134.13	3130.88	3128.13
14	3109.21	---	3130.21	3133.23	---	3134.04	3133.81	3133.81	3134.38	3134.04	3130.85	3128.04
15	3109.44	---	3130.69	3133.24	---	3134.04	3133.79	3133.81	3134.44	3133.95	3131.02	3128.06
16	3109.66	---	3131.31	3133.26	---	3134.05	3133.79	3133.85	3134.47	3133.86	3131.19	3128.24
17	3109.86	---	3131.87	3133.26	3134.01	3134.03	3133.72	3133.85	3134.47	3133.79	3131.37	3128.44
18	3110.04	---	3132.32	3133.25	3134.42	3133.97	3133.70	3133.88	3134.49	3133.72	3131.56	3128.56
19	3110.27	---	3132.91	3133.26	3134.57	3133.96	3133.67	3133.92	3134.49	3133.70	3131.62	3128.67
20	3110.56	---	3133.44	3133.24	3134.86	3133.97	3133.67	3133.97	3134.42	3133.60	3131.58	3128.90
21	3110.81	---	3133.53	3133.21	3134.71	3133.96	3133.67	3134.04	3134.40	3133.49	3131.47	3129.12
22	3111.07	---	3133.44	3133.21	3134.44	3133.96	3133.70	3134.03	3134.45	3133.38	3131.33	3129.29
23	3111.31	3120.85	3133.31	3133.19	3134.14	3133.94	3133.67	3134.04	3134.47	3133.35	3131.17	3129.47
24	3111.57	3121.48	3133.25	3133.20	3133.93	3133.82	3133.67	3134.11	3134.38	3133.36	3130.97	3129.70
25	3111.81	3122.09	3133.29	3133.29	3133.81	3133.79	3133.72	3134.13	3134.38	3133.33	3130.78	3129.95
26	3112.03	3126.69	3133.28	3133.31	3133.74	3133.78	3133.78	3134.15	3134.33	3133.31	3130.58	3130.08
27	3112.29	---	3133.26	3133.32	3133.79	3133.78	3133.83	3134.13	3134.31	3133.22	3130.45	3130.31
28	3112.55	---	3133.24	3133.34	3133.84	3133.81	3133.77	3134.06	3134.33	3133.15	3130.28	3130.52
29	3112.81	---	3133.21	3133.32	---	3133.87	3133.79	3133.99	3134.40	3133.11	3129.99	3130.74
30	3113.06	3124.30	3133.24	3133.32	---	3133.86	3133.78	3133.97	3134.36	3132.99	3129.74	3131.01
31	3113.30	---	3133.17	3133.30	---	3133.87	---	3133.94	---	3132.81	3129.63	---
MEAN	3109.47	---	---	3133.22	---	3133.95	3133.76	3133.92	3134.25	3133.88	3131.15	3129.15
MAX	3113.30	---	---	3133.34	---	3134.09	3133.88	3134.15	3134.49	3134.97	3132.60	3131.01
MIN	3104.87	---	---	3133.12	---	3133.78	3133.67	3133.72	3133.86	3132.81	3129.63	3128.04
(†)	5580	11450	17530	17620	18030	18050	17980	18100	18420	17260	14950	15940
(‡)	+3390	+5870	+6080	+90	+410	+20	-70	+120	+320	-1160	-2310	+990

CAL YR 1981 MEAN - MAX 3134.09 MIN 3104.48 AC-FT‡ -220
WTR YR 1982 MEAN - MAX 3134.97 MIN 3104.87 AC-FT‡ +13750

† Contents 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 mi^2 (2,360 km^2), 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 (Bureau of Reclamation bench mark). Prior to Aug. 18, 1978, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum.

REMARKS.--Records excellent. Flow regulated by Phillips Lake since October 1967, usable capacity, 90,540 acre-ft (112 hm^3), by Wolf Creek Reservoir since April 1975, usable capacity, 10,400 acre-ft (12.8 hm^3), and by Thief Valley Reservoir since February 1932, usable capacity, 17,400 acre-ft (21.5 hm^3). Many diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 2,920 ft^3/s (82.7 m^3/s) Mar. 21, 1910, gage height, 10.0 ft (3.05 m), site and datum then in use, from rating curve extended above 1,000 ft^3/s (28.3 m^3/s); maximum gage height, 10.05 ft (3.063 m) July 2, 1982; no flow Aug. 9 to Sept. 10, 1910.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,520 ft^3/s (71.4 m^3/s) July 2, gage height, 10.05 ft (3.063 m); minimum, 16 ft^3/s (0.45 m^3/s) Oct. 20, 21, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	29	35	115	150	709	599	486	632	1550	122	135
2	27	29	35	115	140	924	570	477	597	2370	121	137
3	28	30	36	134	150	900	550	487	590	2320	127	137
4	28	30	35	135	120	848	534	464	686	1920	135	137
5	28	30	36	133	100	806	531	517	900	1630	135	137
6	28	30	36	127	86	763	526	606	932	1380	133	137
7	29	31	37	120	100	745	480	667	906	1230	133	137
8	30	31	37	127	140	730	454	665	849	1200	133	137
9	30	31	37	127	145	725	450	655	788	1210	133	135
10	30	31	37	130	140	682	510	653	707	1140	133	135
11	31	31	37	132	130	771	571	649	689	1070	132	135
12	31	31	37	140	125	817	610	616	762	1040	131	135
13	31	32	38	144	130	795	596	590	1160	973	131	133
14	31	32	38	157	230	862	583	545	1330	901	131	133
15	32	32	38	157	390	886	536	524	1320	780	83	106
16	32	32	38	164	500	870	510	533	1410	636	59	89
17	32	32	38	157	657	831	488	572	1440	522	59	89
18	33	32	39	151	1010	797	452	627	1430	437	59	90
19	26	32	39	139	1570	773	430	647	1430	396	98	91
20	16	33	116	104	1920	758	405	676	1380	340	118	91
21	16	33	290	161	2290	743	387	729	1320	268	118	91
22	17	33	290	183	1730	727	382	792	1340	205	118	88
23	17	34	234	204	1250	654	390	810	1400	150	118	85
24	16	34	193	204	869	538	392	852	1320	133	118	85
25	17	34	179	203	650	507	415	928	1260	121	118	85
26	23	34	183	193	552	508	466	1030	1220	105	118	87
27	28	35	169	202	550	542	512	1010	1220	125	118	87
28	28	35	170	190	585	607	530	939	1200	109	125	87
29	29	35	156	180	---	636	519	823	1320	112	135	87
30	29	36	156	170	---	630	495	722	1330	126	135	87
31	29	---	155	160	---	610	---	680	---	124	135	---
TOTAL	828	964	2994	4758	16409	22694	14873	20971	32868	24623	3662	3325
MEAN	26.7	32.1	96.6	153	586	732	496	676	1096	794	118	111
MAX	33	36	290	204	2290	924	610	1030	1440	2370	135	137
MIN	16	29	35	104	86	507	382	464	590	105	59	85
AC-FT	1640	1910	5940	9440	32550	45010	29500	41600	65190	48840	7260	6600

CAL YR 1981 TOTAL 68994 MEAN 189 MAX 886 MIN 16 AC-FT 136800
WTR YR 1982 TOTAL 148969 MEAN 408 MAX 2370 MIN 16 AC-FT 295500

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 mi^2 (3,390 km^2), 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. Regulation by several reservoirs, the largest being Phillips Lake since Oct. 31, 1967, active capacity, 90,540 acre-ft (112 hm^3), Thief Valley Reservoir, capacity, 17,400 acre-ft (21.5 hm^3), and since April 1975, Wolf Creek Reservoir, capacity, 10,400 acre-ft (12.8 hm^3). Diversions for irrigation above and below station.

AVERAGE DISCHARGE.--25 years, 255 ft^3/s (7.222 m^3/s), 184,700 acre-ft/yr (228 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,090 ft^3/s (116 m^3/s) Feb. 21, 1982, gage height, 7.50 ft (2.286 m), from floodmark; maximum gage height, 9.29 ft (2.832 m) Jan. 15, 1974 (ice jam); minimum discharge, 0.80 ft^3/s (0.023 m^3/s) Aug. 11, 12, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,090 ft^3/s (116 m^3/s) Feb. 21, gage height, 7.50 ft (2.286 m), from floodmark; minimum, 37 ft^3/s (1.05 m^3/s) Aug. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	60	81	200	269	1050	918	840	679	1310	57	73
2	69	59	85	190	259	1280	885	839	625	1480	58	74
3	67	59	89	190	271	1340	878	858	587	2140	61	79
4	68	59	86	180	221	1290	830	807	610	2210	58	81
5	67	59	84	160	178	1230	792	712	750	1880	65	85
6	74	59	86	140	136	1150	770	745	876	1650	66	84
7	67	59	93	170	151	1090	763	811	891	1430	64	81
8	75	60	89	160	120	1070	743	894	851	1300	63	59
9	73	59	89	150	140	1050	689	877	798	1230	66	59
10	73	59	90	140	150	1050	660	836	741	1200	64	98
11	90	58	89	160	170	1040	741	798	674	1130	67	103
12	79	58	88	180	190	1120	879	772	682	1060	73	105
13	76	64	94	200	208	1140	960	748	821	1030	69	116
14	73	66	100	220	239	1170	1010	741	1100	965	67	104
15	70	66	180	230	650	1290	963	728	1230	883	72	109
16	69	75	190	257	1500	1250	880	745	1260	747	82	109
17	67	92	142	279	1950	1210	823	745	1300	591	60	88
18	67	78	122	260	1730	1170	785	789	1340	488	48	85
19	67	72	236	236	2400	1140	731	792	1340	407	48	90
20	66	70	355	270	3190	1110	688	760	1320	362	42	111
21	55	72	308	240	3620	1070	660	772	1290	284	47	103
22	49	75	401	190	2950	1050	657	830	1250	194	56	104
23	49	78	357	180	2270	1020	705	882	1260	154	60	104
24	49	97	298	199	1730	1000	774	902	1300	97	62	106
25	48	108	262	203	1320	888	810	915	1260	82	62	124
26	51	90	274	275	1070	850	821	960	1210	80	60	132
27	53	87	309	314	946	848	848	1020	1190	72	53	127
28	58	84	288	302	933	869	921	999	1200	69	52	121
29	60	81	250	309	---	914	962	927	1210	80	54	123
30	59	80	246	285	---	951	913	807	1280	67	74	119
31	60	---	196	281	---	946	---	726	---	62	74	---
TOTAL	2029	2143	5657	6750	28961	33646	24459	25577	30925	24734	1904	2956
MEAN	65.5	71.4	182	218	1034	1085	815	825	1031	798	61.4	98.5
MAX	90	108	401	314	3620	1340	1010	1020	1340	2210	82	132
MIN	48	58	81	140	120	848	657	712	587	62	42	59
AC-FT	4020	4250	11220	13390	57440	66740	48510	50730	61340	49060	3780	5860

CAL YR 1981 TOTAL 79989 MEAN 219 MAX 851 MIN 16 AC-FT 158700
WTR YR 1982 TOTAL 189741 MEAN 520 MAX 3620 MIN 42 AC-FT 376400

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.--25 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 discharge above base of 1,700 ft³/s (48.1 m³/s) and maximum discharge, 2,130 ft³/s (60.3 m³/s) May 25, gage height, 3.65 ft (1.113 m); minimum, 50 ft³/s (1.42 m³/s) Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	106	136	132	94	180	210	662	1040	1000	353	147
2	88	106	139	139	95	193	203	818	1120	1000	322	145
3	87	105	127	143	93	189	197	930	1210	1020	306	141
4	84	104	131	115	69	187	187	806	1170	900	283	139
5	83	102	128	109	60	180	181	742	1030	820	266	137
6	81	101	132	98	70	176	178	753	956	750	256	133
7	127	99	131	90	76	176	169	843	892	700	247	129
8	108	98	129	100	62	180	165	841	867	745	231	127
9	95	96	130	110	84	178	167	738	800	681	224	125
10	116	95	134	94	64	189	180	682	820	682	231	123
11	119	94	129	100	70	228	316	659	860	710	223	125
12	99	141	118	110	80	220	420	704	900	766	215	139
13	93	156	128	120	120	212	399	784	950	861	200	129
14	90	178	128	130	180	222	422	896	1020	903	191	126
15	89	153	136	146	230	222	375	1230	1100	688	185	123
16	89	179	130	130	320	210	337	1290	1130	582	179	117
17	94	302	112	123	306	202	323	1280	1170	535	173	113
18	93	214	124	105	219	198	308	1270	1180	499	165	110
19	93	181	165	101	242	185	291	1160	1170	515	161	115
20	93	172	181	97	253	177	279	1160	1160	535	161	129
21	91	185	153	97	303	171	286	1230	1170	529	167	114
22	90	179	139	106	296	169	326	1370	1170	501	156	107
23	90	176	113	87	251	172	413	1510	1100	453	150	103
24	88	172	138	124	219	185	516	1530	1040	418	140	103
25	88	155	135	121	198	204	550	1780	1100	402	136	123
26	100	148	140	109	190	232	544	1920	1060	413	133	126
27	101	146	144	103	179	242	579	1710	1150	404	150	124
28	103	136	135	99	171	246	659	1320	1060	377	149	118
29	109	129	123	96	---	238	666	1110	1000	353	149	116
30	103	134	129	96	---	229	644	1000	940	345	163	113
31	103	---	119	95	---	220	---	999	---	425	152	---
TOTAL	2972	4342	4136	3425	4594	6212	10490	33727	31335	19512	6217	3719
MEAN	95.9	145	133	110	164	200	350	1088	1045	629	201	124
MAX	127	302	181	146	320	246	666	1920	1210	1020	353	147
MIN	81	94	112	87	60	169	165	659	800	345	133	103
AC-FT	5890	8610	8200	6790	9110	12320	20810	66900	62150	38700	12330	7380

CAL YR 1981 TOTAL 100719 MEAN 276 MAX 1750 MIN 77 AC-FT 199800
WTR YR 1982 TOTAL 130681 MEAN 358 MAX 1920 MIN 60 AC-FT 259200

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 excellent. 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.--54 years, 517 ft³/s (14.64 m³/s), 374,600 acre-ft/yr (462 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	1830	2,030	57.5	4.44	1.353	May 18	1000	*3,080	87.2	*5.31	1.618
Apr. 14	0600	1,930	54.6	4.36	1.329	June 18	0500	2,670	75.6	4.98	1.518
May 3	0400	2,500	70.8	4.84	1.475	July 14	0330	2,090	59.2	4.49	1.369

Minimum, 73 ft³/s (2.07 m³/s) Feb. 5, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	150	173	328	278	229	724	643	1800	1540	2240	650	249
2	148	173	328	270	235	942	608	2050	1590	2130	609	240
3	155	172	293	255	231	932	602	2390	1730	2220	608	234
4	147	170	307	264	163	872	565	2140	1800	1890	557	228
5	146	167	300	218	94	794	536	1860	1740	1700	521	224
6	140	165	322	163	120	727	546	1760	1590	1540	496	219
7	166	162	343	127	130	686	530	1860	1490	1540	472	214
8	229	159	353	190	110	658	518	1870	1400	1610	452	209
9	178	157	364	210	140	642	531	1770	1380	1500	436	207
10	184	156	418	226	110	642	558	1580	1430	1450	421	216
11	233	154	430	236	130	749	932	1500	1580	1440	417	215
12	217	191	392	261	150	780	1820	1540	1840	1480	422	246
13	190	342	396	257	200	734	1820	1590	2080	1580	388	247
14	180	369	370	249	240	713	1870	1860	2220	1770	370	229
15	174	346	361	238	300	701	1610	2450	2370	1420	360	220
16	171	339	337	246	500	647	1310	2680	2440	1250	346	216
17	170	866	299	247	957	631	1130	2700	2490	1150	333	210
18	166	741	308	236	921	641	1040	2890	2510	1070	318	206
19	164	565	346	230	907	619	947	2540	2490	1070	309	207
20	163	479	526	217	1150	593	857	2310	2510	1070	302	281
21	161	462	501	208	1860	567	818	2310	2470	1050	311	238
22	157	560	452	199	1680	564	871	2380	2500	1010	294	220
23	157	539	375	217	1300	566	1110	2500	2400	937	282	212
24	157	519	403	241	1040	590	1470	2430	2250	885	272	207
25	156	455	392	234	880	615	1600	2570	2340	832	268	240
26	160	416	369	245	788	690	1560	2710	2290	821	261	308
27	170	399	349	239	712	754	1580	2460	2420	816	254	275
28	176	347	328	232	645	759	1830	2120	2350	768	249	263
29	213	322	283	230	---	742	1870	1820	2100	721	248	273
30	187	346	318	228	---	701	1820	1630	2020	683	282	263
31	175	---	243	231	---	680	---	1530	---	719	262	---
TOTAL	5340	10411	11134	7122	15922	21655	33502	65600	61360	40362	11770	7016
MEAN	172	347	359	230	569	699	1117	2116	2045	1302	380	234
MAX	233	866	526	278	1860	942	1870	2890	2510	2240	650	308
MIN	140	154	243	127	94	564	518	1500	1380	683	248	206
AC-FT	10590	20650	22080	14130	31580	42950	66450	130100	121700	80060	23350	13920

CAL YR 1981 TOTAL 197649 MEAN 542 MAX 2370 MIN 109 AC-FT 392000
WTR YR 1982 TOTAL 291194 MEAN 798 MAX 2890 MIN 94 AC-FT 577600

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 mi^2 (1,756 km^2).

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 excellent. Since 1915, slight regulation by city of La Grande reservoir on Beaver Creek, capacity, about 900 acre-ft (1.11 hm^3). Diversions for irrigation above station. Since 1909, city of La Grande has diverted about 3 ft^3/s (0.08 m^3/s) from Beaver Creek above station for domestic water supply.

AVERAGE DISCHARGE.--74 years, 384 ft^3/s (10.87 m^3/s), 278,200 acre-ft/yr (343 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft^3/s (300 m^3/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 ft^3/s (204 m^3/s); minimum, 3.9 ft^3/s (0.11 m^3/s) Aug. 26, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,100 ft^3/s (59.5 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 20	2400	*5,690	161	*10.16	3.097
Apr. 14	0400	2,850	80.7	7.40	2.256
Apr. 24	0400	2,410	68.3	6.87	2.094

Minimum, 18 ft^3/s (0.51 m^3/s) Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	57	107	183	380	1190	850	2040	865	485	112	46
2	40	54	103	185	366	1500	778	2170	961	543	102	43
3	41	51	93	170	359	1360	731	2230	1060	700	112	41
4	41	49	104	160	217	1310	666	1950	1080	607	109	44
5	39	44	107	130	190	1200	619	1640	1070	536	97	51
6	39	45	398	101	220	1070	595	1480	972	493	89	44
7	51	46	459	96	230	1020	567	1530	898	518	83	40
8	69	45	334	140	200	1010	523	1530	829	541	79	38
9	64	43	287	160	245	1090	537	1450	789	536	83	36
10	62	42	309	150	193	1460	562	1440	783	477	89	37
11	72	46	267	170	200	1820	1150	1320	817	455	96	45
12	65	52	193	180	202	1530	2310	1240	947	417	101	65
13	58	62	232	190	267	1320	2290	1230	1200	375	84	94
14	52	65	214	187	361	1210	2720	1340	1080	378	74	88
15	49	64	239	238	990	1190	2180	1540	1000	333	71	76
16	47	75	301	227	2680	1010	1730	1680	960	300	68	65
17	46	96	222	387	2690	927	1520	1780	906	276	64	59
18	46	95	222	316	2430	847	1390	1890	845	253	61	55
19	45	80	277	301	3400	764	1240	1650	782	231	58	59
20	43	74	499	250	4620	699	1110	1520	735	211	56	83
21	40	73	443	210	4860	617	1130	1550	683	193	54	80
22	37	93	366	223	2930	644	1380	1660	658	178	52	64
23	42	98	252	266	2050	666	1850	1770	593	166	48	58
24	42	102	265	700	1530	760	2320	1670	526	155	45	54
25	43	88	293	1030	1230	850	2250	1680	537	145	44	55
26	50	61	257	890	1060	1080	2080	1750	478	136	42	76
27	56	89	234	787	945	1210	2000	1530	444	158	40	81
28	52	62	220	619	857	1160	2190	1330	435	138	39	79
29	60	25	153	514	---	1090	2240	1140	522	124	41	93
30	58	81	178	451	---	1000	2070	955	445	117	52	91
31	60	---	141	418	---	948	---	868	---	129	55	---
TOTAL	1549	1957	7769	10029	35902	33552	43578	48553	23900	10304	2200	1840
MEAN	50.0	65.2	251	324	1282	1082	1453	1566	797	332	71.0	61.3
MAX	72	102	499	1030	4860	1820	2720	2230	1200	700	112	94
MIN	37	25	93	96	190	617	523	868	435	117	39	36
AC-FT	3070	3880	15410	19890	71210	66550	86440	96300	47410	20440	4360	3650

CAL YR 1981 TOTAL 137972 MEAN 378 MAX 2820 MIN 21 AC-FT 273700
WTR YR 1982 TOTAL 221133 MEAN 606 MAX 4860 MIN 25 AC-FT 438600

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 mi^2 (272 km^2).

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 excellent. 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.--59 years (water years 1912, 1919, 1926-82), 118 ft^3/s (3.342 m^3/s), 85,490 acre-ft/yr (105 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,740 ft^3/s (49.3 m^3/s) May 27, 1948, gage height, 4.57 ft (1.393 m); minimum, 6.5 ft^3/s (0.18 m^3/s) Feb. 4, 1955, result of freezeup; minimum daily, 8 ft^3/s (0.23 m^3/s) Nov. 7, 1925.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s (14.2 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 16	1530	508	14.4	2.65	0.808
May 17	2330	560	15.9	2.78	0.847
May 25	2230	*703	19.9	*3.10	0.945
June 16	2130	644	18.2	2.98	0.908

Minimum, 24 ft^3/s (0.68 m^3/s) Oct. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	31	36	43	37	92	92	352	353	330	61	33
2	28	30	39	45	37	115	87	420	385	304	60	33
3	27	28	40	43	36	115	84	447	416	290	60	32
4	26	28	35	42	33	110	78	381	418	248	57	33
5	26	27	35	39	25	99	72	338	374	220	55	32
6	26	27	38	37	28	91	73	327	337	199	52	31
7	49	26	38	33	31	87	70	353	313	208	50	31
8	37	26	37	39	26	86	67	361	297	193	50	30
9	32	25	40	36	35	85	67	338	303	179	52	30
10	43	25	47	35	28	87	70	304	325	168	57	31
11	42	25	43	38	32	114	103	285	374	164	54	34
12	32	31	41	41	56	119	173	297	453	161	51	64
13	30	40	41	45	90	110	193	327	539	164	48	43
14	28	46	43	50	153	108	199	368	559	158	46	39
15	28	37	48	48	198	103	180	464	583	139	44	37
16	28	47	42	43	261	95	160	506	588	126	43	36
17	27	64	39	40	138	89	148	512	591	117	42	35
18	26	48	41	38	137	86	140	529	579	110	41	34
19	26	39	53	37	162	80	131	486	552	104	40	38
20	26	37	55	32	201	74	120	469	543	99	39	44
21	26	42	49	28	253	71	120	479	511	94	41	36
22	26	44	47	33	207	70	143	528	476	89	37	33
23	26	45	58	32	163	72	198	565	432	85	36	32
24	26	45	109	40	130	79	266	572	402	81	36	33
25	26	40	93	54	109	91	287	622	396	77	35	36
26	35	37	78	50	95	113	283	646	378	75	34	64
27	31	37	70	46	86	126	296	567	385	73	34	38
28	34	35	57	43	78	126	336	479	354	69	33	48
29	33	51	57	41	---	118	339	407	319	65	36	45
30	31	48	54	39	---	111	332	365	291	64	38	41
31	30	---	45	38	---	101	---	347	---	66	35	---
TOTAL	937	1111	1548	1248	2865	3023	4907	13441	12826	4519	1397	1125
MEAN	30.2	37.0	49.9	40.3	102	97.5	164	434	428	146	45.1	37.5
MAX	49	64	109	54	261	126	339	646	591	330	61	64
MIN	26	25	35	28	25	70	67	285	291	64	33	30
AC-FT	1860	2200	3070	2480	5680	6000	9730	26660	25440	8960	2770	2230

CAL YR 1981 TOTAL 39085 MEAN 107 MAX 610 MIN 24 AC-FT 77530
WTR YR 1982 TOTAL 48948 MEAN 134 MAX 646 MIN 25 AC-FT 97090

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.--58 years, 21.8 ft³/s (0.617 m³/s), 28.74 in/yr (730 mm/yr), 15,790 acre-ft/yr (19.5 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, 190 ft³/s (5.38 m³/s) June 28; minimum daily, 8.4 ft³/s (0.24 m³/s) Oct. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	18	16	17	13	15	13	16	29	168	61	29
2	15	17	17	15	14	15	13	18	32	159	57	29
3	17	18	17	15	13	14	13	19	35	151	55	28
4	16	16	17	14	13	14	13	18	36	139	45	27
5	18	16	16	14	13	14	13	17	32	129	42	26
6	13	16	16	13	13	14	13	18	30	116	41	25
7	22	15	17	14	13	14	13	18	29	118	41	25
8	18	15	17	14	14	14	12	18	29	108	40	24
9	17	14	16	14	14	14	12	18	29	104	40	25
10	19	15	16	14	13	14	12	19	34	102	39	25
11	19	15	16	14	13	13	15	19	45	106	41	25
12	19	21	16	13	13	14	15	18	57	110	38	28
13	18	19	15	13	13	13	13	17	72	122	36	27
14	18	26	15	13	14	13	13	17	78	132	34	28
15	14	16	15	13	14	15	12	25	85	115	33	27
16	22	22	14	13	15	13	12	24	96	99	32	26
17	15	28	15	13	14	12	12	27	109	85	36	34
18	15	24	16	13	14	13	12	23	114	75	34	26
19	16	22	18	13	15	13	11	27	122	75	34	26
20	15	22	17	13	17	13	10	20	127	75	33	33
21	8.4	23	16	14	19	13	11	27	133	77	30	26
22	15	22	16	13	17	13	13	30	126	76	29	24
23	16	20	16	13	16	13	14	33	124	70	28	23
24	16	17	17	13	14	13	14	36	129	67	28	22
25	16	17	20	13	14	13	14	43	140	67	33	26
26	19	17	19	14	15	13	14	44	144	68	32	26
27	16	17	15	13	15	12	15	38	154	69	27	28
28	20	16	15	13	14	12	16	34	177	67	26	26
29	18	16	15	13	---	12	16	31	172	65	29	24
30	18	17	15	13	---	12	16	28	158	66	30	25
31	18	---	16	13	---	13	---	27	---	64	30	---
TOTAL	524.4	557	502	420	399	413	395	767	2677	3044	1134	793
MEAN	16.9	18.6	16.2	13.5	14.3	13.3	13.2	24.7	89.2	98.2	36.6	26.4
MAX	22	28	20	17	19	15	16	44	177	168	61	34
MIN	8.4	14	14	13	13	12	10	16	29	64	26	22
CFSM	1.64	1.81	1.57	1.31	1.39	1.29	1.28	2.40	8.66	9.53	3.55	2.56
IN.	1.89	2.01	1.81	1.52	1.44	1.49	1.43	2.77	9.67	10.99	4.10	2.86
AC-FT	1040	1100	996	833	791	819	783	1520	5310	6040	2250	1570

CAL YR 1981 TOTAL 8882.8 MEAN 24.3 MAX 93 MIN 8.4 CFSM 2.36 IN 32.08 AC-FT 17620
WTR YR 1982 TOTAL 11625.4 MEAN 31.9 MAX 177 MIN 8.4 CFSM 3.10 IN 41.98 AC-FT 23060

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 mi^2 (131.6 km^2).

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 hm^3) 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 hm^3) 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 hm^3) June 5-7, 1957, gage height, 29.85 ft (9.098 m); minimum observed, 4,790 acre-ft (5.91 hm^3) Oct. 10, 1929, gage height, 3.10 ft (0.945 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 42,480 acre-ft (52.4 hm^3) July 29, gage height, 26.64 ft (8.120 m); minimum, 17,220 acre-ft (21.2 hm^3) Oct. 1, gage height, 11.06 ft (3.371 m).

MONTHEND GAGE-HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

Date	Gage Height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	11.06	17,220	-
Oct. 31	12.44	19,400	+2,180
Nov. 30	14.95	23,400	+4,000
Dec. 31	16.72	26,240	+2,840
CAL YR 1981	-	-	+1,530
Jan. 31	17.90	28,140	+1,900
Feb. 28	18.00	28,300	+160
Mar. 31	16.38	25,690	-2,610
Apr. 30	15.40	24,120	-1,570
May 31	18.00	28,300	+4,180
June 30	21.03	33,230	+4,930
July 31	26.60	42,420	+9,190
Aug. 31	20.32	32,070	-10,350
Sept.30	21.20	33,510	+1,440
WTR YR 1982	-	-	+16,290

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 mi^2 (131.8 km^2).

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 ft^3/s (0.028 m^3/s) from Wallowa Lake for municipal use.

AVERAGE DISCHARGE.--55 years (water years 1928-82), 134 ft^3/s (3.795 m^3/s), 35.75 in/yr (908 mm/yr), 97,080 acre-ft/yr (120 hm^3/yr), adjusted for storage and diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,550 ft^3/s (43.9 m^3/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, 771 ft^3/s (21.8 m^3/s) July 1, gage height, 4.52 ft (1.378 m); minimum, 21 ft^3/s (0.59 m^3/s) Dec. 5-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	26	24	25	28	106	107	98	284	723	343	128
2	30	25	22	25	29	106	107	97	283	643	342	114
3	31	24	22	25	30	105	106	97	284	622	342	114
4	31	27	22	25	30	106	106	98	284	555	343	106
5	31	32	22	25	29	107	104	98	284	469	342	100
6	30	32	21	25	29	107	103	99	283	385	341	99
7	31	32	21	25	29	107	103	99	282	335	340	99
8	31	32	21	25	29	107	102	100	281	337	338	109
9	31	32	26	26	29	108	102	101	280	338	337	132
10	31	31	29	26	29	108	101	101	278	339	336	112
11	31	30	29	26	28	108	100	115	278	336	336	102
12	31	29	29	26	28	108	100	129	280	336	334	81
13	31	29	29	26	28	108	100	127	283	340	333	59
14	30	28	29	26	29	109	100	127	318	358	332	54
15	30	27	29	26	29	111	100	128	366	424	331	47
16	31	27	27	26	30	112	100	129	496	442	329	43
17	30	27	25	27	47	112	100	129	656	387	326	43
18	30	27	25	27	56	114	100	130	728	310	326	43
19	30	26	25	27	73	114	100	131	705	250	324	43
20	30	26	25	27	100	114	99	131	700	201	321	43
21	31	26	25	27	111	114	98	131	706	203	319	43
22	31	26	25	27	113	113	98	139	731	212	316	43
23	31	25	25	28	113	111	98	160	742	245	313	40
24	31	26	25	28	113	110	98	161	744	253	279	37
25	31	26	24	28	113	110	98	192	747	254	255	37
26	31	26	24	28	111	109	98	243	752	234	239	37
27	30	26	25	28	108	108	98	275	754	183	220	37
28	29	26	24	28	107	108	98	286	758	235	204	37
29	28	26	24	28	---	108	98	285	759	321	197	37
30	27	25	24	28	---	107	98	284	761	344	197	37
31	26	---	24	28	---	107	---	287	---	344	173	---
TOTAL	937	827	771	822	1628	3382	3020	4708	15087	10958	9408	2056
MEAN	30.2	27.6	24.9	26.5	58.1	109	101	152	503	353	303	68.5
MAX	31	32	29	28	113	114	107	287	761	723	343	132
MIN	26	24	21	25	28	105	98	97	278	183	173	37
AC-FT	1860	1640	1530	1630	3230	6710	5990	9340	29930	21740	18660	4080
MEAN†	67.8	99.2	75.0	61.1	63.4	68.0	74.4	225	628	550	201	109
CFSM†	1.33	1.95	1.47	1.20	1.25	1.34	1.46	4.42	12.3	10.8	3.95	2.14
IN†	1.54	2.17	1.70	1.39	1.30	1.54	1.63	5.09	13.76	12.45	4.54	2.38
AC-FT†	4170	5900	4610	3760	3520	4180	4430	13810	37340	33800	12330	6460

CAL YR 1981 TOTAL 44255 MEAN 121 MAX 728 MIN 20 AC-FT 87780 MEAN† 137 CFSM† 2.69 IN† 36.68 AC-FT† 99540
WTR YR 1982 TOTAL 53604 MEAN 147 MAX 761 MIN 21 AC-FT 106300 MEAN† 186 CFSM† 3.65 IN† 49.48 AC-FT† 134300

† Adjusted for change in contents of Wallowa Lake and diversion by Silver Lake ditch.

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 mi^2 (183.6 km^2).

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. Dec. 16, 1953, to Aug. 23, 1977, at datum 1.04 ft (0.317 m) higher.

REMARKS.--Records excellent. Minam Lake, capacity 440 acre-ft (0.54 hm^3), has stored and diverted flow from Minam River since 1917 for irrigation in Lostine River basin. Diversions for irrigation above station.

AVERAGE DISCHARGE.--58 years (water years 1913, 1926-82), 196 ft^3/s (5.551 m^3/s), 142,000 acre-ft/yr (175 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,550 ft^3/s (72.2 m^3/s) June 16, 1974, gage height, 8.59 ft (2.618 m), present datum; minimum, 7.5 ft^3/s (0.21 m^3/s) Mar. 2, 1966, result of freezeup; minimum daily, 10 ft^3/s (0.28 m^3/s) Nov. 28-30, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft^3/s (31.2 m^3/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)
June 27	0030	*1,890	53.5	*7.63	2.326	July 13	2330	1,290	36.5	6.43	1.960

Minimum, 26 ft^3/s (0.74 m^3/s) Feb. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	54	66	52	50	98	64	220	401	1450	330	76
2	37	53	77	49	49	95	62	283	462	1250	288	71
3	38	52	67	49	47	91	62	331	540	1200	261	68
4	35	51	65	49	33	89	61	283	525	943	237	66
5	34	48	65	48	29	86	59	255	459	811	221	65
6	33	49	73	46	34	82	59	253	403	740	218	62
7	47	47	68	45	37	80	58	284	373	873	216	58
8	48	45	64	44	30	77	56	283	346	863	211	55
9	43	44	64	42	37	77	56	276	372	812	198	53
10	43	43	72	40	27	78	56	251	458	786	202	55
11	50	43	66	41	33	80	82	234	648	814	194	55
12	47	60	61	43	37	77	104	237	904	933	176	70
13	44	63	63	45	42	76	100	255	1250	1080	162	68
14	42	75	62	47	70	77	102	299	1300	1060	155	63
15	40	64	68	51	77	77	94	391	1450	782	147	59
16	41	70	64	55	108	73	88	412	1590	636	140	57
17	41	149	56	60	98	71	86	466	1640	577	136	55
18	40	111	62	54	94	70	85	492	1660	563	129	55
19	40	96	97	52	119	68	82	423	1660	632	122	61
20	41	91	95	47	157	67	80	413	1680	668	122	78
21	38	94	82	52	208	66	80	463	1640	646	127	63
22	37	93	74	46	168	65	85	550	1630	588	117	58
23	38	87	60	66	140	64	105	617	1440	506	107	55
24	37	84	70	75	121	63	140	657	1320	451	99	53
25	37	79	69	64	110	63	155	805	1390	450	92	58
26	52	75	66	65	103	65	162	914	1510	466	89	93
27	61	73	63	60	97	67	171	786	1660	452	86	78
28	61	59	61	56	92	67	206	625	1450	426	83	75
29	58	64	56	54	---	66	209	504	1200	392	87	76
30	53	68	56	53	---	65	204	425	1210	377	91	72
31	52	---	50	52	---	66	---	390	---	365	82	---
TOTAL	1345	2084	2082	1602	2247	2306	3013	13077	32571	22592	4925	1931
MEAN	43.4	69.5	67.2	51.7	80.3	74.4	100	422	1086	729	159	64.4
MAX	61	149	97	75	208	98	209	914	1680	1450	330	93
MIN	33	43	50	40	27	63	56	220	346	365	82	53
AC-FT	2670	4130	4130	3180	4460	4570	5980	25940	64600	44810	9770	3830

CAL YR 1981 TOTAL 66624 MEAN 183 MAX 1300 MIN 28 AC-FT 132100
WTR YR 1982 TOTAL 89775 MEAN 246 MAX 1680 MIN 27 AC-FT 178100

13330500 BEAR CREEK NEAR WALLOWA, OR

LOCATION.--Lat 45°31'37", long 117°33'05", in NW¼NE¼ 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. 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.--58 years (water years 1925-82), 114 ft³/s (3.228 m³/s), 82,590 acre-ft/yr (102 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 16	0030	ice jam		*3.49	1.064
May 26	0230	722	20.4	2.83	0.863
June 17	2130	*1,210	34.3	3.27	0.997

Minimum, 12 ft³/s (0.34 m³/s) Oct. 1-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	30	44	49	50	117	61	238	265	584	62	20
2	14	30	54	48	46	117	58	291	334	536	58	20
3	13	29	53	47	43	119	57	330	397	513	54	19
4	13	28	50	47	40	115	53	283	386	435	49	19
5	12	26	51	36	36	106	50	242	331	380	46	18
6	13	25	71	28	33	98	49	227	282	337	43	18
7	19	24	80	31	31	92	47	249	253	403	40	18
8	16	23	78	33	32	86	44	243	232	397	39	17
9	18	22	75	36	34	83	44	234	256	382	38	17
10	18	21	86	42	36	84	44	211	327	354	40	18
11	21	21	83	45	40	90	76	200	470	356	39	18
12	22	27	76	47	45	91	146	209	586	378	36	24
13	20	31	71	50	54	90	161	233	720	410	33	22
14	20	32	67	54	82	88	168	280	713	389	31	22
15	20	31	71	58	130	86	157	362	803	293	30	21
16	20	34	66	77	300	80	141	410	855	239	29	20
17	22	68	60	113	269	77	129	453	987	211	27	20
18	23	60	60	57	235	73	117	451	953	198	26	19
19	24	53	118	46	250	69	106	376	935	202	25	23
20	25	51	176	42	347	64	97	351	913	198	25	26
21	23	55	153	40	477	60	92	396	897	181	24	22
22	23	58	129	40	379	57	98	468	844	159	23	21
23	22	56	109	65	288	56	130	509	749	136	23	21
24	21	54	101	123	226	56	178	507	695	120	22	20
25	21	50	89	108	184	57	190	587	699	112	21	20
26	25	46	81	103	157	63	195	657	710	108	21	25
27	33	45	74	97	138	68	199	529	745	101	20	25
28	35	43	67	83	121	71	234	418	652	91	20	26
29	35	41	56	69	---	70	236	327	532	82	21	28
30	31	38	52	61	---	68	227	273	505	74	25	27
31	29	---	50	55	---	66	---	250	---	68	21	---
TOTAL	663	1152	2451	1830	4103	2517	3584	10794	18026	8427	1011	634
MEAN	21.4	38.4	79.1	59.0	147	81.2	119	348	601	272	32.6	21.1
MAX	35	68	176	123	477	119	236	657	987	584	62	28
MIN	12	21	44	28	31	56	44	200	232	68	20	17
AC-FT	1320	2280	4860	3630	8140	4990	7110	21410	35750	16710	2010	1260

CAL YR 1981 TOTAL 40601 MEAN 111 MAX 697 MIN 10 AC-FT 80530
WTR YR 1982 TOTAL 55192 MEAN 151 MAX 987 MIN 12 AC-FT 109500

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 or diversion above station.

AVERAGE DISCHARGE.--18 years, 476 ft³/s (13.48 m³/s), 26.93 in/yr (684 mm/yr), 344,900 acre-ft/yr (425 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	0530	1,710	48.4	3.59	1.094
May 18	0230	1,790	50.7	3.67	1.119
May 26	0300	2,480	70.2	4.34	1.323
June 3	0300	1,560	44.2	3.44	1.049
June 18	0230	*3,950	112	*5.18	1.579

Minimum, 48 ft³/s (1.36 m³/s) Jan. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	93	164	147	198	377	267	838	1190	2250	421	127
2	64	96	196	133	191	449	257	1050	1300	2110	395	120
3	66	93	203	131	184	460	257	1270	1480	2100	365	115
4	62	91	201	129	143	451	248	1060	1450	1740	335	113
5	60	87	190	124	99	418	240	930	1300	1500	307	109
6	60	84	223	68	106	390	240	901	1170	1330	294	103
7	82	83	254	66	100	368	235	1000	1090	1410	285	99
8	130	81	229	74	90	350	222	1010	1030	1420	276	96
9	90	78	214	84	105	345	221	980	1080	1340	270	93
10	92	76	233	94	99	355	220	901	1230	1290	282	94
11	115	75	214	100	115	428	288	852	1600	1280	270	99
12	97	89	181	110	120	423	561	890	2140	1330	267	152
13	87	141	193	110	189	389	581	952	2760	1430	241	156
14	80	145	188	115	293	368	613	1090	2880	1460	226	130
15	76	146	213	121	764	362	559	1430	3170	1210	216	113
16	74	139	250	147	1130	331	490	1600	3260	1020	208	105
17	73	237	220	262	1080	323	444	1640	3310	922	199	101
18	73	225	217	229	915	315	405	1700	3600	854	193	98
19	71	188	387	199	1020	301	371	1480	3490	854	187	106
20	71	176	563	175	1350	284	337	1430	3500	873	180	148
21	68	180	387	173	1600	269	329	1580	3400	854	180	115
22	64	207	298	174	1110	265	354	1750	3250	806	170	103
23	65	201	239	281	804	260	460	1760	2880	716	163	97
24	65	205	214	639	612	263	643	1770	2640	642	156	92
25	64	190	216	487	498	273	669	2040	2650	603	150	104
26	74	170	206	473	437	297	654	2300	2670	606	143	164
27	104	177	196	449	396	314	665	1990	2880	589	137	140
28	92	151	186	329	356	314	800	1650	2580	547	131	134
29	125	125	174	264	---	302	850	1400	2200	499	130	148
30	101	167	182	230	---	288	808	1210	2070	465	160	134
31	93	---	147	214	---	281	---	1160	---	461	137	---
TOTAL	2500	4196	7178	6331	14104	10613	13288	41614	69250	34511	7074	3508
MEAN	80.6	140	232	204	504	342	443	1342	2308	1113	228	117
MAX	130	237	563	639	1600	460	850	2300	3600	2250	421	164
MIN	60	75	147	66	90	260	220	838	1030	461	130	92
CFSM	.34	.58	.97	.85	2.10	1.43	1.85	5.59	9.62	4.64	.95	.49
IN.	.39	.65	1.11	.98	2.19	1.65	2.06	6.45	10.73	5.35	1.10	.54
AC-FT	4960	8320	14240	12560	27980	21050	26360	82540	137400	68450	14030	6960

CAL YR 1981 TOTAL 159483 MEAN 437 MAX 2490 MIN 60 CFSM 1.82 IN 24.72 AC-FT 316300
WTR YR 1982 TOTAL 214167 MEAN 587 MAX 3600 MIN 60 CFSM 2.45 IN 33.20 AC-FT 424800

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.

INSTRUMENTATION.--Temperature recorder since October 1965.

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. 20-22; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
NOV											
10...	0900	71	56	7.2	0.0	13.6	K3	38	25	7.4	1.5
DEC											
08...	0910	235	54	7.0	3.5	11.3	K4	23	23	6.2	1.8
JAN											
05...	0940	114	56	E7.9	0.0	13.5	K8	K16	24	6.9	1.7
25...	1050	489	62	E8.2	2.5	12.8	K8	K15	25	6.8	2.0
MAR											
03...	1050	480	54	E7.5	4.0	12.0	K8	54	26	7.1	1.9
31...	0835	275	59	E7.3	3.0	12.2	K6	21	24	6.8	1.8
MAY											
11...	1110	890	46	6.8	7.5	11.0	K1	K4	20	5.7	1.4
JUN											
08...	0930	985	36	E7.6	6.0	11.5	K4	59	17	5.0	1.0
JUL											
07...	1000	1420	27	E7.6	9.5	10.4	K2	49	13	4.2	.7
AUG											
09...	0830	245	38	E7.7	14.5	9.4	K11	98	14	4.2	.9
30...	0910	139	47	E7.5	14.0	9.4	K190	110	19	5.7	1.2

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (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, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV										
10...	2.8	1.1	27	5.0	.7	.1	<.060	<.10	.24	<.060
DEC										
08...	2.4	1.3	22	--	.7	.1	<.060	<.10	.39	<.060
JAN										
05...	2.7	1.1	31	<5.0	.6	.1	<.060	<.10	.37	<.060
25...	2.5	1.3	28	6.0	.8	.1	<.060	<.10	.58	<.060
MAR										
03...	2.5	1.1	31	6.0	.6	<.1	<.060	<.10	.39	<.060
31...	2.7	1.2	32	5.0	.5	.1	<.060	<.10	.22	<.060
MAY										
11...	2.3	1.0	24	<5.0	.4	<.1	<.060	<.10	.60	.080
JUN										
08...	1.8	.9	21	<5.0	.4	.1	.070	<.10	.50	<.060
JUL										
07...	1.4	.4	16	7.0	.3	<.1	.080	<.10	.60	.080
AUG										
09...	1.7	1.0	22	<5.0	.3	<.1	.090	<.10	.40	.060
30...	2.1	1.2	26	<5.0	.4	<.1	.090	<.10	.20	.080

13331500 MINAM RIVER AT MINAM, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER DAY)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)
NOV										
10...	.34	<.010	.010	1.1	15	--	50	9.5	1	.19
DEC										
08...	.39	.030	.030	2.9	25	41	--	26.0	1	.63
JAN										
05...	.43	.020	.020	1.5	22	55	--	16.9	0	.00
25...	.43	<.010	<.010	5.4	31	70	67	92.4	10	13
MAR										
03...	.40	.020	.030	2.7	26	64	64	82.9	2	2.6
31...	.34	<.010	<.010	2.1	24	57	61	42.3	2	1.5
MAY										
11...	.60	<.010	<.010	2.3	20	47	--	113	4	9.6
JUN										
08...	.90	.040	--	1.5	16	40	--	106	4	11
JUL										
07...	.70	.110	.080	1.5	11	24	35	92.0	10	38
AUG										
09...	.70	.020	.340	1.5	14	39	--	25.8	6	4.0
30...	.50	<.010	<.010	.9	16	34	--	12.8	--	--

DATE	ARSENIC DISSOLVED (UG/L AS AS)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)
MAY										
11...	<1	<1	13	200	<1	<1	<1	<10	<3	<10

DATE	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)
MAY										
11...	8	48	100	<10	2	8	<2	<10	<.1	.1

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	SELENIUM, DISSOLVED (UG/L AS SE)	SELENIUM, TOTAL (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
MAY									
11...	<10	<1	<1	<1	2	22	--	9	10

13331500 MINAM RIVER AT MINAM, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)
MAY 11...	<1.0	<.4	.9	<.4	1.0	.04	.20

DATE	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)
MAY 11...	<.01	<.10	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	ETHION, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
MAY 11...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)
MAY 11...	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<1	<.01

DATE	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
MAY 11...	<.1	<1.0	<.1	<.1	<.1	<.1	<.1	<.1	<.1

DATE	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	PER-THANE IN BOTTOM MATERIL (UG/KG)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
MAY 11...	<.1	<.1	<.1	<.1	<1.00	<1	<1.0	<10

E - Estimated value, based on values reported by Denver Central Laboratory.
K - Results based on colony count outside acceptable range (non-ideal colony count).

13331500 MINAM RIVER AT MINAM, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	13.0	5.5	8.5	4.5	2.5	.5	.0	.0	3.5	1.5	5.5	4.0
2	11.5	7.5	7.5	4.0	3.5	1.0	.0	.0	3.5	2.0	6.0	3.0
3	9.5	5.5	7.0	3.0	1.5	.0	.0	.0	3.0	.0	5.0	3.0
4	10.0	4.0	7.0	4.0	2.0	.0	.0	.0	.0	.0	5.0	2.5
5	8.0	3.5	5.5	1.5	3.5	.5	.0	.0	.0	.0	5.5	2.5
6	7.5	6.0	5.5	1.0	5.0	3.0	.0	.0	.0	.0	4.5	1.5
7	9.0	7.5	4.5	1.5	4.0	2.5	.0	.0	.0	.0	6.5	1.5
8	9.0	6.5	5.5	2.0	4.0	3.0	.5	.0	.0	.0	4.5	1.5
9	8.5	6.5	5.0	1.5	4.5	2.5	.0	.0	.0	.0	6.5	3.5
10	8.0	7.0	4.0	.0	4.5	2.5	.0	.0	.0	.0	9.0	4.5
11	8.0	6.5	5.0	2.0	3.5	1.0	.0	.0	.0	.0	6.0	2.0
12	8.0	6.0	6.0	5.0	1.0	.0	.0	.0	.0	.0	4.5	1.5
13	10.0	5.0	7.5	4.5	2.0	1.0	.0	.0	.0	.0	5.0	2.5
14	9.5	4.5	6.0	4.5	3.5	1.0	.0	.0	.0	.0	5.0	4.0
15	9.5	3.5	4.5	3.0	2.5	1.0	1.0	.0	3.5	.0	5.0	2.5
16	9.5	3.5	4.5	3.0	3.5	1.5	.5	.0	3.5	2.5	5.0	.5
17	10.5	4.0	5.5	4.5	1.5	.5	2.0	.5	4.5	3.0	4.5	1.0
18	10.0	3.5	5.5	2.5	1.5	.5	2.5	1.0	3.5	2.5	2.5	1.5
19	10.5	4.5	2.5	1.0	4.0	1.5	2.0	1.0	5.0	3.5	4.0	1.0
20	10.0	4.5	4.0	1.5	4.0	3.0	1.5	.0	5.0	3.5	5.5	1.5
21	7.5	1.5	5.0	3.0	4.0	2.5	.0	.0	4.5	3.0	7.0	1.0
22	7.0	.5	5.5	3.0	2.5	1.5	.0	.0	3.5	1.5	7.5	1.0
23	6.5	1.0	3.5	1.5	1.5	.0	2.0	.0	3.5	1.5	8.5	1.5
24	7.5	2.0	3.0	1.5	1.0	.0	3.5	2.0	3.0	.5	8.5	2.5
25	8.0	2.5	3.0	1.0	2.0	1.0	3.5	2.0	3.0	.0	9.0	2.0
26	8.0	6.0	1.5	.0	1.0	.0	4.0	2.5	2.5	1.0	7.0	3.0
27	11.0	7.5	2.0	.0	1.0	.0	4.0	2.5	4.5	2.5	6.5	4.5
28	9.0	7.0	.0	.0	1.0	.0	4.0	2.0	5.0	1.5	5.5	3.0
29	7.5	4.5	.0	.0	.0	.0	3.5	2.5	---	---	4.5	2.0
30	6.0	3.5	1.0	.0	.0	.0	4.0	2.5	---	---	5.5	1.0
31	8.5	4.5	---	---	.0	.0	3.0	1.5	---	---	3.5	2.5
MONTH	13.0	.5	8.5	.0	5.0	.0	4.0	.0	5.0	.0	9.0	.5

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	6.5	2.0	10.0	4.5	9.0	6.0	11.0	8.0	18.5	14.0	20.5	12.0
2	4.5	1.5	9.0	5.0	10.5	6.5	9.5	7.0	17.5	11.5	20.0	12.5
3	4.5	1.5	7.0	4.5	8.0	6.0	9.5	7.5	17.5	12.5	19.5	14.0
4	6.0	1.5	7.5	3.0	7.0	6.0	10.0	7.0	18.0	13.0	20.5	14.0
5	6.0	2.0	8.5	3.0	6.5	5.0	9.0	7.5	20.0	12.5	20.0	12.0
6	6.5	2.5	8.5	4.0	9.0	5.5	12.0	7.0	21.5	14.0	19.5	11.5
7	6.0	2.5	8.0	5.5	9.0	5.5	11.0	9.5	22.0	15.0	20.5	11.5
8	8.5	1.5	7.0	4.5	10.5	5.0	10.0	8.0	18.5	16.0	21.0	12.5
9	10.5	2.5	5.0	4.0	11.0	6.5	12.0	8.0	20.5	13.5	20.0	12.5
10	7.5	2.5	7.0	4.0	11.5	6.5	---	---	19.5	15.0	15.5	11.0
11	9.5	6.0	10.0	4.5	10.5	6.5	---	---	16.5	13.5	11.5	8.5
12	7.5	5.5	9.0	5.5	9.0	6.5	---	---	20.0	12.5	13.0	9.5
13	9.0	5.0	9.5	5.0	9.0	6.0	---	---	21.0	13.0	11.5	8.0
14	5.5	3.5	8.5	6.5	9.5	6.0	---	---	19.0	14.5	11.5	6.5
15	6.0	2.5	9.0	6.0	10.0	5.5	11.5	8.5	21.5	14.0	13.5	5.5
16	8.0	2.0	9.0	4.5	10.0	5.5	12.5	9.0	21.0	14.0	14.5	6.5
17	7.5	3.0	7.0	5.0	10.0	5.5	13.5	9.0	22.0	14.5	16.5	8.0
18	5.5	2.5	7.0	4.5	10.0	5.5	15.5	9.5	21.0	14.5	18.0	10.5
19	7.5	1.0	8.5	4.0	10.0	6.0	16.5	11.5	23.5	15.0	15.0	12.0
20	9.0	1.5	10.0	4.5	10.0	6.0	16.5	12.0	24.0	16.5	15.0	12.0
21	10.5	2.5	9.5	5.0	9.0	6.5	16.5	12.0	24.0	16.0	16.5	10.0
22	11.5	3.5	9.0	5.5	9.0	6.5	15.5	11.0	24.0	16.0	17.0	10.0
23	11.5	4.5	8.5	5.0	10.0	6.0	16.0	10.0	22.0	14.0	17.5	10.0
24	9.5	4.5	10.0	4.5	9.5	6.5	16.0	10.5	22.5	13.5	15.0	11.5
25	8.5	3.5	9.0	4.5	9.0	7.0	17.5	11.5	22.5	13.5	16.0	11.0
26	9.5	3.5	7.5	4.5	11.5	6.5	19.5	13.5	22.5	14.0	14.5	11.0
27	10.0	4.0	6.0	4.0	10.0	7.0	19.0	13.0	22.0	14.5	13.0	10.0
28	7.5	4.5	7.0	4.5	9.0	7.0	19.5	14.0	21.0	13.5	10.5	8.5
29	8.5	3.5	7.5	4.5	9.5	7.0	20.0	13.5	18.5	13.5	9.5	7.0
30	8.0	4.0	9.0	4.5	11.0	7.0	18.5	14.0	18.5	13.5	11.0	5.5
31	---	---	9.0	5.5	---	---	21.0	14.0	20.0	11.5	---	---
MONTH	11.5	1.0	10.0	3.0	11.5	5.0	21.0	7.0	24.0	11.5	21.0	5.5

13332500 GRANDE RONDE RIVER AT RONDOWA, OR

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).

DRAINAGE AREA.--2,555 mi² (6,617 km²).

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 in Imnaha River basin for irrigation in Wallowa Valley.

AVERAGE DISCHARGE.--56 years, 2,158 ft³/s (61.11 m³/s), 1,563,000 acre-ft/yr (1.93 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	0100	*15,300	433	*8.25	2.515
Apr. 14	1930	6,900	195	5.17	1.576
May 3	0530	7,620	216	5.47	1.667
May 26	0500	9,920	281	6.36	1.939
June 18	0500	10,500	297	6.59	2.009

Minimum, 480 ft³/s (13.6 m³/s) Oct. 1, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	528	644	865	977	2150	4410	3300	6580	5330	7600	1380	727
2	541	642	1230	991	2010	4930	3090	6960	5430	7170	1360	666
3	560	629	1270	997	1950	4940	2950	7470	5920	7140	1300	650
4	538	613	1110	985	1570	4980	2810	7020	5810	6070	1240	647
5	523	596	1080	993	1150	4780	2660	6510	5530	5290	1160	639
6	524	590	1560	804	1050	4390	2590	6130	5110	4670	1130	622
7	619	581	1800	757	1000	4080	2560	6180	4780	4690	1040	586
8	759	585	1680	740	980	3910	2450	6060	4430	4820	1070	568
9	689	564	1500	767	960	3970	2380	5980	4330	4530	1090	579
10	724	562	1500	786	1000	4540	2380	5780	4500	4310	1110	610
11	792	561	1450	856	1040	5320	3500	5560	5210	4230	1180	616
12	763	608	1290	912	1060	5070	5330	5450	6430	4280	1160	781
13	722	764	1240	891	1260	4670	5990	5440	8120	4470	1110	856
14	670	777	1330	900	2440	4410	6780	5680	8590	4740	1100	799
15	639	793	1660	979	5060	4410	6520	6430	9110	4030	1080	777
16	628	818	2100	1190	7970	4040	5960	7010	9590	3540	1060	761
17	612	1130	1680	2330	8460	3820	5410	7410	9880	3260	1030	721
18	608	1130	1480	2060	8740	3620	4930	7840	10000	2980	997	689
19	596	1000	2390	1860	10900	3380	4490	7320	9810	2930	967	705
20	589	940	2840	1620	13000	3160	4090	6980	9700	2860	919	876
21	574	947	2460	1430	14300	2980	3880	7140	9390	2660	925	814
22	561	1060	2110	1360	11300	2870	3960	7620	9150	2470	933	780
23	552	1090	1790	1710	9190	2850	4520	8160	8390	2210	918	750
24	547	1110	1570	4680	7590	2960	5450	8170	7690	2020	901	723
25	536	1050	1480	4160	6320	3110	5850	8810	7770	1870	871	730
26	567	954	1490	4450	5450	3400	5940	9510	7720	1880	795	858
27	640	933	1400	4060	4800	3760	5970	8770	8370	1790	740	858
28	642	861	1320	3410	4240	3830	6380	7750	7880	1660	685	848
29	703	786	1200	2900	---	3740	6630	6870	6850	1540	668	883
30	663	832	1170	2590	---	3580	6570	6100	6560	1470	753	871
31	659	---	1030	2420	---	3470	---	5590	---	1430	765	---
TOTAL	19268	24150	48075	55565	136940	123380	135320	214280	217380	114610	31437	21990
MEAN	622	805	1551	1792	4891	3980	4511	6912	7246	3697	1014	733
MAX	792	1130	2840	4680	14300	5320	6780	9510	10000	7600	1380	883
MIN	523	561	865	740	960	2850	2380	5440	4330	1430	668	568
AC-FT	38220	47900	95360	110200	271600	244700	268400	425000	431200	227300	62360	43620

CAL YR 1981 TOTAL 768632 MEAN 2106 MAX 10300 MIN 279 AC-FT 1525000
WTR YR 1982 TOTAL 1142395 MEAN 3130 MAX 14300 MIN 523 AC-FT 2266000

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 good. 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.--38 years, 3,125 ft³/s (88.50 m³/s), 2,264,000 acre-ft/yr (2.79 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 discharges above base of 9,000 ft³/s (255 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 21	0400	*24,700	700	*9.30	2.835
Apr. 14	0600	11,300	320	6.76	2.060
May 3	0800	10,600	300	6.63	2.021
May 26	0900	11,800	334	6.87	2.094
June 18	0800	11,400	323	6.79	2.070

Minimum, 750 ft³/s (21.2 m³/s) Oct. 1, 2, Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	773	903	1160	1460	3160	5580	4290	9350	6160	7260	1390	871
2	769	900	1640	1380	2920	6640	3970	9910	6280	7360	1370	843
3	813	885	2230	1560	2830	6680	3710	10500	6760	7120	1350	832
4	802	862	1780	1560	2490	6600	3480	9650	6660	6450	1290	822
5	787	844	1670	1450	1990	6330	3270	8660	6370	5640	1190	825
6	794	831	2880	1190	1700	5820	3140	8120	5920	5150	1150	821
7	904	829	3340	1100	1630	5350	3080	8300	5560	5040	1080	799
8	1050	826	2860	1050	1600	5050	2950	8050	5210	5180	1070	771
9	1010	804	2500	1050	1600	5130	2830	7810	5060	5070	1110	762
10	1040	786	2300	1100	1630	6410	2880	7480	5170	4800	1100	799
11	1070	784	2200	1200	1700	8230	4750	7150	5710	4650	1190	823
12	1070	847	2290	1340	1850	7670	8660	7030	6800	4670	1170	929
13	1010	996	1930	1200	1900	6720	9500	7050	8590	4870	1140	1070
14	947	1050	1840	1210	3130	6130	11000	7370	9420	5210	1120	1000
15	914	1080	1920	1360	7720	6020	10100	8420	9880	4530	1120	986
16	890	1090	2720	1740	13000	5500	8730	9150	10400	3910	1100	960
17	877	1440	3050	3290	14300	5080	7750	9580	10800	3540	1070	920
18	865	1720	2500	2940	13700	4770	7010	10100	10900	3200	1040	880
19	860	1450	2290	2630	16300	4430	6270	9350	10700	3080	1020	900
20	847	1330	3970	2300	19300	4060	5720	8680	10500	3050	992	1100
21	832	1350	4110	1990	23000	3770	5490	8780	10100	2820	963	1080
22	817	1560	3500	1890	17300	3530	5830	9350	9860	2590	1000	1000
23	806	1570	2920	2140	13600	3500	6950	9950	9050	2350	990	970
24	803	1590	2520	6820	10700	3740	8520	9820	8220	2080	969	920
25	792	1500	2270	6910	8600	4050	8690	10400	8040	1910	970	920
26	803	1390	2100	6240	7260	4560	8610	11300	7980	1900	917	1100
27	852	1300	2060	5980	6340	5210	8610	10400	8560	1840	861	1090
28	899	1220	1920	4980	5560	5290	9270	9070	8130	1690	825	1080
29	938	1120	1790	4170	---	5100	9640	7970	7070	1570	794	1120
30	934	1110	1640	3670	---	4770	9320	7020	6590	1480	830	1100
31	924	---	1500	3470	---	4540	---	6450	---	1440	889	---
TOTAL	27492	33967	73400	80370	206810	166260	194020	272220	236450	121450	33070	28093
MEAN	887	1132	2368	2593	7386	5363	6467	8781	7882	3918	1067	936
MAX	1070	1720	4110	6910	23000	8230	11000	11300	10900	7360	1390	1120
MIN	769	784	1160	1050	1600	3500	2830	6450	5060	1440	794	762
AC-FT	54530	67370	145600	159400	410200	329800	384800	539900	469000	240900	65590	55720

CAL YR 1981 TOTAL 1032183 MEAN 2828 MAX 17200 MIN 475 AC-FT 2047000
WTR YR 1982 TOTAL 1473602 MEAN 4037 MAX 23000 MIN 762 AC-FT 2923000

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.

GAGE.--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 at 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.--27 years (water years 1910-16, 1963-82), 55,590 ft³/s (1,574 m³/s), 40,275,000 acre-ft/yr (49,700 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 hourly discharge, 217,000 ft³/s (6,150 m³/s) May 27; maximum forebay elevation, 440.30 ft (134.203 m) Feb. 21; minimum hourly discharge, 200 ft³/s (5.66 m³/s) Dec. 3; minimum forebay elevation, 436.91 ft (133.170 m) Dec. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33800	10900	34500	37700	50100	105000	66800	126000	115000	156000	25600	31300
2	35800	20500	38900	41000	48400	102000	81600	118000	118000	168000	35100	34500
3	14500	26900	27500	41500	48800	105000	75300	115000	121000	154000	32400	31200
4	12600	25900	29100	41800	51300	116000	77300	130000	117000	146000	31900	25300
5	34000	29300	35600	43400	54300	113000	98800	122000	123000	132000	32900	24300
6	27200	24000	39000	39500	40200	117000	86800	126000	138000	119000	38700	23600
7	26000	15400	42000	43400	28500	105000	88000	120000	130000	114000	39400	25800
8	20500	11800	41600	37000	51900	85600	72700	122000	132000	111000	35100	38800
9	32500	20900	23200	40900	57600	111000	51700	105000	120000	113000	41100	36600
10	20900	25000	37000	27400	45900	114000	66000	108000	102000	105000	28000	35600
11	12300	21000	33700	37200	43500	120000	62400	110000	105000	82100	30700	26700
12	18400	22000	39700	40900	40800	123000	117000	107000	101000	85800	24800	16800
13	38800	22300	33100	42400	39300	129000	111000	111000	109000	87900	23400	31200
14	36000	13200	39000	43100	42500	128000	119000	110000	152000	80600	19800	33600
15	25500	14600	35300	37000	47500	122000	127000	129000	172000	88900	17500	37400
16	21100	37800	38000	27800	82400	117000	95100	134000	179000	83500	29300	41900
17	22500	44900	28900	22000	97500	115000	102000	146000	194000	75400	30900	33900
18	18400	50500	36100	40200	121000	110000	122000	157000	195000	68500	30900	32600
19	30700	37000	45400	38300	109000	106000	104000	168000	203000	63000	26500	31800
20	29300	35800	44000	45000	104000	93000	90400	151000	193000	52000	32300	33200
21	30200	20900	54000	54100	114000	103000	128000	139000	190000	59000	23300	37500
22	25100	15200	50500	40700	130000	99300	110000	136000	197000	50300	19100	38000
23	27300	37300	55200	43400	154000	93200	101000	144000	196000	52300	20300	35700
24	12500	38900	38600	37100	140000	76900	117000	161000	193000	32700	40100	39000
25	11400	40700	34400	56900	116000	86400	120000	156000	176000	31600	32600	36600
26	34800	32100	43800	54500	108000	99100	123000	153000	167000	42900	24000	35700
27	23700	43700	36800	48500	101000	71600	115000	195000	167000	40400	22900	28900
28	34200	34700	49300	50600	99500	73200	123000	175000	164000	44700	13600	39500
29	26600	21600	53100	56900	---	89300	123000	145000	160000	44400	11700	30600
30	28400	36600	37100	43900	---	81400	118000	127000	168000	29900	22500	34700
31	15300	---	27300	42300	---	76200	---	113000	---	31000	24400	---
TOTAL	780300	831400	1201700	1296400	2167000	3186200	2992900	4159000	4597000	2544900	860800	982300
MEAN	25170	27710	38760	41820	77390	102800	99760	134200	153200	82090	27770	32740
MAX	38800	50500	55200	56900	154000	129000	128000	195000	203000	168000	41100	41900
MIN	11400	10900	23200	22000	28500	71600	51700	105000	101000	29900	11700	16800
AC-FT	1548000	1649000	2384000	2571000	4298000	6320000	5936000	8249000	9118000	5048000	1707000	1948000

CAL YR 1981 TOTAL 16811100 MEAN 46060 MAX 187000 MIN 8800 AC-FT 33340000
WTR YR 1982 TOTAL 25599900 MEAN 70140 MAX 203000 MIN 10900 AC-FT 50780000

WALLA WALLA RIVER BASIN

14010000 SOUTH FORK WALLA WALLA RIVER NEAR MILTON, OR

LOCATION.--Lat 45°49'48", long 118°10'08", in NE¼NE¼ 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 except those for January, which are fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--61 years (water years 1908-17, 1932-82), 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.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 24		Stage and discharge unknown			
Feb. 16	0330	673	19.1	2.47	0.753
Feb. 21	0730	*1,090	30.9	*3.16	0.963

Minimum, 99 ft³/s (2.80 ft³/s) Nov. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	116	116	122	145	150	287	190	338	260	173	113	109
2	132	110	166	145	170	338	184	356	270	165	113	109
3	122	110	180	145	187	311	175	360	260	168	119	109
4	119	107	166	145	173	311	170	311	250	148	115	111
5	116	107	210	138	159	295	165	287	240	145	113	109
6	122	104	415	120	152	272	163	291	230	143	113	109
7	152	104	306	125	145	258	160	324	220	155	111	109
8	129	102	235	132	138	251	155	307	210	145	113	109
9	132	102	222	125	135	268	155	287	210	135	113	109
10	132	102	218	135	132	311	160	279	215	135	115	111
11	135	99	195	130	129	356	299	279	220	135	115	113
12	129	116	180	135	126	307	443	295	220	133	113	123
13	126	119	169	140	145	272	404	315	230	130	113	115
14	122	113	169	180	301	258	432	347	220	135	113	113
15	119	113	191	270	503	247	360	388	210	133	113	111
16	119	119	206	330	624	233	307	421	205	133	111	111
17	119	159	199	400	575	226	272	426	200	130	111	109
18	116	159	191	280	525	219	251	388	190	128	109	109
19	116	135	235	240	580	209	223	347	180	125	109	113
20	116	119	265	220	668	193	216	347	175	128	109	115
21	116	152	235	200	876	187	216	382	170	123	111	111
22	116	173	206	250	564	187	237	426	160	121	111	111
23	116	165	191	380	421	193	279	421	150	119	111	109
24	113	159	183	620	338	205	311	404	140	119	111	109
25	113	142	176	500	291	216	299	437	140	119	111	111
26	113	135	173	540	268	233	291	410	150	117	111	119
27	113	129	166	450	247	240	295	342	150	119	109	113
28	119	119	162	290	233	233	333	320	140	117	109	138
29	122	116	155	230	---	223	329	300	150	115	111	130
30	119	113	152	190	---	212	324	290	153	115	111	119
31	119	---	148	170	---	202	---	280	---	115	111	---
TOTAL	3768	3718	6187	7500	8955	7753	7798	10705	5918	4121	3471	3396
MEAN	122	124	200	242	320	250	260	345	197	133	112	113
MAX	152	173	415	620	876	356	443	437	270	173	119	138
MIN	113	99	122	120	126	187	155	279	140	115	109	109
CFSM	1.94	1.97	3.18	3.84	5.08	3.97	4.13	5.48	3.13	2.11	1.78	1.79
IN.	2.22	2.20	3.65	4.43	5.29	4.58	4.60	6.32	3.49	2.43	2.05	2.01
AC-FT	7470	7370	12270	14880	17760	15380	15470	21230	11740	8170	6880	6740

CAL YR 1981	TOTAL 62925	MEAN 172	MAX 596	MIN 99	CFSM 2.73	IN 37.16	AC-FT	124800
WTR YR 1982	TOTAL 73290	MEAN 201	MAX 876	MIN 99	CFSM 3.19	IN 43.28	AC-FT	145400

NOTE.--No gage-height record May 29 to June 29.

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 mi^2 (89.1 km^2).

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. No regulation or diversion above station.

AVERAGE DISCHARGE.--13 years, 54.3 ft^3/s (1.538 m^3/s), 21.44 in/yr (545 mm/yr), 39,340 acre-ft/yr (48.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,040 ft^3/s (29.5 m^3/s) Jan. 25, 1975, gage height, 6.58 ft (2.006 m), from rating curve extended above 400 ft^3/s (11.3 m^3/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 ft^3/s (0.11 m^3/s) July 19-21, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft^3/s (8.50 m^3/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. 24	0800	377	10.7	4.96	1.512	Apr. 14	1100	323	9.15	4.85	1.478
Feb. 21	0230	*745	21.1	*6.01	1.832						

Minimum, 6.7 ft^3/s (0.19 m^3/s) Aug. 26-28, Sept. 2, 3, 6-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	11	31	43	63	165	81	253	44	29	9.0	7.2
2	11	10	41	41	72	222	75	263	48	29	8.7	6.9
3	11	10	51	40	83	208	69	250	45	34	10	6.9
4	9.4	10	49	39	67	216	62	204	44	26	9.4	7.2
5	8.7	9.7	53	37	54	200	56	172	41	23	8.7	7.2
6	8.4	9.7	176	33	45	165	54	166	40	21	8.4	6.9
7	15	9.7	150	29	40	143	51	190	37	26	8.0	6.9
8	14	9.4	105	29	38	136	47	188	35	23	8.0	6.7
9	12	9.4	88	34	37	172	46	176	33	20	8.4	6.9
10	12	9.4	84	33	35	210	47	165	33	19	8.4	8.4
11	15	9.0	70	36	34	243	148	159	34	18	8.4	8.4
12	14	10	59	35	34	212	288	168	35	17	8.0	11
13	13	13	54	36	40	174	300	178	36	16	7.7	11
14	11	14	51	44	206	156	317	188	35	16	8.0	9.7
15	11	13	53	72	335	148	280	190	35	16	8.0	8.7
16	10	13	59	138	368	132	222	194	35	15	7.7	8.4
17	10	29	62	184	338	126	184	198	33	14	7.4	8.0
18	9.7	35	59	115	338	120	154	188	32	14	7.4	7.7
19	9.4	30	77	81	353	106	126	156	31	13	7.4	8.4
20	8.7	28	111	65	434	88	109	132	30	13	7.7	9.7
21	8.7	33	97	57	596	88	103	129	29	12	8.7	8.7
22	8.7	47	78	51	377	96	117	131	28	11	7.7	8.4
23	8.7	51	67	124	288	97	166	123	26	11	7.2	8.0
24	8.7	51	61	350	224	100	214	105	25	11	7.2	8.0
25	8.7	48	57	253	176	102	214	97	25	10	7.2	8.4
26	8.7	44	54	263	147	114	218	90	26	10	6.9	11
27	8.7	40	53	202	129	118	218	77	27	9.7	6.9	9.7
28	11	35	50	145	112	118	248	69	26	9.7	6.9	18
29	12	32	48	105	---	111	253	55	26	9.4	7.4	23
30	11	30	47	79	---	99	243	51	26	9.0	7.7	15
31	11	---	44	69	---	89	---	47	---	9.0	7.4	---
TOTAL	327.6	703.3	2139	2862	5063	4474	4710	4752	1000	513.8	245.9	280.4
MEAN	10.6	23.4	69.0	92.3	181	144	157	153	33.3	16.6	7.93	9.35
MAX	15	51	176	350	596	243	317	263	48	34	10	23
MIN	8.4	9.0	31	29	34	88	46	47	25	9.0	6.9	6.7
CFSM	.31	.68	2.01	2.68	5.26	4.19	4.56	4.45	.97	.48	.23	.27
IN.	.35	.76	2.31	3.09	5.47	4.84	5.09	5.14	1.08	.56	.27	.30
AC-FT	650	1390	4240	5680	10040	8870	9340	9430	1980	1020	488	556

CAL YR 1981 TOTAL 20451.2 MEAN 56.0 MAX 554 MIN 6.9 CFSM 1.63 IN 22.12 AC-FT 40560
WTR YR 1982 TOTAL 27071.0 MEAN 74.2 MAX 596 MIN 6.7 CFSM 2.16 IN 29.27 AC-FT 53700

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).

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

AVERAGE DISCHARGE.--49 years, 227 ft³/s (6.429 m³/s), 23.53 in/yr (598 mm/yr), 164,500 acre-ft/yr (203 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.--Peak discharges above base of 1,400 ft³/s (39.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 24	0830	2,220	62.9	6.07	1.850	Feb. 20	2330	*3,090	87.5	*6.93	2.112
Feb. 16	0330	2,380	67.4	6.23	1.899						

Minimum, 42 ft³/s (1.19 m³/s) Aug. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	61	170	145	329	540	321	915	305	140	52	45
2	55	60	293	140	349	710	301	957	333	143	53	45
3	51	58	313	135	392	656	271	908	321	165	64	46
4	47	57	218	135	337	716	254	692	289	130	58	47
5	46	57	505	130	285	680	250	578	264	115	55	47
6	49	57	686	135	247	602	243	578	243	106	53	46
7	67	57	392	130	226	530	236	728	229	123	52	44
8	55	56	317	120	209	505	222	680	212	105	52	45
9	53	56	250	120	197	525	219	590	209	99	52	45
10	55	56	188	130	188	740	233	545	219	96	52	47
11	64	55	180	120	180	859	650	535	229	96	53	49
12	57	66	170	135	175	650	1110	566	257	90	51	66
13	52	72	160	140	289	530	1060	602	317	87	49	63
14	51	67	200	160	1390	515	1230	650	282	87	51	56
15	49	66	230	230	2110	475	992	698	268	81	51	51
16	47	81	260	435	2150	450	740	734	257	78	49	49
17	46	115	280	640	1880	420	602	740	240	78	49	47
18	46	106	240	460	1830	370	505	680	222	73	48	47
19	46	90	280	260	2530	329	420	566	209	72	48	49
20	45	84	350	212	2580	325	374	535	194	69	48	56
21	47	94	320	203	2500	341	370	578	180	66	49	51
22	48	130	290	200	1470	341	445	638	168	64	48	49
23	49	137	250	644	999	365	674	626	153	63	47	49
24	48	137	230	1800	728	388	873	560	150	61	47	49
25	48	117	205	1080	584	455	775	572	145	58	46	51
26	52	105	200	1110	490	475	722	555	133	57	46	66
27	52	94	195	817	435	450	728	435	135	56	46	55
28	60	82	180	555	397	415	894	379	128	55	46	69
29	63	106	165	415	---	383	922	337	123	53	47	78
30	61	152	160	353	---	357	852	297	123	53	47	64
31	66	---	150	341	---	333	---	297	---	53	46	---
TOTAL	1620	2531	8027	11630	25476	15430	17488	18751	6537	2672	1555	1571
MEAN	52.3	84.4	259	375	910	498	583	605	218	86.2	50.2	52.4
MAX	67	152	686	1800	2580	859	1230	957	333	165	64	78
MIN	45	55	150	120	175	325	219	297	123	53	46	44
CFSM	.40	.64	1.98	2.86	6.95	3.80	4.45	4.62	1.66	.66	.38	.40
IN.	.46	.72	2.28	3.30	7.23	4.38	4.97	5.32	1.86	.76	.44	.45
AC-FT	3210	5020	15920	23070	50530	30610	34690	37190	12970	5300	3080	3120

CAL YR 1981 TOTAL 79001 MEAN 216 MAX 2600 MIN 38 CFSM 1.65 IN 22.43 AC-FT 156700
WTR YR 1982 TOTAL 113288 MEAN 310 MAX 2580 MIN 44 CFSM 2.37 IN 32.17 AC-FT 224700

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).

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

AVERAGE DISCHARGE.--7 years, 200 ft³/s (5.664 m³/s), 15.43 in/yr (392 mm/yr), 144,900 acre-ft (179 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,750 ft³/s (163 m³/s) Feb. 20, 1982, gage height, 6.60 ft (2.012 m), from floodmark, from rating curve extended above 2,600 ft³/s (73.6 m³/s); 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.--Peak discharges above base of 1,600 ft³/s (45.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 15	0030	2,550	72.2	5.60	1.707
Feb. 20	0130	a*5,750	163	b*6.60	2.012
Apr. 12	0100	1,780	50.4	4.87	1.484

Minimum, 8.9 ft³/s (0.25 m³/s) Aug. 27, 28.

a From rating curve extended above 2,600 ft³/s (73.6 m³/s).
b From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	16	55	152	303	446	377	910	170	46	18	9.8
2	15	16	122	142	301	703	344	950	185	57	18	9.8
3	15	17	210	138	311	658	311	913	185	75	20	9.7
4	14	17	168	135	277	673	282	738	166	63	18	11
5	14	17	145	121	239	630	253	594	154	53	18	10
6	14	17	446	91	215	577	239	540	136	47	20	9.8
7	19	17	486	64	203	529	231	612	125	50	17	11
8	17	16	336	70	177	509	204	593	114	53	17	9.7
9	16	16	281	72	169	501	194	525	109	47	17	9.8
10	18	16	295	74	140	656	219	476	111	43	16	11
11	19	15	252	78	130	1030	811	449	119	42	16	12
12	18	19	207	80	128	878	1540	447	140	38	15	14
13	18	19	172	93	166	682	1340	457	214	35	14	15
14	18	19	160	103	1140	598	1500	484	175	35	14	14
15	17	19	215	169	2330	582	1160	525	148	33	14	14
16	17	22	329	374	2090	533	893	539	132	31	13	14
17	16	34	329	599	1900	487	758	547	117	30	13	15
18	16	34	282	443	2020	444	676	526	105	28	13	14
19	15	31	306	341	2490	392	585	424	93	26	12	15
20	15	30	521	284	2710	345	519	374	82	25	13	15
21	15	35	482	250	2640	329	526	390	74	23	13	14
22	15	44	388	225	1540	331	675	437	66	22	12	14
23	15	62	315	315	938	347	983	441	59	21	11	14
24	14	77	278	1200	683	400	1220	376	53	21	11	14
25	14	80	257	1180	537	452	1060	371	50	20	10	15
26	15	75	245	1050	456	582	945	375	48	20	10	19
27	15	67	231	833	407	629	909	293	45	20	9.7	16
28	16	58	216	590	362	591	1020	242	46	20	9.3	18
29	16	52	189	441	---	536	1020	207	46	19	10	19
30	16	48	176	364	---	478	907	173	46	20	10	18
31	16	---	156	325	---	427	---	160	---	19	10	---
TOTAL	491	1005	8250	10396	25002	16955	21701	15088	3313	1082	432.0	404.6
MEAN	15.8	33.5	266	335	893	547	723	487	110	34.9	13.9	13.5
MAX	19	80	521	1200	2710	1030	1540	950	214	75	20	19
MIN	13	15	55	64	128	329	194	160	45	19	9.3	9.7
CFSM	.09	.19	1.51	1.90	5.07	3.11	4.11	2.77	.63	.20	.08	.08
IN.	.10	.21	1.74	2.20	5.28	3.58	4.59	3.19	.70	.23	.09	.09
AC-FT	974	1990	16360	20620	49590	33630	43040	29930	6570	2150	857	803

CAL YR 1981 TOTAL 71732.4 MEAN 197 MAX 2500 MIN 9.7 CFSM 1.12 IN 15.16 AC-FT 142300
WTR YR 1982 TOTAL 104119.6 MEAN 285 MAX 2710 MIN 9.3 CFSM 1.62 IN 22.01 AC-FT 206500

14021000 UMATILLA RIVER AT PENDLETON, OR

LOCATION.--Lat 45°40'20", long 118°47'30", in NW¼NE¼ 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.--48 years (water years 1935-82), 503 ft³/s (14.24 m³/s), 364,400 acre-ft/yr (449 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.--Peak discharges above base of 3,500 ft³/s (99.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 24	1230	5,110	145	7.13	2.173	Feb. 21	0430	*8,430	239	*8.31	2.533
Feb. 16	0800	5,830	165	7.43	2.265	Apr. 14	1000	3,700	105	6.47	1.972

Minimum, 34 ft³/s (0.96 m³/s) Aug. 26-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	78	171	309	690	1310	992	2450	480	156	53	45
2	58	74	292	301	710	2300	884	2520	510	188	58	44
3	66	74	570	284	810	2250	810	2520	540	227	61	45
4	64	71	420	292	750	2450	750	2250	480	210	66	45
5	61	71	335	269	650	2380	690	1630	444	177	59	45
6	59	69	1630	210	585	2150	630	1380	408	160	58	42
7	74	69	1800	210	525	1870	615	1980	384	171	56	43
8	88	69	911	230	468	1800	570	1980	352	166	54	43
9	81	69	615	230	420	1870	525	1630	326	144	54	42
10	81	69	600	235	372	2150	540	1310	326	132	62	47
11	83	66	510	237	343	2580	1450	1310	343	132	56	51
12	86	71	420	239	335	2480	3250	1380	352	120	53	61
13	81	83	343	239	372	2150	2960	1450	480	110	50	74
14	76	86	326	251	2730	1870	3430	1630	456	110	48	74
15	74	83	396	360	5110	1980	2900	1870	408	107	56	66
16	74	88	615	1280	5400	1800	2510	1980	384	101	53	64
17	71	124	650	2450	4650	1730	2250	2150	360	94	48	61
18	69	156	555	1800	4000	1560	1980	2150	335	94	47	59
19	66	148	600	938	7170	1310	1630	1450	309	86	44	66
20	64	132	1450	750	7170	992	1140	1140	284	83	43	69
21	64	120	1280	630	7200	992	1050	1210	263	78	44	71
22	64	171	857	585	4300	1050	1380	1450	245	78	45	62
23	62	227	650	1380	3010	992	2300	1630	221	76	43	61
24	62	275	555	4110	2420	1140	2550	1310	199	69	43	59
25	64	269	510	3250	2150	1310	2510	1210	193	66	42	61
26	66	251	468	2900	1730	1730	2380	1310	182	66	38	74
27	69	233	444	2050	1380	1980	2380	938	171	59	38	78
28	71	199	432	1380	1050	1800	2510	750	171	59	38	69
29	78	177	384	1050	---	1630	2520	615	171	56	43	86
30	78	166	343	770	---	1310	2450	525	166	53	48	81
31	76	---	318	750	---	1140	---	480	---	53	48	---
TOTAL	2191	3838	19450	29969	66500	54056	52536	47588	9943	3481	1549	1788
MEAN	70.7	128	627	967	2375	1744	1751	1535	331	112	50.0	59.6
MAX	88	275	1800	4110	7200	2580	3430	2520	540	227	66	86
MIN	58	66	171	210	335	992	525	480	166	53	38	42
AC-FT	4350	7610	38580	59440	131900	107200	104200	94390	19720	6900	3070	3550

CAL YR 1981 TOTAL 158224 MEAN 433 MAX 4430 MIN 35 AC-FT 313800
WTR YR 1982 TOTAL 292889 MEAN 802 MAX 7200 MIN 38 AC-FT 580900

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 mi^2 (125.9 km^2).

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 excellent. No regulation or diversion above station.

AVERAGE DISCHARGE.--9 years, 45.5 ft^3/s (1.289 m^3/s), 32,960 acre-ft/yr (40.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,980 ft^3/s (56.1 m^3/s) Jan. 25, 1975, gage height, 8.48 ft (2.585 m), from floodmark, from rating curve extended above 150 ft^3/s (4.25 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.30 ft^3/s (0.008 m^3/s) July 15, 1975 (result of temporary construction upstream).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 290 ft^3/s (8.21 m^3/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)
Dec. 6	0730	317	8.98	3.09	0.942	Feb. 19	0630	746	21.1	4.67	1.423
Jan. 16	1500	425	12.0	3.50	1.067	Mar. 4	1830	304	8.61	3.09	0.942
Jan. 24	0800	*899	25.5	*5.21	1.588	Apr. 13	2300	322	9.12	3.16	0.963
Feb. 15	1630	536	15.2	3.95	1.204						

Minimum, 0.74 ft^3/s (0.021 m^3/s) Aug. 6-9, 13, 14, 16-20, 23-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	3.6	30	42	107	135	104	58	7.1	2.6	.83	.98
2	1.4	3.6	72	39	135	159	97	54	6.8	2.5	.86	.92
3	1.4	3.7	56	36	163	160	86	52	6.7	3.2	1.1	.91
4	1.3	3.8	43	35	127	247	74	46	6.4	2.8	.99	1.0
5	1.3	3.8	43	32	98	259	67	40	6.8	2.3	.90	1.0
6	1.4	4.0	227	23	79	229	62	36	6.3	2.1	.81	.96
7	1.9	4.0	123	20	65	199	59	36	5.9	3.3	.81	.94
8	1.9	3.8	79	24	57	182	54	33	5.2	3.1	.77	.91
9	2.0	3.8	58	23	47	215	51	33	4.5	2.4	.78	.89
10	2.1	3.8	47	23	48	235	52	32	4.0	2.2	.83	1.2
11	2.4	3.6	38	25	39	230	199	28	3.6	2.0	.86	1.2
12	2.4	4.1	33	29	34	182	238	26	4.1	1.8	.86	1.8
13	2.4	4.7	29	33	73	154	235	24	6.8	1.7	.82	1.6
14	2.3	4.5	33	42	363	164	280	22	5.0	1.8	.81	1.5
15	2.3	4.5	76	81	461	188	230	20	4.0	1.6	.87	1.3
16	2.4	7.0	93	280	461	183	184	19	3.4	1.6	.82	1.2
17	2.3	17	75	305	412	178	156	21	2.8	1.5	.78	1.2
18	2.3	15	61	189	400	162	133	22	2.6	1.4	.76	1.1
19	2.4	13	128	139	667	139	111	18	2.5	1.3	.75	1.6
20	2.4	11	154	108	520	137	97	16	2.4	1.3	.83	2.0
21	2.4	15	139	88	420	145	91	14	2.3	1.2	1.1	1.7
22	2.5	20	109	73	297	150	95	13	2.3	1.2	.89	1.5
23	2.5	28	83	361	229	155	104	12	2.1	1.1	.81	1.5
24	2.6	33	72	682	175	163	103	11	2.0	1.1	.76	1.5
25	2.7	33	83	386	143	157	90	10	2.0	1.0	.80	1.6
26	2.9	31	83	383	122	154	79	9.6	1.9	.96	.82	1.9
27	2.9	26	71	284	109	146	71	9.8	1.9	.95	.81	1.9
28	3.2	22	62	202	102	137	78	11	2.2	.96	.82	2.2
29	3.6	21	54	152	---	124	70	9.4	2.6	.89	.91	3.5
30	3.6	20	49	129	---	115	62	8.3	2.7	.85	1.0	2.6
31	3.8	---	45	119	---	111	---	7.5	---	.86	1.0	---
TOTAL	72.3	371.3	2348	4387	5953	5294	3412	751.6	118.9	53.57	26.56	44.11
MEAN	2.33	12.4	75.7	142	213	171	114	24.2	3.96	1.73	.86	1.47
MAX	3.8	33	227	682	667	259	280	58	7.1	3.3	1.1	3.5
MIN	1.3	3.6	29	20	34	111	51	7.5	1.9	.85	.75	.89
AC-FT	143	736	4660	8700	11810	10500	6770	1490	236	106	53	87

CAL YR 1981 TOTAL 17300.67 MEAN 47.4 MAX 697 MIN .64 AC-FT 34320
WTR YR 1982 TOTAL 22832.34 MEAN 62.6 MAX 682 MIN .75 AC-FT 45290

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. No regulation. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--54 years (water years 1927, 1930-82), 101 ft³/s (2.860 m³/s), 73,170 acre-ft/yr (90.2 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 17	0600	975	27.6	5.03	1.533
Jan. 24	1030	*1,650	46.7	*6.26	1.908
Feb. 16	0630	1,290	36.5	5.33	1.625
Feb. 19	1930	1,550	43.9	5.62	1.713

Minimum, 0.60 ft³/s (0.017 m³/s) Aug. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	7.0	62	104	239	306	256	263	37	12	1.1	1.3
2	4.9	7.0	128	98	306	366	239	256	34	12	1.3	1.1
3	5.0	7.0	144	89	405	358	211	253	33	18	1.1	1.1
4	5.2	7.0	109	85	314	520	188	218	31	21	1.1	1.3
5	6.5	7.9	91	79	235	634	173	182	31	17	1.1	1.1
6	5.6	8.4	264	70	185	580	161	158	31	16	1.1	1.1
7	7.4	8.4	206	64	152	515	149	158	26	18	1.1	.90
8	8.4	7.9	155	64	125	470	138	149	9.3	18	.90	.90
9	7.9	7.9	133	65	108	505	128	143	10	17	.80	1.1
10	6.8	8.4	118	69	101	565	125	143	9.3	15	.80	1.3
11	7.0	7.9	106	69	85	575	290	135	7.8	13	.80	1.6
12	7.6	11	94	78	74	485	480	130	7.8	11	.80	2.7
13	6.6	16	81	81	97	410	490	128	19	9.3	.70	3.4
14	5.6	17	87	96	520	400	628	125	24	10	.90	3.7
15	5.2	17	147	152	924	490	603	120	19	10	.90	3.7
16	5.0	17	179	511	1150	475	535	118	16	8.5	.80	3.7
17	4.9	25	161	776	973	460	480	115	15	7.8	.90	3.7
18	4.9	32	142	485	875	410	415	128	14	7.8	.90	3.7
19	4.9	29	179	350	1320	350	354	108	12	6.3	.90	3.7
20	4.9	28	244	284	1310	334	302	97	12	5.8	.90	4.7
21	4.9	27	260	244	1210	358	270	90	11	4.7	.90	4.7
22	5.3	34	217	210	834	378	270	85	10	4.7	.90	4.2
23	5.6	40	176	760	646	382	322	77	9.3	3.7	.80	4.2
24	5.6	59	155	1230	510	395	374	70	7.0	3.4	.80	3.7
25	5.3	70	179	973	410	378	350	62	7.8	1.6	.80	4.2
26	5.6	76	179	868	350	386	314	61	7.8	1.3	.80	5.8
27	6.0	69	158	690	310	370	294	57	7.8	.90	.80	6.3
28	6.5	60	147	490	274	342	318	61	10	.90	.90	5.8
29	6.5	55	133	366	---	310	306	57	12	.90	.90	7.8
30	6.5	52	123	298	---	286	270	44	13	.90	1.1	10
31	6.5	---	111	267	---	278	---	39	---	.90	1.1	---
TOTAL	184.2	818.8	4668	10065	14042	13071	9433	3830	493.9	277.40	28.70	102.50
MEAN	5.94	27.3	151	325	502	422	314	124	16.5	8.95	.93	3.42
MAX	8.4	76	264	1230	1320	634	628	263	37	21	1.3	10
MIN	4.9	7.0	62	64	74	278	125	39	7.0	.90	.70	.90
AC-FT	365	1620	9260	19960	27850	25930	18710	7600	980	550	57	203

CAL YR 1981	TOTAL	42391.24	MEAN 116	MAX 1410	MIN .78	AC-FT	84080	
WTR YR 1982	TOTAL	57014.50	MEAN 156	MAX 1320	MIN .70	AC-FT	113100	

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 Bureau of Reclamation 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 mi^2 (482 km^2).

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 (0.049 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 (91.0 hm^3), 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 m^3) included in records. Water is used for irrigation of land along McKay Creek and Umatilla River.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 73,840 acre-ft (91.0 hm^3) June 9, 1950, gage height, 1,322.0 ft (402.95 m); no usable contents Sept. 7, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 68,020 acre-ft (83.9 hm^3) May 22, gage height, 1,317.27 ft (401.504 m); minimum, 17,320 acre-ft (21.4 hm^3) Oct. 5, 6, gage height, 1,253.42 ft (382.042 m).

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	1,253.50	17,360	-
Oct. 31	1,253.78	17,500	+140
Nov. 30	1,256.65	19,010	+1,510
Dec. 31	1,276.03	30,810	+11,800
CAL YR 1981	-	-	+5,070
Jan. 31	1,299.13	49,040	+18,230
Feb. 28	1,309.48	59,300	+10,260
Mar. 31	1,314.43	64,750	+5,450
Apr. 30	1,316.96	67,650	+2,900
May 31	1,317.21	67,950	+300
June 30	1,314.21	64,510	-3,440
July 31	1,300.24	50,060	-14,450
Aug. 31	1,275.35	30,340	-19,720
Sept.30	1,262.31	22,190	-8,150
WTR YR 1982	-	-	+4,830

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.--45 years (water years 1933-43, 1949-82), 95.6 ft³/s (2.707 m³/s), 69,260 acre-ft/yr (85.4 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, 698 ft³/s (19.8 m³/s) Apr. 15, gage height, 2.13 ft (0.649 m); no flow Oct. 2 to Jan. 24, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.40	.00	.00	.00	225	185	185	188	29	161	338	260
2	.00	.00	.00	.00	235	232	185	211	29	161	338	260
3	.00	.00	.00	.00	294	211	185	221	22	161	334	246
4	.00	.00	.00	.00	200	390	140	218	20	161	318	221
5	.00	.00	.00	.00	81	614	106	197	15	161	306	214
6	.00	.00	.00	.00	49	554	106	188	12	161	306	214
7	.00	.00	.00	.00	22	400	106	158	12	161	302	194
8	.00	.00	.00	.00	12	294	106	155	11	161	302	207
9	.00	.00	.00	.00	12	330	108	133	9.5	161	302	214
10	.00	.00	.00	.00	12	530	108	133	4.3	158	302	152
11	.00	.00	.00	.00	12	560	306	133	55	197	302	106
12	.00	.00	.00	.00	13	405	470	133	55	218	286	106
13	.00	.00	.00	.00	51	334	475	125	55	218	274	125
14	.00	.00	.00	.00	524	380	644	123	21	214	274	149
15	.00	.00	.00	.00	614	536	602	120	7.0	214	274	95
16	.00	.00	.00	.00	620	470	420	104	7.0	214	270	87
17	.00	.00	.00	.00	602	430	330	85	7.0	214	282	91
18	.00	.00	.00	.00	506	385	350	97	34	214	298	105
19	.00	.00	.00	.00	560	342	334	102	91	235	298	125
20	.00	.00	.00	.00	650	318	274	81	115	249	298	110
21	.00	.00	.00	.00	680	365	179	66	115	260	298	86
22	.00	.00	.00	.00	692	360	232	66	115	286	294	86
23	.00	.00	.00	.00	650	370	302	66	115	298	294	86
24	.00	.00	.00	.00	506	405	395	53	115	294	282	86
25	.00	.00	.00	56	318	350	346	47	146	294	267	86
26	.00	.00	.00	214	225	360	167	47	164	302	270	100
27	.00	.00	.00	465	185	350	89	39	161	326	267	86
28	.00	.00	.00	560	179	334	106	36	161	346	267	86
29	.00	.00	.00	342	---	274	207	36	161	342	278	29
30	.00	.00	.00	214	---	207	167	32	161	338	282	.00
31	.00	---	.00	221	---	185	---	29	---	338	274	---
TOTAL	.40	.00	.00	2072.00	8729	11460	7730	3422	2024.8	7218	9077	4012.00
MEAN	.013	.000	.000	66.8	312	370	258	110	67.5	233	293	134
MAX	.40	.00	.00	560	692	614	644	221	164	346	338	260
MIN	.00	.00	.00	.00	12	185	89	29	4.3	158	267	.00
AC-FT	.8	.00	.00	4110	17310	22730	15330	6790	4020	14320	18000	7960

CAL YR 1981 TOTAL 41210.40 MEAN 113 MAX 567 MIN .00 AC-FT 81740
WTR YR 1982 TOTAL 55745.20 MEAN 153 MAX 692 MIN .00 AC-FT 110600

14026000 UMATILLA RIVER AT YOAKUM, OR

LOCATION.--Lat 45°40'38", long 119°02'09", in SW¼SW¼ 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. Records published as "above Furnish Reservoir, near Yoakum" October 1916 to September 1934 are equivalent.

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.--79 years, 675 ft³/s (19.12 m³/s), 489,000 acre-ft/yr (603 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.--Peak discharges above base of 3,600 ft³/s (102 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 24	1630	5,210	148	6.57	2.003	Feb. 21	0800	*9,260	262	*8.11	2.472
Feb. 16	1300	7,160	203	7.39	2.252	Apr. 14	1130	4,580	130	5.74	1.750

Minimum, 72 ft³/s (2.04 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	94	244	463	1340	1540	1500	2610	608	380	360	298
2	74	92	329	440	1310	2250	1390	2850	636	380	360	294
3	77	92	708	425	1570	2260	1300	2800	664	430	360	286
4	79	90	585	440	1400	2640	1160	2440	608	455	360	270
5	75	90	469	391	1060	3090	1030	2000	580	435	360	256
6	74	90	1350	310	980	2760	959	1810	550	410	345	249
7	83	90	1750	310	860	2350	926	1900	520	400	335	242
8	98	90	1200	330	750	2110	878	1980	490	380	330	228
9	94	90	878	335	660	2040	838	1780	455	370	325	228
10	94	90	836	335	578	2440	838	1630	425	360	325	256
11	98	88	740	335	547	3180	1490	1550	440	350	325	256
12	102	94	617	337	505	2980	3930	1550	484	355	325	263
13	98	102	535	342	499	2430	3750	1580	671	355	315	249
14	94	111	493	355	2450	2230	4360	1620	664	350	298	218
15	90	111	604	451	6060	2580	3940	1730	556	335	294	185
16	88	115	844	1240	6720	2340	3070	1770	508	335	290	182
17	88	167	914	2320	6150	2180	2480	1810	466	330	286	182
18	85	210	804	1680	5870	2040	2230	1710	430	320	286	191
19	81	210	820	1290	7870	1900	1980	1400	420	315	286	221
20	79	188	1380	1020	8550	1670	1740	1220	425	315	290	182
21	79	179	1420	852	8680	1760	1520	1180	430	315	282	173
22	79	217	1210	748	6160	1780	1650	1270	415	325	282	167
23	79	289	980	1410	4310	1770	2240	1340	400	335	282	161
24	79	350	844	4050	3150	1880	3000	1180	370	345	282	161
25	81	373	772	3700	2380	1880	2860	1080	360	345	302	164
26	83	350	724	3290	1960	2040	2450	1130	380	345	298	179
27	87	321	686	3110	1720	2180	2260	959	380	345	294	179
28	87	285	630	2490	1520	2100	2430	806	380	355	294	161
29	94	258	578	1930	---	1940	2730	741	380	365	302	130
30	94	240	535	1530	---	1730	2520	657	380	355	315	130
31	92	---	487	1410	---	1600	---	601	---	355	315	---
TOTAL	2675	5166	24966	37669	85609	67670	63449	48684	14475	11145	9703	6341
MEAN	86.3	172	805	1215	3057	2183	2115	1570	483	360	313	211
MAX	102	373	1750	4050	8680	3180	4360	2850	671	455	360	298
MIN	74	88	244	310	499	1540	838	601	360	315	282	130
AC-FT	5310	10250	49520	74720	169800	134200	125900	96560	28710	22110	19250	12580

CAL YR 1981 TOTAL 256129 MEAN 702 MAX 6710 MIN 74 AC-FT 508000
WTR YR 1982 TOTAL 377552 MEAN 1034 MAX 8680 MIN 74 AC-FT 748900

14032000 BUTTER CREEK NEAR PINE CITY, OR

LOCATION.--Lat 45°32'48", long 119°18'14", in SE¼SW¼ sec.22, T.1 N., R.28 E., Morrow County, Hydrologic Unit 17070103, on right bank 0.3 mi (0.5 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).

DRAINAGE AREA.--291 mi² (754 km²).

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.

REVISED RECORDS.--WSP 1218: 1950(M).

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.

REMARKS.--Records good except those for November, which are fair. No regulation. Several small diversions for irrigation above station. Water is diverted into headwaters of Butter Creek from Fivemile Creek, a tributary of Camas Creek in John Day River basin, for irrigation below station.

AVERAGE DISCHARGE.--50 years (water years 1930, 1932, 1934-41, 1943-82), 26.4 ft³/s (0.748 m³/s), 19,130 acre-ft/yr (23.6 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 discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 6	1800	258	7.31	3.89	1.186	Feb. 21	0400	394	11.2	4.57	1.393
Dec. 15	1700	213	6.03	3.62	1.103	Mar. 2	0200	236	6.68	3.74	1.140
Jan. 24	1930	244	6.91	3.81	1.161	Apr. 14	0930	203	5.75	3.50	1.067
Feb. 16	0600	*545	15.4	*5.15	1.570						

Minimum, 2.4 ft³/s (0.068 m³/s) Aug. 27-29, Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	6.9	20	46	85	181	100	108	38	17	3.7	3.7
2	5.4	6.6	45	39	81	203	97	107	38	14	3.4	3.4
3	5.4	6.5	39	37	81	173	93	108	39	17	3.7	3.1
4	5.6	6.5	32	41	55	165	89	105	35	17	4.0	3.4
5	5.6	6.5	33	34	44	165	88	96	33	15	3.7	3.7
6	5.9	6.5	171	31	44	161	89	89	35	12	3.7	3.1
7	6.3	6.5	146	29	46	148	87	88	33	9.8	3.7	2.9
8	6.8	6.5	94	43	46	136	83	88	30	19	3.4	2.8
9	7.4	6.5	76	45	45	129	86	87	27	16	3.4	2.4
10	7.4	6.6	82	37	49	127	83	87	27	17	3.4	2.8
11	8.1	6.6	74	35	49	129	113	84	24	14	3.4	3.1
12	8.1	7.2	60	33	49	122	168	76	26	12	3.1	4.6
13	7.7	7.6	52	31	49	120	154	75	46	11	2.9	5.2
14	7.7	9.0	58	33	168	119	185	75	35	8.0	2.9	6.1
15	7.4	13	137	37	294	138	163	73	29	11	3.4	6.1
16	7.4	18	147	48	398	127	142	73	24	12	3.4	6.1
17	7.0	25	102	82	266	124	131	78	22	10	2.9	6.1
18	6.8	16	83	86	217	119	119	88	20	9.4	2.6	5.8
19	7.0	13	93	77	272	112	111	80	18	9.1	2.6	6.7
20	6.5	13	145	67	304	108	101	71	17	8.4	3.1	17
21	6.5	13	125	65	348	102	98	68	17	7.7	3.1	14
22	6.8	13	101	53	235	107	99	67	16	7.1	3.4	10
23	6.6	14	86	70	193	115	109	67	16	7.1	4.0	9.4
24	6.5	16	75	212	166	142	120	64	14	7.1	3.4	9.1
25	6.4	20	74	202	149	129	120	60	13	6.7	2.9	9.1
26	6.4	21	72	192	139	124	115	57	12	6.4	2.9	9.8
27	6.5	20	65	174	144	121	110	54	12	6.1	2.5	11
28	6.7	18	59	132	141	117	112	54	22	6.1	2.5	10
29	7.1	18	53	108	---	111	112	52	19	5.8	2.5	9.8
30	7.4	18	51	96	---	104	108	46	18	5.5	2.9	9.8
31	7.2	---	42	92	---	102	---	41	---	4.9	3.7	---
TOTAL	209.2	365.0	2492	2307	4157	4080	3385	2366	755	329.2	100.2	200.1
MEAN	6.75	12.2	80.4	74.4	148	132	113	76.3	25.2	10.6	3.23	6.67
MAX	8.1	25	171	212	398	203	185	108	46	19	4.0	17
MIN	5.4	6.5	20	29	44	102	83	41	12	4.9	2.5	2.4
AC-FT	415	724	4940	4580	8250	8090	6710	4690	1500	653	199	397

CAL YR 1981 TOTAL 12962.8 MEAN 35.5 MAX 209 MIN 2.0 AC-FT 25710
WTR YR 1982 TOTAL 20745.7 MEAN 56.8 MAX 398 MIN 2.4 AC-FT 41150

NOTE.--No gage-height record Oct. 23 to Dec. 3.

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 SW¼SW¼ 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 SW¼ sec.22, T.3 N., R.29 E., and delivers water to Cold Springs Reservoir, capacity, 52,380 acre-ft (64.4 hm^3) 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 SW¼ 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 NE¼ 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 Ordnance. 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 SW¼ 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 SW¼ 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 1981 TO SEPTEMBER 1982

MONTH	FURNISH CANAL	UMATILLA PROJECT FEED CANAL	ALLEN CANAL	WESTERN LAND CANAL	MAXWELL CANAL	WEST DIVISION MAIN CANAL
OCTOBER	20	0	296	374	547	1,140
NOVEMBER	0	4,270	0	156	0	0
DECEMBER	0	12,160	0	4,300	0	0
JANUARY	0	6,530	0	799	0	0
FEBRUARY	0	5,720	0	1,420	0	0
MARCH	0	12,480	0	3,590	0	0
APRIL	3,150	8,740	469	7,290	1,790	4,430
MAY	7,350	11,070	976	12,240	3,050	8,700
JUNE	6,310	3,510	832	12,420	2,790	6,680
JULY	7,070	0	950	12,310	2,290	6,140
AUGUST	6,330	0	850	11,730	3,130	8,450
SEPTEMBER	3,840	0	728	7,490	2,050	2,450
WTR YR 1982	34,060	64,490	5,100	74,120	15,650	37,990

NOTE.--No gage-height record for months of little or no flow and short periods at other times.

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 mi^2 (5,930 km^2), 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 hm^3).

AVERAGE DISCHARGE.--55 years (water years 1928-82), 451 ft^3/s (12.77 m^3/s), 326,700 acre-ft/yr (403 hm^3/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 ft^3/s (561 m^3/s) Jan. 30, 1965, gage height, 10.75 ft (3.277 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,100 ft^3/s (87.8 m^3/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. 25	0100	4,350	123	5.59	1.704	Mar. 5	1030	3,210	90.9	5.13	1.564
Feb. 17	0100	7,040	199	6.40	1.951	Mar. 12	0600	3,210	90.9	5.13	1.564
Feb. 22	0130	*9,960	282	*7.10	2.164	Apr. 14	1800	4,020	114	5.47	1.667

Minimum, 0.92 ft^3/s (0.026 m^3/s) July 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121	180	155	432	1270	1440	1410	1850	114	8.1	1.2	3.0
2	104	180	157	461	1170	2000	1300	1960	123	10	1.2	10
3	127	176	404	454	1370	2260	1240	1980	128	60	1.2	16
4	140	172	554	432	1360	2270	1110	1810	102	166	1.2	58
5	140	172	419	413	1140	3100	963	1350	79	145	7.3	65
6	136	172	629	370	991	2890	874	1060	46	120	2.5	30
7	136	172	1810	350	904	2460	793	1010	13	59	1.6	6.4
8	133	172	1250	389	805	2230	728	1140	6.6	42	2.5	4.0
9	180	169	892	526	742	2120	636	1060	3.9	28	1.9	2.4
10	193	169	747	490	676	2330	600	908	2.8	23	1.2	14
11	202	169	672	461	648	2850	720	817	2.7	21	2.8	57
12	197	169	589	449	613	3090	2880	752	38	30	4.9	115
13	206	172	487	433	577	2470	3430	773	129	29	3.8	113
14	197	180	424	437	1230	2150	3640	825	231	26	7.7	107
15	197	185	432	487	4660	2410	3760	889	135	15	30	94
16	197	189	674	861	5970	2300	3270	952	90	6.2	18	72
17	189	208	834	2230	6130	2160	2580	972	57	7.7	3.6	68
18	185	155	762	1920	5180	2010	2260	1060	15	8.3	2.0	78
19	189	152	684	1400	5840	1820	1970	907	5.3	3.9	1.5	101
20	189	142	1050	1100	9030	1600	1620	707	8.2	1.4	1.3	136
21	180	126	1380	882	9610	1560	1310	602	5.2	1.3	1.4	143
22	180	113	1190	755	8460	1600	1200	632	4.3	1.1	4.0	139
23	180	143	960	1020	4320	1610	1580	730	3.3	1.2	9.8	130
24	180	210	796	2800	3310	1720	2220	695	1.7	1.1	4.2	123
25	180	273	749	3820	2540	1780	2360	535	1.6	1.7	12	148
26	185	274	712	3170	2040	1840	2060	515	1.5	4.4	7.1	181
27	189	255	683	3220	1730	2010	1700	507	1.4	1.8	3.6	196
28	176	228	610	2710	1520	2010	1710	411	2.5	1.6	2.8	232
29	176	200	530	2140	---	1890	2090	296	2.1	1.4	2.6	225
30	185	178	511	1620	---	1670	2010	242	2.8	1.3	2.6	165
31	185	---	474	1380	---	1500	---	179	---	1.2	2.8	---
TOTAL	5354	5455	22220	37612	83836	65150	54024	28126	1355.9	827.7	150.3	2831.8
MEAN	173	182	717	1213	2994	2102	1801	907	45.2	26.7	4.85	94.4
MAX	206	274	1810	3820	9610	3100	3760	1980	231	166	30	232
MIN	104	113	155	350	577	1440	600	179	1.4	1.1	1.2	2.4
AC-FT	10620	10820	44070	74600	166300	129200	107200	55790	2690	1640	298	5620

CAL YR 1981 TOTAL 177382.5 MEAN 486 MAX 6830 MIN 1.1 AC-FT 351800
WTR YR 1982 TOTAL 306942.7 MEAN 841 MAX 9610 MIN 1.1 AC-FT 608800

14034480 BALM FORK NEAR HEPPNER, OR

LOCATION.--Lat 45°19'56", long 119°32'24", in NW¼SE¼ sec.2, T.3 S., R.26 E., Morrow County, Hydrologic Unit 17070104, on right bank, 0.7 mi (1.1 km) upstream from bridge on Willow Creek Road, 1.0 mi (1.6 km) southeast of Heppner, and at mile 1.1 (1.8 km).

DRAINAGE AREA.--24.0 mi^2 (62.2 km^2).

PERIOD OF RECORD.--May to September 1982.

GAGE.--Water-stage recorder. Concrete control since Aug. 24, 1982. Datum of gage is 2,101.519 ft (640.543 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Records poor. Diversion for irrigation of about 170 acres (68.8 hm^2) above station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period May to September, 2.2 ft^3/s (0.062 m^3/s) May 6, gage height, 2.54 ft (0.774 m), no peak above base of 60 ft^3/s (1.70 m^3/s); no flow for part of each day Sept. 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, MAY 1982 TO SEPTEMBER 1982
MEAN VALUES

DAY	MAY	JUN	JUL	AUG	SEP
1	1.7	1.8	.52	.01	.01
2	1.7	1.7	.54	.01	.01
3	1.8	1.5	.56	.01	.01
4	1.8	1.4	.52	.01	.01
5	1.9	1.4	.50	.01	.01
6	1.8	1.3	.57	.01	.01
7	1.7	1.2	.64	.01	.01
8	1.8	1.1	.66	.01	.01
9	1.7	1.0	.67	.01	.01
10	1.6	.91	.62	.01	.01
11	1.6	.81	.61	.01	.02
12	1.6	.92	.60	.01	.02
13	1.5	.81	.58	.01	.02
14	1.5	.77	.55	.01	.02
15	1.5	.72	.26	.01	.02
16	1.4	.71	.21	.01	.02
17	1.5	.69	.19	.01	.02
18	1.4	.37	.16	.01	.02
19	1.3	.20	.13	.01	.03
20	1.3	.25	.13	.01	.02
21	1.4	.33	.23	.01	.02
22	1.3	.38	.35	.01	.02
23	1.1	.42	.30	.01	.02
24	1.1	.39	.13	.01	.02
25	1.1	.66	.11	.01	.02
26	1.1	.64	.11	.01	.02
27	1.2	.53	.08	.01	.02
28	1.3	.54	.07	.01	.02
29	1.5	.51	.01	.01	.04
30	1.7	.51	.01	.02	.04
31	1.8	---	.01	.02	---
TOTAL	46.7	24.47	10.63	.33	.55
MEAN	1.51	.82	.34	.011	.018
MAX	1.9	1.8	.67	.02	.04
MIN	1.1	.20	.01	.01	.01
AC-FT	93	49	21	.7	1.1

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 good. 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.--31 years, 19.1 ft³/s (0.541 m³/s), 13,840 acre-ft/yr (17.1 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.--Peak discharge above base of 170 ft³/s (4.81 m³/s) and maximum discharge, 172 ft³/s (4.87 m³/s) Feb. 21, gage height, 2.78 ft (0.847 m); maximum gage height, 4.09 ft (1.247 m) Mar. 11, backwater from construction dam; minimum discharge, 0.04 ft³/s (0.001 m³/s) Oct. 2-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	3.1	6.2	23	46	84	68	76	30	13	1.1	1.8
2	.10	2.8	8.3	20	43	108	64	82	30	13	1.1	1.2
3	.07	3.1	12	18	43	105	59	87	31	17	.86	1.1
4	.07	2.8	12	20	22	103	54	79	33	15	.72	1.0
5	.07	2.8	12	16	21	98	52	62	37	13	.50	1.2
6	.07	2.8	73	11	22	99	51	59	31	10	.39	.95
7	.10	3.1	63	11	21	94	47	59	29	13	.30	.62
8	.60	2.8	41	13	22	90	43	61	26	12	.21	.48
9	2.2	2.8	33	16	22	95	41	60	23	11	.26	.59
10	2.8	2.8	31	14	21	90	40	66	22	9.9	.23	.83
11	3.7	3.1	25	15	24	86	58	60	22	9.3	.18	1.7
12	4.4	3.4	21	15	29	84	87	54	22	9.0	.15	4.0
13	3.7	4.4	19	15	36	82	96	56	22	9.1	.24	3.1
14	3.7	4.0	23	17	46	83	108	59	20	11	.74	.75
15	3.4	4.4	96	20	90	90	97	62	19	9.2	1.2	.85
16	3.4	5.8	80	47	136	88	86	65	17	8.3	.92	.64
17	3.1	11	55	95	134	85	80	76	16	6.0	.47	.57
18	2.8	8.8	45	76	117	81	74	82	15	3.8	.52	.55
19	2.8	6.2	49	60	113	76	67	72	15	3.3	.48	.60
20	2.5	5.1	67	51	134	71	61	64	15	1.9	.47	.60
21	2.5	4.8	80	43	167	68	53	60	14	2.1	.63	1.0
22	2.5	6.6	69	36	136	69	52	66	13	3.3	.30	.78
23	2.2	6.2	51	46	106	70	60	69	11	2.6	.26	.78
24	2.5	7.0	46	113	85	73	72	66	11	2.2	.25	.80
25	2.5	6.2	44	116	74	72	72	62	11	.74	.33	.83
26	2.2	6.2	41	123	68	73	66	60	9.7	.74	.44	1.1
27	2.5	6.6	36	104	68	74	66	56	9.0	.70	.44	1.3
28	2.8	5.5	33	80	67	73	73	56	13	1.8	.47	1.4
29	3.7	4.8	28	65	---	71	79	48	15	1.4	.73	1.4
30	3.4	5.8	27	56	---	70	76	39	16	.80	1.5	3.3
31	3.4	---	23	50	---	71	---	31	---	1.2	1.8	---
TOTAL	71.38	144.8	1249.5	1405	1913	2576	2002	1954	597.7	215.38	18.19	35.82
MEAN	2.30	4.83	40.3	45.3	68.3	83.1	66.7	63.0	19.9	6.95	.59	1.19
MAX	4.4	11	96	125	167	108	108	87	37	17	1.8	4.0
MIN	.07	2.8	6.2	11	21	68	40	31	9.0	.70	.15	.48
AC-FT	142	287	2480	2790	3790	5110	3970	3880	1190	427	36	71

CAL YR 1981 TOTAL 6128.19 MEAN 16.8 MAX 101 MIN .06 AC-FT 12160
WTR YR 1982 TOTAL 12182.77 MEAN 33.4 MAX 167 MIN .07 AC-FT 24160

14034800 RHEA CREEK NEAR HEPPNER, OR

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).

DRAINAGE AREA.--120 mi² (311 km²), approximately.

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

GAGE.--Water-stage recorder. Altitude of gage is 2,320 ft (707 m), from topographic map. Prior to May 28, 1976, at site 0.4 mi (0.6 km) downstream at different datum.

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

AVERAGE DISCHARGE.--22 years, 19.8 ft³/s (0.561 m³/s), 14,350 acre-ft/yr (17.7 hm³/yr).

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.--Peak discharges above above base of 230 ft³/s (6.51 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 6	0930	273	7.73	3.21	0.978	Feb. 16	0400	*526	14.9	*3.94	1.201
Dec. 15	0100	279	7.90	3.23	0.985	Mar. 1	2000	249	7.05	3.18	0.969
Jan. 24	0700	282	7.99	3.24	0.988						

Minimum, 1.2 ft³/s (0.034 m³/s) Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	3.2	13	24	62	172	68	42	23	11	2.9	2.4
2	2.5	3.2	44	21	64	200	67	38	22	9.8	3.3	2.3
3	2.8	3.2	49	19	35	166	65	41	24	13	3.6	2.2
4	2.6	3.1	38	17	23	154	61	41	28	11	3.8	2.2
5	2.5	3.1	59	13	22	152	59	38	32	9.8	3.6	2.4
6	2.8	3.1	203	10	21	150	57	36	28	8.1	3.5	2.4
7	5.5	3.2	111	11	23	132	53	34	26	14	3.2	2.3
8	4.7	3.2	73	12	22	124	49	33	24	13	3.1	2.3
9	3.5	3.2	58	13	21	123	47	35	22	11	2.9	2.2
10	3.8	3.2	50	14	20	115	45	40	20	9.0	2.9	2.8
11	4.3	3.2	41	15	19	112	65	38	18	7.3	2.9	3.1
12	3.9	3.3	33	16	21	99	72	34	24	7.3	3.1	5.5
13	3.8	4.1	30	18	27	91	80	32	29	7.3	2.9	5.1
14	3.5	4.3	61	21	111	93	94	32	22	8.6	2.9	3.3
15	3.3	4.3	230	29	246	102	87	31	19	7.5	3.2	2.9
16	3.3	7.5	129	67	398	99	81	33	17	7.0	2.8	3.1
17	3.2	14	87	124	297	91	76	42	16	6.2	2.6	2.9
18	3.2	8.1	73	99	233	85	70	45	15	4.1	2.5	2.8
19	3.2	5.9	134	80	230	79	62	43	14	3.9	2.5	3.9
20	3.1	5.3	136	64	240	72	57	38	13	3.9	2.5	9.0
21	2.9	5.3	130	56	230	72	51	34	9.8	3.9	2.4	5.3
22	3.1	6.4	99	45	174	76	48	31	9.0	4.1	2.4	4.3
23	3.1	6.7	72	87	144	77	47	31	9.0	4.3	2.3	3.9
24	3.1	10	64	238	120	76	46	30	9.0	4.3	2.2	4.1
25	3.1	10	58	203	108	73	46	27	9.8	3.3	2.1	5.7
26	3.1	8.5	53	228	105	73	45	27	9.4	3.9	1.8	5.3
27	3.3	8.5	46	160	114	72	45	30	9.0	3.3	1.8	4.9
28	3.5	8.5	41	115	109	72	45	36	9.8	3.5	1.8	3.9
29	3.8	9.0	33	90	---	72	45	29	13	3.3	1.9	4.1
30	3.6	10	32	76	---	71	44	24	13	3.2	2.9	4.7
31	3.3	---	26	68	---	72	---	22	---	3.2	2.8	---
TOTAL	104.0	174.6	2306	2053	3239	3217	1777	1067	536.8	213.1	85.1	111.3
MEAN	3.35	5.82	74.4	66.2	116	104	59.2	34.4	17.9	6.87	2.75	3.71
MAX	5.5	14	230	238	398	200	94	45	32	14	3.8	9.0
MIN	2.5	3.1	13	10	19	71	44	22	9.0	3.2	1.8	2.2
AC-FT	206	346	4570	4070	6420	6380	3520	2120	1060	423	169	221

CAL YR 1981 TOTAL 8050.25 MEAN 22.1 MAX 230 MIN .87 AC-FT 15970
WTR YR 1982 TOTAL 14883.90 MEAN 40.8 MAX 398 MIN 1.8 AC-FT 29520

14037500 STRAWBERRY CREEK ABOVE SLIDE CREEK, NEAR PRAIRIE CITY, OR

LOCATION.--Lat 44°20'30", long 118°39'20", in SE¼NW¼ 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).

DRAINAGE AREA.--7.00 mi² (18.13 km²).

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1944, published as "above South Fork, near Prairie City."

REVISED RECORDS.--WSP 1488: 1932-33. WSP 1738: Drainage area.

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.--52 years, 12.8 ft³/s (0.362 m³/s), 24.83 in/yr (631 mm/yr), 9,270 acre-ft/yr (11.4 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, 141 ft³/s (3.99 m³/s) June 17, gage height, 2.17 ft (0.661 m); minimum, 2.2 ft³/s (0.062 m³/s) Oct. 6, 10, 23-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	2.9	4.4	5.8	3.3	8.6	5.1	18	50	62	23	9.1
2	2.4	2.9	4.3	5.8	3.3	8.1	5.1	20	50	59	22	8.8
3	2.4	2.8	4.2	5.8	3.3	7.8	5.1	24	51	57	22	9.0
4	2.4	2.6	4.1	5.4	3.3	7.5	4.8	23	55	55	21	8.4
5	2.4	2.6	4.0	4.8	3.2	7.2	4.8	22	55	51	20	7.8
6	2.4	2.6	4.2	4.8	3.2	6.9	4.8	21	52	44	20	7.6
7	2.6	2.6	4.0	4.8	3.5	6.9	4.8	22	50	41	20	7.3
8	2.4	2.6	4.0	4.7	3.1	6.5	4.7	24	50	41	19	7.2
9	2.4	2.6	4.2	4.5	3.3	6.5	4.5	24	49	43	19	6.9
10	2.6	2.8	4.2	4.5	3.3	6.2	4.8	23	48	43	18	6.9
11	2.4	2.9	4.2	4.5	3.1	6.2	6.6	22	49	45	18	6.7
12	2.4	3.1	4.2	4.5	3.1	6.2	8.6	21	52	46	17	7.2
13	2.4	3.3	4.2	4.5	3.3	6.2	9.5	21	58	48	17	6.8
14	2.4	4.5	4.1	4.3	4.0	6.2	9.7	23	66	48	16	6.5
15	2.4	4.2	4.7	4.2	4.7	5.9	9.6	26	78	48	15	6.5
16	2.4	4.8	4.5	4.2	7.4	5.8	9.1	29	89	46	15	6.5
17	2.4	5.8	4.5	4.2	8.2	5.8	8.7	32	112	44	14	6.5
18	2.4	5.6	4.8	4.2	8.0	5.7	8.3	37	119	42	14	6.4
19	2.4	5.5	8.9	4.2	9.5	5.6	7.9	36	86	40	13	6.9
20	2.4	5.5	12	4.2	12	5.4	7.6	34	77	37	13	6.7
21	2.4	5.7	10	4.2	17	5.1	7.3	36	67	36	12	6.4
22	2.4	5.5	9.1	4.2	19	5.1	7.5	43	64	36	12	6.2
23	2.2	5.5	9.1	4.0	17	5.1	8.1	50	59	34	12	6.2
24	2.2	5.3	8.3	3.6	14	5.1	9.6	52	58	33	12	6.5
25	2.3	5.1	7.1	3.6	12	5.1	11	56	65	31	11	6.6
26	2.6	5.1	6.9	3.6	11	5.1	12	63	69	32	11	6.6
27	2.5	4.8	6.9	3.6	9.6	5.1	13	72	63	30	11	6.5
28	2.9	4.6	6.8	3.6	8.9	5.1	15	68	65	28	10	6.6
29	2.8	4.5	6.4	3.6	---	5.1	16	61	60	27	10	6.5
30	2.6	4.5	6.2	3.5	---	5.1	17	58	60	25	9.9	6.5
31	2.7	---	5.9	3.3	---	5.2	---	51	---	24	9.4	---
TOTAL	76.0	122.8	180.4	134.7	204.6	187.4	250.6	1112	1926	1276	476.3	210.3
MEAN	2.45	4.09	5.82	4.35	7.31	6.05	8.35	35.9	64.2	41.2	15.4	7.01
MAX	2.9	5.8	12	5.8	19	8.6	17	72	119	62	23	9.1
MIN	2.2	2.6	4.0	3.3	3.1	5.1	4.5	18	48	24	9.4	6.2
CFSM	.35	.58	.83	.62	1.04	.86	1.19	5.13	9.17	5.89	2.20	1.00
IN.	.40	.65	.96	.72	1.09	1.00	1.33	5.91	10.23	6.78	2.53	1.12
AC-FT	151	244	358	267	406	372	497	2210	3820	2530	945	417

CAL YR 1981 TOTAL 4652.6 MEAN 12.7 MAX 73 MIN 2.2 CFSM 1.81 IN 24.72 AC-FT 9230
WTR YR 1982 TOTAL 6157.1 MEAN 16.9 MAX 119 MIN 2.2 CFSM 2.41 IN 32.72 AC-FT 12210

14038530 JOHN DAY RIVER NEAR JOHN DAY, OR

LOCATION.--Lat 44°25'07", long 118°54'19", in SW¼SE¼ sec.19, T.13 S., R.32 E., Grant County, Hydrologic Unit 17070201, on left bank 1,200 ft (366 m) downstream from Dog Creek, 2.5 mi (4.0 km) east of John Day, and at mile 250.8 (403.5 km).

DRAINAGE AREA.--386 mi² (1,000 km²).

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.--14 years, 207 ft³/s (5.862 m³/s), 150,000 acre-ft/yr (185 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 19	2030	1,130	32.0	5.68	1.731
Jan. 26	1400	1,860	52.7	6.74	2.054
Feb. 16	0600	*3,620	103	a*8.57	2.612
Feb. 21	2000	1,780	50.4	6.66	2.030
May 3	0830	881	24.9	5.50	1.676
May 17	2130	1,060	30.0	5.69	1.734
May 26	1030	1,090	30.9	5.69	1.734
June 4	1030	1,850	52.4	6.57	2.003
June 17	1100	1,020	28.9	5.59	1.704
July 2	2130	1,050	29.7	5.67	1.728

Minimum, 40 ft³/s (1.13 m³/s) Aug. 27, 28, Sept. 1, 2.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	101	155	210	238	468	375	734	657	804	135	41
2	91	98	178	220	242	498	360	790	671	776	130	41
3	87	96	175	224	266	468	375	860	706	734	133	43
4	86	96	170	224	180	524	355	783	1460	566	123	63
5	98	94	170	195	160	552	334	685	1140	486	119	62
6	98	94	193	160	170	468	322	622	853	425	107	55
7	107	94	200	135	198	425	314	622	748	410	96	53
8	107	94	190	150	168	405	298	622	671	405	100	53
9	103	92	190	155	178	395	290	671	608	375	111	57
10	125	92	195	155	160	395	302	636	552	346	100	58
11	140	94	188	155	175	462	504	566	545	334	103	71
12	117	100	180	155	173	430	657	510	692	306	103	96
13	113	113	185	170	190	430	657	480	860	282	96	113
14	111	143	193	178	951	456	713	517	881	286	91	107
15	107	135	445	178	1590	524	650	622	909	278	91	107
16	105	173	310	185	2160	440	566	685	944	262	89	103
17	101	178	250	203	1420	400	510	839	965	246	83	105
18	101	163	266	209	1130	385	480	951	958	224	80	109
19	100	148	769	195	1430	370	440	867	958	209	75	130
20	100	143	748	180	1320	375	420	769	944	195	60	180
21	98	153	706	179	1580	380	415	720	895	185	59	148
22	98	168	486	178	1340	380	450	762	860	175	59	138
23	98	183	360	206	965	410	552	846	762	165	58	130
24	98	188	310	480	755	415	685	888	727	160	51	130
25	96	178	250	445	636	405	727	930	755	153	47	150
26	115	168	270	1380	566	430	727	1040	671	153	44	143
27	107	163	250	510	510	450	734	1030	657	173	41	135
28	119	153	220	355	445	445	769	923	748	175	42	140
29	115	140	210	294	---	430	762	783	797	160	45	143
30	107	155	210	266	---	420	727	657	699	145	47	135
31	103	---	210	258	---	410	---	566	---	133	43	---
TOTAL	3235	3990	8832	8187	19296	13445	15470	22976	24293	9726	2561	3039
MEAN	104	133	285	264	689	434	516	741	810	314	82.6	101
MAX	140	188	769	1380	2160	552	769	1040	1460	804	135	180
MIN	84	92	155	135	160	370	290	480	545	133	41	41
AC-FT	6420	7910	17520	16240	38270	26670	30680	45570	48190	19290	5080	6030

CAL YR 1981 TOTAL 78814 MEAN 216 MAX 1250 MIN 16 AC-FT 156300
WTR YR 1982 TOTAL 135050 MEAN 370 MAX 2160 MIN 41 AC-FT 267900

14040500 JOHN DAY RIVER AT PICTURE GORGE, NEAR DAYVILLE, OR

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 Dayville, and at mile 205.1 (330.0 km).

DRAINAGE AREA.--1,680 mi² (4,350 km²), approximately.

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.--56 years, 478 ft³/s (13.53 m³/s), 346,300 acre-ft/yr (427 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 15	1200	2,120	60.0	8.21	2.502
Dec. 19	2400	3,830	108	10.33	3.149
Jan. 26	2300	3,190	90.3	9.63	2.935
Feb. 16	1030	6,700	190	12.72	3.877
Feb. 21	2230	*7,330	208	a*13.28	4.048
Apr. 14	2330	2,670	75.6	8.86	2.701
Apr. 28	1200	2,920	82.7	9.17	2.795
May 18	0830	2,420	68.5	8.54	2.603
June 5	0200	2,700	76.5	8.90	2.713

Minimum, 79 ft³/s (2.24 m³/s) Aug. 30.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	143	202	282	632	915	2050	1480	2600	1410	1120	214	93
2	148	197	288	619	889	2170	1410	2660	1410	1180	215	89
3	165	193	354	577	962	2040	1410	2790	1430	1290	214	93
4	157	189	320	597	728	2020	1360	2620	1860	1090	205	96
5	157	187	312	460	548	2020	1300	2310	2420	964	197	107
6	171	187	457	433	440	1890	1270	2080	1910	881	190	112
7	178	185	556	341	470	1790	1240	1980	1620	809	175	103
8	187	184	457	400	450	1730	1200	1960	1460	834	166	103
9	184	183	416	450	460	1700	1190	1950	1320	782	163	99
10	197	180	409	500	518	1720	1210	1990	1210	701	160	99
11	243	181	401	532	556	1990	1950	1850	1140	659	158	112
12	239	182	369	521	568	1960	2550	1680	1210	607	172	166
13	222	193	370	506	604	1880	2530	1580	1510	551	179	228
14	214	214	438	501	1640	1880	2610	1590	1530	576	166	253
15	209	254	1600	497	4300	1990	2500	1720	1540	534	159	244
16	205	279	1140	517	6290	1820	2240	1790	1520	502	157	232
17	200	348	767	587	5450	1690	2080	1910	1470	475	150	226
18	195	325	805	651	4200	1630	1980	2340	1420	440	140	227
19	194	290	3030	626	4540	1550	1870	2190	1380	406	135	240
20	190	269	2850	539	5340	1490	1800	1980	1370	370	133	352
21	183	260	2300	576	6500	1420	1780	1840	1330	353	142	352
22	184	287	1630	546	6090	1460	1870	1820	1280	335	136	311
23	183	324	1160	594	4400	1490	2140	1870	1170	311	122	296
24	183	394	1040	1170	3310	1510	2540	1900	1100	297	108	282
25	183	377	965	1410	2780	1520	2780	1900	1160	269	105	301
26	189	341	900	2400	2510	1630	2790	2010	1070	258	99	309
27	204	319	835	2200	2270	1730	2800	2030	1020	260	93	298
28	199	301	772	1450	2070	1720	2870	1930	996	286	86	287
29	211	277	671	1170	---	1660	2860	1680	1180	272	85	294
30	204	272	706	1030	---	1610	2700	1440	1170	253	86	292
31	205	---	588	968	---	1570	---	1270	---	234	95	---
TOTAL	5926	7574	27188	24000	69798	54330	60310	61260	41616	17899	4605	6296
MEAN	191	252	877	774	2493	1753	2010	1976	1387	577	149	210
MAX	243	394	3030	2400	6500	2170	2870	2790	2420	1290	215	352
MIN	143	180	282	341	440	1420	1190	1270	996	234	85	89
AC-FT	11750	15020	53930	47600	138400	107800	119600	121500	82550	35500	9130	12490

CAL YR 1981 TOTAL 188946 MEAN 518 MAX 3030 MIN 15 AC-FT 374800
WTR YR 1982 TOTAL 380802 MEAN 1043 MAX 6500 MIN 85 AC-FT 755300

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 January, which are fair. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--46 years (water years 1915-17, 1922-23, 1942-82), 95.9 ft³/s (2.716 m³/s), 69,480 acre-ft/yr (85.7 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, 5.92 ft (1.804 m) Jan. 24, 1982 (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.--Peak discharges above base of 550 ft³/s (15.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 24	1630	ice jam		*5.92	1.804
Feb. 16	0530	958	27.1	2.89	0.881
Feb. 20	2100	*2,230	63.2	a4.20	1.280
Apr. 13	2330	997	28.2	2.94	0.896
Apr. 23	2330	897	25.4	2.81	0.856

Minimum, 3.3 ft³/s (0.093 m³/s) Oct. 21, 22.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	8.6	30	50	109	277	187	576	119	35	12	5.9
2	6.0	8.1	57	45	105	335	178	603	176	40	12	5.6
3	6.0	7.7	50	47	98	302	168	572	175	70	18	5.9
4	5.3	7.5	48	52	73	275	151	448	165	52	14	8.4
5	5.0	7.3	91	45	66	246	139	364	154	45	12	7.2
6	5.2	7.3	465	35	54	219	133	339	132	42	11	6.2
7	9.8	7.2	272	31	54	211	128	356	117	81	10	5.9
8	10	7.1	178	33	55	210	115	342	104	133	9.8	5.9
9	9.3	7.1	142	38	50	233	119	312	95	109	9.9	5.4
10	9.8	7.1	148	40	62	317	132	292	95	89	9.1	6.4
11	10	7.3	115	45	56	431	418	260	110	78	10	7.8
12	8.4	10	91	50	56	354	802	249	152	65	11	12
13	7.5	13	83	52	62	300	787	254	178	57	9.5	12
14	6.7	15	90	56	68	287	866	267	148	55	8.8	12
15	6.4	13	158	58	433	273	603	292	128	47	8.6	9.6
16	6.0	18	135	58	884	238	457	318	119	41	8.3	8.3
17	5.6	40	103	62	672	214	399	363	108	37	7.6	7.4
18	5.3	34	97	69	542	193	366	375	97	33	7.2	7.0
19	5.0	25	192	66	815	174	314	307	85	30	6.9	11
20	5.0	22	264	64	1380	157	297	266	75	26	6.7	16
21	4.7	26	201	64	1470	136	338	266	69	24	6.7	11
22	4.7	39	153	60	846	136	480	286	71	22	6.2	9.3
23	5.0	42	111	64	570	153	682	291	56	20	6.0	8.3
24	5.1	44	115	95	412	196	778	255	48	18	6.1	7.9
25	5.1	39	99	150	323	214	693	241	44	17	5.6	8.2
26	6.9	37	85	251	278	263	615	256	38	16	5.2	11
27	7.3	35	77	214	250	288	605	212	35	16	5.1	11
28	8.8	49	70	173	219	269	678	183	37	14	5.1	11
29	9.9	87	62	142	---	248	634	142	43	13	6.2	14
30	8.8	46	60	125	---	225	569	115	43	14	7.1	13
31	9.3	---	54	115	---	206	---	105	---	14	6.5	---
TOTAL	213.2	716.3	3896	2449	10062	7580	12831	9507	3016	1353	268.2	270.6
MEAN	6.88	23.9	126	79.0	359	245	428	307	101	43.6	8.65	9.02
MAX	10	87	465	251	1470	431	866	603	178	133	18	16
MIN	4.7	7.1	30	31	50	136	115	105	35	13	5.1	5.4
AC-FT	423	1420	7730	4860	19960	15030	25450	18860	5980	2680	532	537

CAL YR 1981 TOTAL 34273.7 MEAN 93.9 MAX 697 MIN 2.7 AC-FT 67980
WTR YR 1982 TOTAL 52162.3 MEAN 143 MAX 1470 MIN 4.7 AC-FT 103500

14044000 MIDDLE FORK JOHN DAY RIVER AT RITTER, OR

LOCATION.--Lat 44°53'20", long 119°08'25", in SW¼NW¼ 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 good. No regulation. Diversions for irrigation above station.

AVERAGE DISCHARGE.--53 years, 247 ft³/s (6.995 m³/s), 179,000 acre-ft/yr (221 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 discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 16	2000	1,670	47.3	5.57	1.698
Feb. 21	0400	*2,680	75.9	a*6.53	1.990
Apr. 14	1200	1,780	50.4	5.59	1.704
Apr. 28	1430	1,850	52.4	5.67	1.728
May 18	0300	1,640	46.4	5.46	1.664
June 4	2230	1,150	32.6	4.95	1.509
June 13	0130	1,090	30.9	4.88	1.487

Minimum daily, 37 ft³/s (1.05 m³/s) Oct. 5.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	54	85	110	259	679	592	1600	766	437	91	54
2	38	52	109	105	257	828	549	1710	955	445	87	52
3	39	51	115	110	278	739	530	1800	874	561	94	50
4	38	50	94	125	195	738	489	1680	1020	444	91	58
5	37	49	92	96	160	683	451	1450	1100	384	86	62
6	42	49	340	84	130	603	433	1300	981	352	82	55
7	54	48	320	76	130	573	420	1300	890	369	79	53
8	66	48	230	82	135	574	386	1310	806	389	77	51
9	60	48	170	92	150	576	388	1260	757	338	78	51
10	66	48	180	100	148	648	418	1190	757	298	78	52
11	72	50	160	105	137	844	761	1060	805	281	81	57
12	64	51	110	120	138	779	1500	969	914	260	83	78
13	58	61	124	130	152	716	1500	939	1050	231	78	94
14	52	77	210	135	162	750	1710	996	996	233	73	80
15	49	73	470	140	162	800	1450	1130	1030	208	71	73
16	48	80	320	140	757	681	1180	1220	1030	189	69	69
17	47	110	210	150	1400	623	1090	1350	1010	178	67	66
18	46	99	187	170	1240	576	1050	1590	973	168	65	66
19	44	78	583	160	1450	528	916	1410	933	156	65	69
20	42	69	705	155	1910	491	851	1270	923	145	65	125
21	41	69	518	155	2490	454	879	1260	868	136	69	101
22	40	91	369	150	1890	505	1040	1310	760	129	65	81
23	40	102	245	155	1350	543	1350	1410	696	123	58	75
24	41	118	247	230	1010	601	1700	1380	623	117	55	71
25	42	107	244	391	804	664	1800	1440	591	112	55	74
26	48	90	225	565	720	803	1740	1510	539	108	54	81
27	56	84	200	409	660	872	1760	1350	511	123	52	78
28	53	77	187	338	593	824	1810	1170	481	119	52	78
29	63	59	151	302	---	763	1810	994	513	111	53	96
30	58	75	140	282	---	705	1680	853	488	102	61	91
31	55	---	125	278	---	657	---	768	---	98	58	---
TOTAL	1538	2117	7465	5640	18867	20820	32233	39979	24640	7344	2192	2141
MEAN	49.6	70.6	241	182	674	672	1074	1290	821	237	70.7	71.4
MAX	72	118	705	565	2490	872	1810	1800	1100	561	94	125
MIN	37	48	85	76	130	454	386	768	481	98	52	50
AC-FT	3050	4200	14810	11190	37420	41300	63930	79300	48870	14570	4350	4250

CAL YR 1981 TOTAL 84042 MEAN 230 MAX 1240 MIN 19 AC-FT 166700
WTR YR 1982 TOTAL 164976 MEAN 452 MAX 2490 MIN 37 AC-FT 327200

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. Very slight regulation by small reservoirs upstream. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--57 years, 1,248 ft³/s (35.34 m³/s), 904,200 acre-ft/yr (1.11 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 19	2300	7,150	202	8.49	2.588	Apr. 14	0700	7,970	226	8.86	2.701
Feb. 16	0730	14,400	408	11.52	3.511	May 3	0630	8,490	240	9.09	2.771
Feb. 20	2330	*19,400	549	*13.43	4.093	May 18	0630	7,630	216	8.71	2.655

Minimum, 144 ft³/s (4.08 m³/s) Oct. 5,6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	233	437	871	1670	4340	2890	7160	3320	1930	448	222
2	156	226	486	868	1610	4960	2680	7690	4140	2240	409	204
3	147	222	822	831	1660	4470	2600	8120	4180	2610	426	196
4	150	213	598	844	1300	4270	2390	7140	4320	2230	434	201
5	150	203	590	740	1100	4220	2290	6090	4500	1890	393	234
6	147	194	2790	498	980	3660	2200	5600	3930	1720	368	228
7	162	190	2670	443	900	3470	2130	5760	3530	1760	344	206
8	216	190	1620	410	960	3320	2040	5710	3190	2040	330	194
9	256	188	1260	500	860	3270	1970	5330	2950	1870	324	186
10	234	184	1290	560	800	3460	2010	5110	2930	1620	328	188
11	256	181	1190	640	860	4380	3190	4610	3130	1520	328	200
12	296	193	900	720	940	4100	6900	4270	3670	1420	352	249
13	248	212	844	800	1050	3800	6730	4210	4770	1300	342	352
14	220	258	1080	760	2150	3680	7550	4520	4310	1280	310	354
15	206	309	3380	780	6230	4090	6340	5090	4220	1180	295	324
16	195	314	2420	840	13000	3540	5100	5680	4210	1060	287	284
17	188	398	1520	1000	10800	3240	4650	6170	4130	975	275	264
18	184	618	1330	1620	8750	3100	4300	7120	3980	907	265	252
19	181	459	4640	1330	10900	2710	3860	6170	3800	833	258	253
20	178	360	5110	1100	14600	2660	3550	5650	3630	772	256	339
21	171	342	3500	1030	16300	2390	3680	5710	3630	715	253	461
22	165	445	2440	996	10700	2480	4280	6050	3310	668	256	345
23	156	571	1720	1050	7780	2720	5580	6610	2940	625	236	296
24	159	628	1520	2500	5850	3340	7040	6340	2610	592	221	278
25	166	576	1480	3300	4860	3440	7330	6440	2560	564	213	268
26	176	497	1380	4330	4460	3680	7040	6910	2370	533	207	289
27	196	459	1240	3590	4250	3920	7080	6190	2250	597	200	328
28	234	435	1150	2720	3840	3760	7580	5260	2130	598	196	353
29	241	314	970	2260	---	3520	7680	4440	2360	538	203	376
30	283	326	984	1950	---	3250	7210	3730	2220	482	219	408
31	250	---	861	1820	---	3160	---	3330	---	467	246	---
TOTAL	6138	9938	52222	41701	139160	110400	139870	178210	103220	37536	9222	8332
MEAN	198	331	1685	1345	4970	3561	4662	5749	3441	1211	297	278
MAX	296	628	5110	4330	16300	4960	7680	8120	4770	2610	448	461
MIN	147	181	437	410	800	2390	1970	3330	2130	467	196	186
AC-FT	12170	19710	103600	82710	276000	219000	277400	353500	204700	74450	18290	16530

CAL YR 1981 TOTAL 478187 MEAN 1310 MAX 8020 MIN 80 AC-FT 948500
WTR YR 1982 TOTAL 835949 MEAN 2290 MAX 16300 MIN 147 AC-FT 1658000

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.--54 years, 1,863 ft³/s (52.76 m³/s), 1,350,000 acre-ft/yr (1.66 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 20	0730	11,200	317	9.69	2.954
Jan. 27	0400	9,050	256	8.76	2.670
Feb. 16	1900	21,000	595	12.96	3.950
Feb. 21	1100	a*26,900	762	*14.65	4.465
Apr. 14	1600	10,700	303	9.46	2.883
Apr. 29	1330	10,900	309	9.55	2.911
May 3	1530	11,200	317	9.67	2.947
May 18	1330	9,850	279	9.11	2.777
June 5	1030	7,440	211	8.02	2.444

Minimum, 244 ft³/s (6.91 m³/s) Aug. 28, 29.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	363	501	740	1730	3200	6320	4720	9750	4740	3130	647	302
2	319	483	838	1810	3050	7410	4380	10100	5320	3360	603	292
3	306	469	1150	1720	3120	6930	4190	10700	5730	3660	586	273
4	317	458	1180	1740	2850	6540	4040	10200	5730	3670	598	274
5	313	445	1050	1620	2110	6580	3770	8780	7160	3040	588	280
6	314	435	2050	1220	1910	6030	3640	7870	6250	2710	544	309
7	335	427	4190	813	2120	5570	3550	7650	5430	2610	511	312
8	363	423	2710	901	2130	5340	3450	7700	4930	2840	479	284
9	430	422	2120	1050	1970	5240	3250	7380	4500	2830	558	269
10	472	419	1910	1200	1890	5370	3260	7230	4250	2510	471	267
11	472	413	2010	1350	1740	6240	4380	6760	4220	2280	458	271
12	546	416	1660	1500	1840	6600	8910	6080	4570	2170	451	316
13	560	433	1430	1650	1890	6040	9540	5830	6030	2000	479	432
14	499	468	1640	1610	2760	5770	10000	5960	6030	1890	472	590
15	468	553	4080	1630	8960	6350	9510	6560	5780	1860	439	589
16	447	651	5010	1750	18300	5910	7850	7190	5730	1670	422	556
17	433	742	3060	2290	18300	5330	6970	7800	5610	1540	400	509
18	418	985	2380	2860	14900	5000	6470	9150	5420	1440	378	491
19	410	990	6320	2620	14200	4690	6020	8640	5210	1320	360	490
20	403	792	9650	2310	19000	4470	5520	7750	5040	1220	350	539
21	389	703	6810	2100	23000	4240	5450	7410	4990	1120	350	750
22	382	705	5210	2070	19300	4130	5920	7640	4830	1040	351	757
23	378	938	3780	2310	13900	4330	7250	8210	4300	981	345	626
24	369	1100	2950	3920	10300	4840	9120	8270	3840	916	311	576
25	374	1180	2870	5960	8450	5050	10100	8160	3710	860	282	550
26	388	1030	2740	6980	7510	5290	9990	8700	3570	804	266	558
27	409	943	2510	7760	6930	5710	9880	8500	3320	758	261	585
28	442	879	2330	5390	6400	5710	10200	7530	3180	877	251	623
29	474	792	2120	4420	---	5440	10600	6560	3370	824	245	649
30	506	653	1960	3760	---	5090	10100	5530	3480	748	280	710
31	530	---	1920	3450	---	4920	---	4850	---	685	278	---
TOTAL	12829	19848	90378	81494	222030	172480	202030	240440	146270	57363	13014	14029
MEAN	414	662	2915	2629	7930	5564	6734	7756	4876	1850	420	468
MAX	560	1180	9650	7760	23000	7410	10600	10700	7160	3670	647	757
MIN	306	413	740	813	1740	4130	3250	4850	3180	685	245	267
AC-FT	25450	39370	179300	161600	440400	342100	400700	476900	290100	113800	25810	27830

CAL YR 1981 TOTAL 729982 MEAN 2000 MAX 10200 MIN 72 AC-FT 1448000
WTR YR 1982 TOTAL 1272205 MEAN 3485 MAX 23000 MIN 245 AC-FT 2523000

14047390 ROCK CREEK ABOVE WHYTE PARK, NEAR CONDON, OR

LOCATION.--Lat 45°15'53", long 120°01'15", in NE¼SW¼ 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).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder and crest-stage gage. 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.--7 years, 44.5 ft³/s (1.260 m³/s), 32,240 acre-ft/yr (39.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,900 ft³/s (53.8 m³/s) Feb. 16, 1982, gage height, 8.00 ft (2.438 m); maximum gage height, 9.4 ft (2.87 m) Feb. 6, 1979; minimum discharge, 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 6	1230	827	23.4	7.25	2.210	Feb. 16	0800	*1,900	53.8	*8.00	2.438
Dec. 15	1200	328	9.29	6.67	1.911	Feb. 21	0230	995	28.2	6.95	2.118
Dec. 19	1800	1,380	39.1	7.84	2.390	Mar. 2	0030	510	14.4	6.04	1.841
Jan. 24	1200	378	10.7	6.20	1.890	Apr. 11	1900	312	8.84	5.62	1.713

Minimum, 0.40 ft³/s (0.011 m³/s) Aug. 24-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	6.5	25	55	155	388	133	70	16	9.3	.86	.69
2	.93	6.5	44	60	149	420	124	65	16	8.6	.86	.55
3	.93	6.5	88	64	158	340	124	61	16	9.7	1.1	.55
4	.93	7.0	69	65	85	312	121	64	18	10	1.1	.55
5	.93	7.0	67	51	70	302	115	56	26	8.6	.95	.55
6	.93	7.0	468	28	75	284	110	50	25	7.6	.86	.60
7	1.1	7.0	300	31	75	263	110	48	21	7.2	.86	.60
8	1.3	7.0	175	34	70	253	100	47	18	7.6	.78	.55
9	1.3	7.0	132	36	73	249	98	47	15	7.9	.69	.55
10	1.5	7.0	122	36	80	239	98	58	14	6.9	.69	.78
11	2.1	7.0	98	36	80	242	223	61	12	6.0	.78	.95
12	2.4	7.0	82	39	82	223	263	52	13	5.0	.86	1.1
13	2.4	7.0	74	43	88	214	232	44	26	4.3	.78	1.2
14	2.7	7.0	88	45	225	211	246	39	24	4.3	.78	1.1
15	2.7	7.6	279	50	540	226	223	36	19	4.0	.86	1.1
16	2.7	8.9	263	64	1280	205	199	31	16	4.0	.86	.95
17	3.0	15	207	140	982	187	184	33	14	3.6	.69	1.1
18	3.0	20	204	130	690	178	166	49	13	3.5	.60	1.1
19	3.4	16	809	117	720	151	148	40	11	2.9	.55	1.4
20	3.8	14	525	98	822	151	139	35	9.7	2.4	.55	2.2
21	4.2	13	344	100	786	139	130	30	9.3	2.2	.50	2.7
22	4.6	16	243	82	456	145	124	27	10	2.1	.50	2.9
23	4.6	21	188	130	396	142	124	23	9.0	1.9	.50	2.6
24	5.0	33	163	344	319	142	121	21	8.3	1.8	.45	2.9
25	5.0	33	149	316	288	142	108	19	7.9	1.5	.45	3.3
26	5.0	28	135	352	277	154	103	18	8.3	1.4	.40	5.3
27	5.0	28	117	279	284	157	93	18	8.3	1.3	.40	5.0
28	5.5	26	107	232	277	148	90	20	8.6	1.2	.40	4.5
29	5.9	25	74	194	---	151	83	21	9.0	.95	.45	4.3
30	6.5	25	62	172	---	145	77	19	9.3	.95	.60	4.5
31	6.5	---	55	166	---	136	---	18	---	.86	.69	---
TOTAL	96.95	426.0	5756	3589	9582	6639	4209	1220	430.7	139.56	21.40	56.17
MEAN	3.13	14.2	186	116	342	214	140	39.4	14.4	4.50	.69	1.87
MAX	6.5	33	809	352	1280	420	263	70	26	10	1.1	5.3
MIN	.93	6.5	25	28	70	136	77	18	7.9	.86	.40	.55
AC-FT	192	845	11420	7120	19010	13170	8350	2420	854	277	42	111

CAL YR 1981 TOTAL 16387.24 MEAN 44.9 MAX 809 MIN .37 AC-FT 32500
WTR YR 1982 TOTAL 32165.78 MEAN 88.1 MAX 1280 MIN .40 AC-FT 63800

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.--77 years (water years 1906-82), 2,036 ft³/s (57.66 m³/s), 1,475,000 acre-ft/yr (1.82 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 16	2230	7,040	199	6.35	1.935
Dec. 21	0430	12,700	360	8.43	2.569
Jan. 28	0100	9,300	263	7.24	2.207
Feb. 17	1330	22,800	646	11.33	3.453
Feb. 22	1000	*28,300	801	a*12.56	3.828
Apr. 15	1330	11,400	323	7.98	2.432
May 4	1030	11,700	331	8.09	2.466
May 19	1200	10,100	286	7.55	2.301
June 6	0830	7,570	214	6.56	1.999

Minimum, 210 ft³/s (5.95 m³/s) Oct. 1.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260	458	692	2280	4150	7700	5470	10500	5170	3800	777	340
2	380	505	605	1990	3900	7880	5270	10300	5020	3480	719	357
3	374	484	717	2010	3710	8680	4920	10700	5520	3580	693	349
4	341	465	860	2040	3630	8060	4740	11400	5950	3810	664	368
5	325	452	1160	1940	3330	7720	4630	10500	6040	4050	639	360
6	325	446	1750	1970	2540	7700	4390	9140	7340	3380	645	346
7	336	391	2840	1640	2230	7080	4250	8310	6460	3000	638	347
8	325	363	4640	1190	2330	6630	4140	8150	5670	2830	586	353
9	320	363	3260	1050	2470	6350	4010	8160	5190	2940	569	380
10	346	357	2460	1200	2320	6190	3800	7870	4770	3050	542	368
11	374	357	2070	1330	2280	6250	3920	7740	4520	2770	602	352
12	452	357	2060	1500	2020	7080	5090	7190	4500	2470	522	349
13	446	357	1920	1700	2050	7310	9830	6500	4800	2330	504	354
14	484	357	1660	1780	2130	6780	10200	6240	6190	2140	491	374
15	525	352	2370	1840	3250	6620	10900	6340	6210	1990	516	428
16	484	385	5050	1900	11500	7130	9960	6930	5950	1960	529	596
17	458	465	5630	2470	21400	6640	8410	7620	5870	1830	500	651
18	439	553	3740	3140	19600	6050	7630	8280	5760	1690	478	618
19	433	605	3810	3590	16000	5710	7100	9610	5580	1560	463	609
20	415	804	9100	3240	17200	5390	6610	8950	5380	1430	444	643
21	403	777	10900	2720	22000	5160	6100	8130	5320	1320	432	617
22	397	659	7860	2280	26000	4950	6000	7840	5220	1210	427	619
23	397	597	5990	2290	20200	4800	6480	8060	5050	1130	432	812
24	385	620	4570	4520	14700	4950	7880	8640	4570	1070	419	843
25	385	840	3600	5570	11300	5410	9810	8610	4220	1020	400	746
26	380	978	3460	7190	9590	5630	10600	8470	4020	975	392	714
27	380	978	3280	7860	8730	5860	10400	8940	3980	907	362	693
28	385	869	2990	8290	8130	6330	10400	8640	3650	857	353	681
29	397	804	2700	6270	---	6320	10800	7740	3500	813	339	694
30	415	759	2480	5230	---	6030	11100	6800	3560	913	332	728
31	446	---	2220	4550	---	5670	---	5820	---	840	324	---
TOTAL	12212	16757	106444	96570	248690	200060	214840	258120	154980	65145	15733	15689
MEAN	394	559	3434	3115	8882	6454	7161	8326	5166	2101	508	523
MAX	525	978	10900	8290	26000	8680	11100	11400	7340	4050	777	843
MIN	260	352	605	1050	2020	4800	3800	5820	3500	813	324	340
AC-FT	24220	33240	211100	191500	493300	396800	426100	512000	307400	129200	31210	31120

CAL YR 1981 TOTAL 789706 MEAN 2164 MAX 11600 MIN 60 AC-FT 1566000
WTR YR 1982 TOTAL 1405240 MEAN 3850 MAX 26000 MIN 260 AC-FT 2787000

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 September 1981.
WATER TEMPERATURES: October 1962 to September 1968, October 1975 to September 1981.
SEDIMENT CONCENTRATIONS: October 1962 to September 1968.
SEDIMENT DISCHARGE: October 1962 to September 1968.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT											
14...	0930	480	312	8.0	10.0	10.8	K23	55	128	28	14
DEC											
16...	1200	4180	168	--	4.0	12.6	--	--	57	14	5.3
FEB											
03...	1200	3850	211	--	5.5	12.0	62	100	91	22	8.8
APR											
06...	1140	4200	196	--	7.5	11.0	49	35	85	21	7.8
JUN											
02...	1030	4910	137	7.6	14.5	10.3	K12	37	58	14	5.6
JUL											
27...	1045	926	256	8.2	24.0	8.5	K17	61	92	22	9.0

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (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, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT										
14...	16	2.2	150	<5.0	3.3	.2	.070	<.10	.38	--
DEC										
16...	11	2.4	76	5.0	2.5	.2	.070	.20	1.10	.46
FEB										
03...	11	1.4	100	<5.0	2.6	.1	<.060	.44	.47	.18
APR										
06...	9.1	1.5	97	5.0	1.9	.2	<.060	.12	.34	.09
JUN										
02...	6.4	1.3	66	5.0	1.4	.1	<.060	<.10	.80	.03
JUL										
27...	12	2.3	112	10	2.2	.1	.100	<.10	.70	.09

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, TOTAL (MG/L AS P)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	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										
14...	.010	.020	25	197	--	255	1.0	2	2.6	74
DEC										
16...	.120	.320	30	135	117	1520	1000	1600	18300	96
FEB										
03...	.100	.090	34	146	--	1520	20	64	665	78
APR										
06...	.070	<.010	30	143	135	1620	7.8	33	374	65
JUN										
02...	.040	.020	28	108	101	1430	12	62	822	60
JUL										
27...	.040	.050	26	146	151	365	1.7	10	25	72

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)
FEB									
03...	<.01	<.10	<.01	<.01	<.01	<.01	<.01	<.10	<.01
APR									
06...	<.01	<.10	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
FEB									
03...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
APR									
06...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01

DATE	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)
FEB									
03...	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<1	<.01
APR									
06...	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<1	<.01

DATE	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
OCT									
14...	<.1	<1.0	<.1	.2	<.1	<.1	<.1	<.1	<.1
APR									
06...	<.1	<1.0	<.1	.1	.1	<.1	<.1	<.1	<.1

DATE	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	PERTHANE IN BOTTOM MATERIL (UG/KG)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT								
14...	<.1	<.1	<.1	<.1	<1.00	<1	<1.0	<10
APR								
06...	<.1	<.1	<.1	<.1	<1.00	<1	<1.0	<10

K - Results based on colony count outside acceptable range (non-ideal colony count).

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	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)	COBALT, DIS-SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)
OCT										
14...	2	3	21	100	<1	1	<10	<10	<3	4
DEC										
16...	1	10	21	300	<1	<1	<10	20	<3	20
FEB										
03...	1	1	18	<100	<1	<1	<10	10	<3	6
APR										
06...	1	1	17	<100	<1	<1	<10	10	<1	2
JUL										
27...	1	1	20	<100	<1	<1	<10	<10	<1	<1

DATE	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)	MERCURY DIS-SOLVED (UG/L AS HG)
OCT									
14...	3	7	<10	140	1	1	<1	10	<.1
DEC									
16...	10	60	300	45000	2	4	11	1200	.2
FEB									
03...	3	11	64	2500	2	2	3	--	<.1
APR									
06...	2	8	70	1400	<1	3	6	40	.1
JUL									
27...	5	3	9	260	1	<1	3	20	<.1

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SELE-NIUM, TOTAL (UG/L AS SE)	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)
OCT									
14...	.1	3	4	<1	<1	<1	<1	<3	20
DEC									
16...	--	<1	32	<1	<1	<1	<1	12	110
FEB									
03...	.1	2	4	<1	<1	<1	1	5	20
APR									
06...	.2	1	8	<1	<1	<1	<1	33	10
JUL									
27...	.2	<1	1	<1	<1	<1	<1	7	20

14050000 DESCHUTES RIVER BELOW SNOW CREEK, NEAR LA PINE, OR

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.

DRAINAGE AREA.--132 mi² (342 km²), including Sparks, Elk, and Mud Lake basins, which have no surface outflow to Deschutes River; hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only October 1937, published in WSP 1318. Published as "near Lapine" 1937-64.

REVISED RECORDS.--WSP 1248: 1951.

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.

REMARKS.--Records good. No regulation. Crater Creek Canal diverts water to Tumalo Creek basin from tributaries of Soda Creek. Stream is spring fed and peak discharge may occur several months after the precipitation which caused it.

AVERAGE DISCHARGE.--45 years, 149 ft³/s (4.220 m³/s), 108,000 acre-ft/yr (133 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, 340 ft³/s (9.63 m³/s) Aug. 19, gage height, 2.06 ft (0.628 m); minimum, 78 ft³/s (2.21 m³/s) Feb. 10, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	89	84	89	85	85	82	93	171	201	288	332
2	99	87	85	91	85	85	82	95	168	210	290	330
3	99	87	82	93	85	87	82	95	174	207	292	330
4	97	87	82	101	84	87	81	93	177	204	296	326
5	97	85	87	89	80	85	81	93	186	204	302	324
6	99	85	95	89	80	85	81	95	183	210	306	318
7	97	85	87	87	84	85	81	99	186	210	308	316
8	97	85	85	87	80	85	81	99	183	207	310	314
9	99	85	85	87	80	85	81	97	186	207	314	314
10	99	85	85	87	80	85	82	99	186	210	316	312
11	99	85	85	87	81	87	85	99	192	210	318	310
12	97	87	85	87	81	84	84	103	207	210	320	310
13	97	85	87	85	89	84	85	105	201	219	322	308
14	95	85	89	87	91	84	85	107	192	219	326	304
15	95	87	91	87	87	84	82	111	186	222	328	302
16	95	87	87	87	89	84	82	113	183	222	328	298
17	95	87	87	87	89	82	82	115	186	228	330	296
18	93	85	91	85	89	84	81	111	186	234	332	294
19	93	85	101	85	91	84	81	113	186	237	336	296
20	93	85	93	85	91	84	81	115	186	240	332	300
21	93	87	91	85	91	82	81	119	189	246	334	292
22	91	85	89	87	89	82	82	121	186	249	334	288
23	91	85	89	89	89	82	85	125	183	255	336	284
24	91	84	91	89	87	82	85	125	189	258	336	284
25	91	82	93	87	87	84	85	135	192	264	332	282
26	91	82	95	89	87	84	87	140	195	270	332	280
27	89	82	91	87	85	82	87	150	195	274	334	278
28	91	81	93	87	85	84	91	150	198	278	332	280
29	91	82	91	85	---	82	89	159	204	278	336	280
30	91	82	91	85	---	84	91	162	201	282	334	276
31	89	---	91	85	---	84	---	165	---	286	336	---
TOTAL	2933	2550	2758	2717	2401	2607	2505	3601	5637	7251	9970	9058
MEAN	94.6	85.0	89.0	87.6	85.8	84.1	83.5	116	188	234	322	302
MAX	99	89	101	101	91	87	91	165	207	286	336	332
MIN	89	81	82	85	80	82	81	93	168	201	288	276
AC-FT	5820	5060	5470	5390	4760	5170	4970	7140	11180	14380	19780	17970

CAL YR 1981 TOTAL 33919 MEAN 92.9 MAX 105 MIN 81 AC-FT 67280
WTR YR 1982 TOTAL 53988 MEAN 148 MAX 336 MIN 80 AC-FT 107100

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 mi^2 (42.7 km^2), 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 prior to Mar. 25, excellent thereafter. No regulation or diversions above station.

AVERAGE DISCHARGE.--48 years, 62.3 ft^3/s (1.764 m^3/s), 45,140 acre-ft/yr (55.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 178 ft^3/s (5.04 m^3/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 ft^3/s (0.74 m^3/s) May 26-31, Nov. 23 to Dec. 4, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 108 ft^3/s (3.06 m^3/s) May 26, gage height, 0.87 ft (0.265 m); minimum, 39 ft^3/s (1.10 m^3/s) Jan. 22, Feb. 7-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	44	41	44	41	48	50	60	92	87	92	92
2	44	43	41	44	41	48	50	60	94	87	92	92
3	44	43	41	44	41	48	50	60	94	87	92	92
4	44	43	41	44	41	48	50	62	92	87	92	92
5	43	43	43	44	41	48	50	62	92	87	92	92
6	43	43	44	43	41	48	50	62	89	87	92	89
7	43	43	43	43	39	48	50	64	89	87	92	89
8	43	43	43	43	39	48	50	66	92	87	94	89
9	43	43	43	43	39	48	50	66	89	87	94	89
10	43	43	43	43	39	48	50	68	92	87	94	89
11	46	43	43	41	39	50	52	70	94	87	94	89
12	46	43	43	41	39	50	52	72	96	87	92	89
13	46	43	43	41	39	50	52	77	92	87	92	89
14	44	43	43	43	41	50	52	80	92	87	92	87
15	44	43	43	43	41	50	52	82	89	89	94	87
16	44	43	43	43	43	50	52	84	89	89	92	84
17	44	43	44	43	43	50	52	84	89	89	92	84
18	44	43	44	43	43	50	52	87	89	89	92	84
19	44	43	46	43	44	50	52	89	89	89	92	87
20	44	43	46	43	44	50	52	92	89	89	92	87
21	44	43	44	43	46	50	52	92	87	89	92	87
22	44	43	44	43	46	50	52	94	87	89	92	84
23	44	43	44	43	46	50	54	94	87	89	92	84
24	44	43	44	43	44	50	54	94	87	92	92	84
25	44	43	44	43	46	50	54	99	87	92	92	84
26	44	41	44	43	48	50	56	102	87	92	92	84
27	44	41	44	43	48	50	56	102	87	92	92	84
28	44	41	44	41	48	50	56	96	89	94	92	84
29	44	41	44	41	---	50	58	94	89	94	92	84
30	44	41	44	41	---	50	58	94	87	92	92	82
31	44	---	44	41	---	50	---	92	---	92	92	---
TOTAL	1364	1281	1345	1324	1190	1530	1570	2500	2697	2759	2862	2613
MEAN	44.0	42.7	43.4	42.7	42.5	49.4	52.3	80.6	89.9	89.0	92.3	87.1
MAX	46	44	46	44	48	50	58	102	96	94	94	92
MIN	43	41	41	41	39	48	50	60	87	87	92	82
AC-FT	2710	2540	2670	2630	2360	3030	3110	4960	5350	5470	5680	5180

CAL YR 1981 TOTAL 17364 MEAN 47.6 MAX 59 MIN 41 AC-FT 34440
WTR YR 1982 TOTAL 23035 MEAN 63.1 MAX 102 MIN 39 AC-FT 45690

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 excellent except those for January and February, which are good. Some regulation by fish screens at Cultus Lake since 1962. No diversion above station.

AVERAGE DISCHARGE.--45 years (water years 1938-82), 22.6 ft³/s (0.640 m³/s), 16,370 acre-ft/yr (20.2 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, 127 ft³/s (3.60 m³/s) May 26, gage height, 2.77 ft (0.844 m); no flow Oct. 1-9, Oct. 12 to Nov. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	2.0	45	26	77	29	25	107	102	24	8.3
2	.00	.00	2.9	45	26	74	29	26	106	100	22	8.3
3	.00	.00	3.2	46	26	71	30	26	105	97	22	8.3
4	.00	.00	3.5	50	25	69	30	26	103	94	20	7.9
5	.00	.00	4.5	47	25	65	29	27	101	91	20	7.5
6	.00	.00	8.3	45	24	62	29	28	100	88	19	7.5
7	.00	.00	9.2	43	22	59	29	26	99	85	19	7.1
8	.00	.00	11	40	22	57	28	25	97	81	19	7.1
9	.00	.00	12	36	21	54	27	26	96	77	18	6.7
10	.06	.00	13	32	21	52	27	27	96	75	16	6.3
11	.04	.00	13	30	21	53	28	27	96	71	16	6.3
12	.00	.00	14	28	21	51	28	28	101	67	15	6.3
13	.00	.00	16	26	21	49	28	28	103	64	15	5.9
14	.00	.00	19	25	22	47	29	29	105	61	14	5.6
15	.00	.06	22	25	24	45	29	29	107	58	15	5.2
16	.00	.40	22	25	25	43	29	31	108	54	14	5.2
17	.00	.80	24	25	28	42	28	33	109	53	14	4.9
18	.00	.80	26	25	32	40	28	36	113	50	14	4.9
19	.00	.80	36	25	39	39	27	38	117	47	13	4.9
20	.00	.95	47	25	44	38	26	42	117	45	13	5.6
21	.00	1.4	49	25	54	36	26	49	117	43	13	5.2
22	.00	1.4	47	25	66	35	25	61	117	40	12	5.2
23	.00	1.8	47	27	83	34	25	71	117	38	12	5.2
24	.00	1.8	50	28	90	33	25	84	117	37	11	5.6
25	.00	1.6	47	29	89	32	25	109	114	34	11	5.2
26	.00	1.8	50	29	87	31	25	125	113	33	11	5.2
27	.00	1.8	49	30	84	31	25	126	111	31	10	5.2
28	.00	1.8	49	30	80	30	25	124	107	29	9.7	5.2
29	.00	1.6	47	29	---	30	25	120	107	28	9.7	5.2
30	.00	1.6	46	28	---	29	26	117	106	27	9.2	5.2
31	.00	---	45	28	---	29	---	113	---	25	8.8	---
TOTAL	.10	20.41	834.6	996	1148	1437	819	1682	3212	1825	459.4	182.2
MEAN	.003	.68	26.9	32.1	41.0	46.4	27.3	54.3	107	58.9	14.8	6.07
MAX	.06	1.8	50	50	90	77	30	126	117	102	24	8.3
MIN	.00	.00	2.0	25	21	29	25	25	96	25	8.8	4.9
AC-FT	.2	40	1660	1980	2280	2850	1620	3340	6370	3620	911	361

CAL YR 1981 TOTAL 5871.54 MEAN 16.1 MAX 50 MIN .00 AC-FT 11650
WTR YR 1982 TOTAL 12615.71 MEAN 34.6 MAX 126 MIN .00 AC-FT 25020

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 mi^2 (55.7 km^2), 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 good. No regulation or diversion above station.

AVERAGE DISCHARGE.--45 years (water years 1938-82), 7.48 ft^3/s (0.212 m^3/s), 5,420 acre-ft/yr (6.68 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 200 ft^3/s (5.66 m^3/s), estimated, Dec. 25, 1964; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 75 ft^3/s (2.12 m^3/s) May 26, gage height, 2.64 ft (0.805 m); minimum, 0.06 ft^3/s (0.002 m^3/s) Oct. 15-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.12	3.3	16	6.7	33	9.1	19	45	16	.80	.27
2	.09	.12	4.4	15	6.2	30	9.1	21	42	14	.65	.27
3	.09	.12	5.0	13	6.0	28	10	22	41	14	.65	.27
4	.09	.12	5.4	14	5.8	26	10	24	41	14	.65	.27
5	.09	.09	5.4	14	5.0	24	9.4	25	40	13	.65	.24
6	.09	.09	11	12	4.5	21	8.8	26	39	12	.70	.24
7	.09	.09	15	10	4.5	19	8.5	29	37	11	.65	.24
8	.09	.09	16	9.7	4.6	18	8.3	31	36	9.7	.70	.24
9	.09	.09	18	9.1	4.6	17	7.8	33	33	8.5	.70	.24
10	.15	.09	19	8.5	4.6	16	7.5	33	32	7.8	.75	.24
11	.12	.09	19	7.8	4.6	16	8.8	33	30	7.0	.70	.24
12	.09	.12	18	7.5	4.6	16	10	33	33	6.0	.75	.30
13	.09	.12	16	7.0	4.6	15	11	34	37	5.4	.75	.21
14	.09	.15	16	6.2	8.8	14	12	37	37	4.8	.75	.21
15	.06	.15	18	6.0	13	14	13	37	37	4.1	.80	.21
16	.06	.15	20	5.8	16	13	13	41	35	3.6	.75	.21
17	.06	.21	20	6.0	19	12	13	43	32	3.3	.75	.21
18	.06	.18	19	6.0	21	12	12	46	30	3.0	.75	.21
19	.06	.15	21	6.0	31	11	11	47	29	2.7	.70	.24
20	.06	.15	24	6.0	47	10	10	47	29	2.6	.70	.60
21	.06	.21	26	6.0	68	10	9.4	47	30	2.4	.65	.40
22	.06	.27	26	5.8	74	9.7	9.4	51	29	2.0	.60	.35
23	.06	.45	24	6.0	72	9.1	9.7	58	26	1.8	.53	.35
24	.06	.75	22	7.2	64	8.8	11	62	23	1.7	.45	.50
25	.06	.96	21	9.4	56	8.3	12	66	23	1.5	.40	.40
26	.06	1.2	21	9.7	47	8.3	13	71	21	1.4	.35	.40
27	.06	1.4	21	9.4	43	8.5	14	74	19	1.3	.30	.50
28	.09	1.5	21	8.8	37	8.8	15	69	17	1.2	.27	.60
29	.09	1.7	20	8.3	---	8.8	17	60	17	1.1	.40	.75
30	.12	2.4	18	7.8	---	8.5	18	51	17	1.0	.45	.70
31	.12	---	16	6.7	---	9.1	---	47	---	.88	.27	---
TOTAL	2.55	13.33	529.5	270.7	683.1	462.9	330.8	1317	937	178.78	18.97	10.11
MEAN	.082	.44	17.1	8.73	24.4	14.9	11.0	42.5	31.2	5.77	.61	.34
MAX	.15	2.4	26	16	74	33	18	74	45	16	.80	.75
MIN	.06	.09	3.3	5.8	4.5	8.3	7.5	19	17	.88	.27	.21
AC-FT	5.1	26	1050	537	1350	918	656	2610	1860	355	38	20

CAL YR 1981 TOTAL 1899.42 MEAN 5.20 MAX 38 MIN .00 AC-FT 3770
WTR YR 1982 TOTAL 4754.74 MEAN 13.0 MAX 74 MIN .06 AC-FT 9430

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.--48 years, 23.8 ft^3/s (0.674 m^3/s), 17,240 acre-ft/yr (21.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59 ft^3/s (1.67 m^3/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, 46 ft^3/s (1.30 m^3/s) June 28; maximum gage height, 1.89 ft (0.576 m) July 17; minimum discharge, 6.8 ft^3/s (0.19 m^3/s) Nov. 13, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.8	8.5	14	17	22	25	33	39	45	42	39
2	11	9.0	8.5	14	17	21	26	33	39	45	42	39
3	11	9.0	9.8	14	17	21	26	33	39	45	42	39
4	11	9.0	11	14	16	21	26	34	40	45	42	39
5	11	9.0	9.8	15	16	21	26	34	42	45	42	39
6	11	8.3	9.8	15	16	21	26	34	40	44	42	39
7	11	8.3	11	15	16	21	26	35	40	44	42	39
8	11	8.3	11	15	16	21	26	35	40	44	40	38
9	11	8.3	11	15	16	21	26	35	42	44	40	38
10	11	8.3	11	15	16	22	26	37	42	44	40	37
11	11	8.3	11	15	16	21	26	37	42	44	40	37
12	11	8.3	11	15	16	22	27	37	43	44	40	37
13	9.8	9.0	11	15	17	22	26	37	43	44	42	37
14	9.8	9.0	11	15	16	22	27	37	44	44	40	37
15	9.8	9.0	12	15	16	22	27	37	44	44	42	37
16	9.8	9.8	12	16	16	22	28	37	43	44	42	37
17	9.8	8.3	13	16	17	23	28	37	43	45	42	37
18	11	9.8	13	16	18	23	28	37	43	43	42	35
19	9.8	9.8	14	17	18	23	28	37	43	42	42	35
20	9.8	9.8	13	17	19	23	29	37	44	42	42	35
21	9.8	9.0	14	16	20	23	29	38	44	42	42	35
22	9.8	9.8	14	17	21	23	30	38	44	42	42	34
23	9.8	9.0	14	17	21	24	30	38	44	42	43	33
24	9.8	9.8	14	17	22	24	30	38	44	42	44	33
25	9.8	9.0	14	18	23	24	31	38	44	43	42	33
26	9.8	9.0	14	17	22	25	31	38	45	43	40	33
27	9.8	9.0	14	17	21	24	32	38	45	42	40	33
28	9.8	9.0	14	16	22	25	32	38	45	42	40	33
29	9.0	9.0	14	16	---	25	33	38	45	42	40	32
30	9.0	9.0	14	17	---	25	33	38	45	42	40	32
31	9.8	---	14	16	---	25	---	39	---	42	40	---
TOTAL	317.8	270.0	376.4	487	504	702	844	1132	1280	1345	1281	1081
MEAN	10.3	9.00	12.1	15.7	18.0	22.6	28.1	36.5	42.7	43.4	41.3	36.0
MAX	11	9.8	14	18	23	25	33	39	45	45	44	39
MIN	9.0	8.3	8.5	14	16	21	25	33	39	42	40	32
AC-FT	630	536	747	966	1000	1390	1670	2250	2540	2670	2540	2140

CAL YR 1981 TOTAL 5272.2 MEAN 14.4 MAX 20 MIN 8.3 AC-FT 10460
WTR YR 1982 TOTAL 9620.2 MEAN 26.4 MAX 45 MIN 8.3 AC-FT 19080

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 mi^2 (658 km^2), 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 Bureau of Reclamation); 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 hm^3) 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 hm^3) June 5-7, 1943, elevation, 4,446.0 ft (1,355.14 m); no usable contents at times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 46,840 acre-ft (57.8 hm^3) June 2, elevation, 4,443.23 ft (1,354.296 m); minimum, 11,010 acre-ft (13.6 hm^3) Oct. 6, elevation, 4,434.02 ft (1,351.489 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	4,434.10	11,260	-
Oct. 31	4,435.24	14,920	+3,660
Nov. 30	4,437.05	21,200	+6,280
Dec. 31	4,439.86	32,090	+10,800
CAL YR 1981	-	-	+6,000
Jan. 31	4,439.71	31,480	-610
Feb. 28	4,439.85	32,050	+570
Mar. 31	4,441.63	39,620	+7,570
Apr. 30	4,442.76	44,680	+5,060
May 31	4,443.16	46,510	+1,830
June 30	4,442.73	44,540	-1,970
July 31	4,441.50	39,050	-5,490
Aug. 31	4,440.85	36,230	-2,820
Sept.30	4,440.12	33,160	-3,070
WTR YR 1982	-	-	+21,900

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 mi^2 (658 km^2), 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 good. Flow regulated since 1922 by Crane Prairie Reservoir (see station 14053500). No diversion above station.

AVERAGE DISCHARGE.--64 years, 211 ft^3/s (5.976 m^3/s), 152,900 acre-ft/yr (189 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,170 ft^3/s (33.1 m^3/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, 463 ft^3/s (13.1 m^3/s) Sept. 20, gage height, 2.03 ft (0.619 m); minimum, 2.2 ft^3/s (0.062 m^3/s) Oct. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168	88	63	68	206	52	49	162	285	446	434	455
2	168	88	63	68	206	52	49	162	382	446	434	455
3	168	88	65	68	206	52	49	162	446	446	434	455
4	168	88	65	68	206	52	49	162	446	446	434	455
5	168	72	65	68	206	52	48	162	446	446	434	455
6	146	59	65	68	206	51	48	162	446	446	434	450
7	101	59	65	68	206	51	48	162	446	450	434	450
8	101	59	65	123	206	51	48	162	446	446	438	450
9	101	61	65	209	206	51	48	162	446	446	450	450
10	101	61	65	209	206	51	48	162	446	446	459	450
11	99	61	65	209	206	51	48	162	446	446	459	450
12	90	61	65	209	206	51	48	162	446	446	459	450
13	88	61	67	209	206	51	48	162	446	446	459	455
14	88	61	67	209	206	51	48	174	446	446	459	455
15	88	61	67	209	206	51	48	193	446	446	459	450
16	88	61	67	209	206	49	46	193	442	442	459	450
17	90	63	67	206	206	49	46	193	442	442	459	455
18	90	63	67	206	209	49	46	241	442	442	459	459
19	90	63	67	206	209	49	46	285	442	442	455	459
20	90	63	67	206	209	49	46	285	442	442	455	459
21	90	63	67	206	209	49	46	285	442	442	455	459
22	90	63	67	206	209	49	46	285	442	438	455	455
23	90	63	67	206	209	49	44	285	442	438	455	455
24	90	63	67	206	209	49	44	285	442	438	455	455
25	90	63	68	206	150	49	44	285	442	438	455	455
26	90	63	68	206	100	49	44	285	442	438	455	450
27	78	63	68	206	52	49	44	285	442	438	455	455
28	86	63	68	206	52	49	92	285	442	438	455	455
29	86	63	68	206	---	49	162	285	446	438	455	450
30	88	63	68	206	---	49	162	285	446	438	455	450
31	88	---	68	206	---	49	---	285	---	434	455	---
TOTAL	3257	1971	2056	5361	5319	1554	1682	6805	13103	13722	13972	13606
MEAN	105	65.7	66.3	173	190	50.1	56.1	220	437	443	451	454
MAX	168	88	68	209	209	52	162	285	446	450	459	459
MIN	78	59	63	68	52	49	44	162	285	434	434	450
AC-FT	6460	3910	4080	10630	10550	3080	3340	13500	25990	27220	27710	26990

CAL YR 1981 TOTAL 58047 MEAN 159 MAX 472 MIN 59 AC-FT 115100
WTR YR 1982 TOTAL 82408 MEAN 226 MAX 459 MIN 44 AC-FT 163500

14054500 BROWN CREEK NEAR LA PINE, OR

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.

DRAINAGE AREA.--21 mi² (54 km²), approximately, hydrologic drainage boundary uncertain owing to ground-water exchange.

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."

REVISED RECORDS.--WSP 1448: 1922-24. WDR OR-78-1: 1977.

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.

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

AVERAGE DISCHARGE.--47 years, 38.3 ft³/s (1.085 m³/s), 27,750 acre-ft/yr (34.2 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 recorded discharge, 56 ft³/s (1.59 m³/s) Aug. 19, gage height, 0.83 ft (0.253 m); minimum daily, 24 ft³/s (0.68 m³/s) Nov. 27 to Jan. 22, Jan. 24 to Feb. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	27	24	24	24	30	32	44	45	52	52	54
2	27	27	24	24	24	30	32	44	45	52	52	54
3	27	27	24	24	24	30	32	44	45	51	52	54
4	27	27	24	24	24	30	33	44	45	51	53	54
5	27	27	24	24	24	30	32	44	45	51	53	54
6	27	27	24	24	24	30	33	44	45	50	52	54
7	28	27	24	24	24	30	33	44	45	50	53	54
8	28	26	24	24	24	30	33	44	45	50	53	54
9	27	26	24	24	24	30	33	44	45	49	53	54
10	27	26	24	24	24	30	34	44	45	50	54	54
11	27	26	24	24	26	30	37	44	46	50	54	54
12	27	26	24	24	26	30	36	44	48	50	54	54
13	27	27	24	24	26	30	38	44	48	50	54	54
14	27	27	24	24	26	30	36	44	48	50	54	54
15	27	27	24	24	26	30	34	44	48	50	54	54
16	27	28	24	24	28	30	34	44	48	50	54	54
17	27	28	24	24	28	30	35	44	48	51	54	54
18	27	27	24	24	28	31	35	44	48	50	54	54
19	27	26	24	24	28	31	35	44	48	50	55	54
20	27	25	24	24	28	31	36	44	48	51	55	54
21	27	26	24	24	28	31	37	43	48	51	55	54
22	27	26	24	24	30	31	39	42	48	51	55	54
23	27	26	24	25	30	31	40	42	48	52	55	54
24	27	26	24	24	30	31	41	42	49	52	55	54
25	27	26	24	24	30	31	41	43	50	51	55	54
26	26	25	24	24	30	32	41	42	50	51	55	54
27	26	24	24	24	30	32	43	43	51	51	55	54
28	27	24	24	24	30	32	43	43	51	51	55	54
29	27	24	24	24	---	32	44	43	52	52	55	54
30	27	24	24	24	---	32	44	43	52	52	55	54
31	27	---	24	24	---	32	---	44	---	52	55	---
TOTAL	837	785	744	745	748	950	1096	1350	1427	1574	1674	1620
MEAN	27.0	26.2	24.0	24.0	26.7	30.6	36.5	43.5	47.6	50.8	54.0	54.0
MAX	28	28	24	25	30	32	44	44	52	52	55	54
MIN	26	24	24	24	24	30	32	42	45	49	52	54
AC-FT	1660	1560	1480	1480	1480	1880	2170	2680	2830	3120	3320	3210

CAL YR 1981 TOTAL 9640 MEAN 26.4 MAX 31 MIN 24 AC-FT 19120
WTR YR 1982 TOTAL 13550 MEAN 37.1 MAX 55 MIN 24 AC-FT 26880

NOTE.--No gage-height record Nov. 26 to Jan. 11, Feb. 4 to Mar. 30, Aug. 21 to Sept. 30.

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 Bureau of Reclamation). 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 Bureau of Reclamation.

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, 196,000 acre-ft (242 hm³) Apr. 22, 23, elevation, 4,337.29 ft (1,322.006 m); minimum observed, 22,960 acre-ft (28.3 hm³) Oct. 1, elevation, 4,296.54 ft (1,309.585 m).

MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	4,296.34	22,660	-
Oct. 31	4,307.70	43,590	+20,930
Nov. 30	4,319.06	73,180	+29,590
Dec. 31	4,326.37	104,000	+30,820
CAL YR 1981	-	-	-3,400
Jan. 31	4,331.12	136,800	+32,800
Feb. 28	4,334.44	166,400	+29,600
Mar. 31	4,336.31	185,400	+19,000
Apr. 30	4,336.88	191,500	+6,100
May 31	4,334.16	163,700	-27,800
June 30	4,331.92	143,400	-20,300
July 31	4,329.85	126,900	-16,500
Aug. 31	4,325.99	101,900	-25,000
Sept.30	4,326.15	102,800	+900
WTR YR 1982	-	-	+80,140

14056500 DESCHUTES RIVER BELOW WICKIUP RESERVOIR, NEAR LA PINE, OR

LOCATION.--Lat 43°41'10", long 121°41'13", in NW¼NE¼ 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.--44 years, 737 ft³/s (20.87 m³/s), 534,000 acre-ft/yr (658 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, 1,620 ft³/s (45.9 m³/s) July 30, Aug. 27, 29; maximum gage height, 6.54 ft (1.993 m) Aug. 29; minimum discharge, 18 ft³/s (0.51 m³/s) Oct. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	644	23	33	24	29	31	31	823	1180	672	1570	1440
2	644	24	35	25	27	31	31	826	1160	679	1530	1380
3	648	24	35	25	29	31	31	840	1140	518	1560	1350
4	648	25	31	24	30	31	31	886	1070	476	1600	1350
5	627	25	31	24	29	32	31	886	1020	491	1610	1350
6	574	26	32	24	29	32	31	861	1060	545	1600	1350
7	564	24	32	25	30	30	31	868	1130	567	1600	1350
8	539	23	32	25	27	29	31	879	1180	725	1600	1350
9	539	24	31	25	29	27	31	875	1310	1010	1560	1340
10	542	26	30	25	29	27	138	879	1460	1170	1480	1360
11	542	26	25	26	30	29	295	882	1550	1300	1420	1390
12	503	26	24	26	27	29	288	889	1540	1380	1400	1390
13	482	27	24	26	29	29	243	938	1490	1530	1370	1350
14	452	26	25	27	31	30	225	945	1430	1530	1350	1290
15	413	27	25	25	32	29	213	949	1430	1520	1350	1280
16	416	27	26	26	33	30	210	952	1430	1520	1350	1230
17	320	29	26	25	32	30	157	970	1460	1460	1350	1190
18	44	29	25	26	32	30	122	980	1480	1380	1340	1180
19	37	29	26	27	32	30	132	980	1480	1350	1340	1180
20	21	29	24	29	32	30	159	1060	1480	1350	1330	935
21	23	29	24	27	32	30	187	1150	1480	1430	1330	819
22	23	30	24	27	31	30	371	1170	1400	1480	1340	819
23	23	30	25	29	30	31	530	1170	1370	1510	1380	819
24	23	30	25	30	30	31	644	1240	1380	1510	1470	753
25	25	31	25	29	30	31	725	1340	1380	1530	1560	721
26	23	32	26	26	30	31	739	1460	1320	1570	1570	721
27	23	31	25	25	30	31	746	1490	1040	1600	1620	704
28	23	32	26	26	31	31	798	1420	854	1600	1610	658
29	24	32	25	26	---	31	823	1350	728	1610	1610	630
30	25	33	24	27	---	32	826	1350	648	1610	1490	592
31	24	---	24	27	---	31	---	1260	---	1570	1460	---
TOTAL	9458	829	845	808	842	937	8850	32568	38080	38193	45750	33271
MEAN	305	27.6	27.3	26.1	30.1	30.2	295	1051	1269	1232	1476	1109
MAX	648	33	35	30	33	32	826	1490	1550	1610	1620	1440
MIN	21	23	24	24	27	27	31	823	648	476	1330	592
AC-FT	18760	1640	1680	1600	1670	1860	17550	64600	75530	75760	90750	65990

CAL YR 1981 TOTAL 225835 MEAN 619 MAX 1610 MIN 21 AC-FT 447900
WTR YR 1982 TOTAL 210431 MEAN 577 MAX 1620 MIN 21 AC-FT 417400

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.--44 years, 149 ft³/s (4.220 m³/s), 108,000 acre-ft/yr (133 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, 174 ft³/s (4.93 m³/s) June 28, gage height, 1.62 ft (0.494 m); minimum recorded, 90 ft³/s (2.55 m³/s) Oct. 28, Nov. 1, 22, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	102	100	105	105	115	130	138	149	150	150	147
2	102	102	100	105	105	115	134	138	149	150	150	147
3	102	102	100	107	105	115	132	137	149	149	152	147
4	102	100	100	107	105	115	129	138	149	149	150	147
5	102	100	105	105	105	115	129	138	149	145	150	147
6	104	100	105	105	105	120	129	138	149	145	150	147
7	102	100	100	105	105	120	127	138	149	147	150	147
8	102	100	100	105	105	120	129	140	149	147	149	147
9	104	100	102	105	105	120	127	142	149	149	150	147
10	104	100	100	105	105	120	129	143	149	147	150	147
11	102	100	100	105	105	120	130	143	150	147	150	147
12	102	102	100	105	105	120	130	143	154	149	149	147
13	102	102	102	105	105	120	130	145	152	149	149	147
14	102	102	104	105	105	120	130	145	152	147	147	147
15	102	104	104	105	105	127	129	145	152	147	147	147
16	102	104	102	105	110	127	129	143	152	147	147	147
17	102	102	102	105	110	127	130	147	152	147	145	147
18	102	102	104	105	110	127	129	145	154	147	145	147
19	102	102	107	105	110	127	127	147	152	149	143	147
20	102	102	105	105	110	127	127	147	150	149	145	147
21	102	102	105	105	110	127	129	147	150	149	145	147
22	100	102	104	107	110	127	130	145	150	147	145	147
23	100	102	104	107	110	127	132	145	150	150	145	147
24	102	102	105	107	110	127	130	145	152	150	145	147
25	102	100	104	107	115	127	132	145	150	150	145	147
26	102	100	107	107	115	127	135	145	152	149	147	147
27	102	100	105	107	115	127	135	147	150	152	147	147
28	102	100	105	107	115	129	135	147	150	150	147	147
29	102	100	105	105	---	130	135	147	150	150	147	147
30	102	100	104	105	---	132	137	147	150	150	147	147
31	102	---	105	105	---	130	---	149	---	150	147	---
TOTAL	3164	3036	3195	3273	3025	3827	3916	4449	4514	4603	4575	4410
MEAN	102	101	103	106	108	123	131	144	150	148	148	147
MAX	104	104	107	107	115	132	137	149	154	152	152	147
MIN	100	100	100	105	105	115	127	137	149	145	143	147
AC-FT	6280	6020	6340	6490	6000	7590	7770	8820	8950	9130	9070	8750

CAL YR 1981 TOTAL 37855 MEAN 104 MAX 110 MIN 100 AC-FT 75090
WTR YR 1982 TOTAL 45987 MEAN 126 MAX 154 MIN 100 AC-FT 91220

NOTE.--No gage-height record Feb. 6 to Mar. 24, Aug. 29 to Sept. 30.

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 mi^2 (157 km^2), 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 Bureau of Reclamation). 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, 1966, 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 hm^3) 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 hm^3) elevation, 4,845.32 ft (1,476.854 m). Dead storage about 500,000 acre-ft (616 hm^3) Oregon Game Commission survey. Records given herein represent total contents (previously reported as usable contents) above elevation 4,821.5 ft (1,469.59 m), water surface probably cannot be lowered below elevation 4,823.4 ft (1,470.17 m), 5,360 acre-ft (6.61 hm^3), owing to natural flow through reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 93,010 acre-ft (115 hm^3) June 6, 1975, elevation, 4,847.09 ft (1,477.393 m); minimum observed, 9,640 acre-ft (11.9 hm^3) Oct. 21, 1931, elevation, 4,827.91 ft (1,471,547 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 51,700 acre-ft (63.7 hm^3) July 3, elevation, 4,836.38 ft (1,474.129 m); minimum observed, 12,400 acre-ft (15.3 hm^3) Oct. 28, elevation, 4,825.50 ft (1,470.812 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	-	a10,970	-
Oct. 31	-	a12,700	+1,730
Nov. 30	4,826.34	15,340	+2,640
Dec. 31	4,828.74	23,800	+8,460
CAL YR 1981	-	-	+3,260
Jan. 31	4,829.56	26,700	+2,900
Feb. 28	4,831.16	32,460	+5,760
Mar. 31	4,831.87	35,030	+2,570
Apr. 30	4,832.60	37,700	+2,670
May 31	4,834.55	44,880	+7,180
June 30	4,836.32	51,480	+6,600
July 31	4,836.15	50,840	-640
Aug. 31	4,835.19	47,250	-3,590
Sept.30	4,835.31	47,700	+450
WTR YR 1982	-	-	+36,730

a Contents interpolated.

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 except those for July and August, which are fair. Flow regulated since 1922 by Crescent Lake (see station 14059500). No diversion above station.

AVERAGE DISCHARGE.--56 years (water years 1913-14, 1929-82), 56.9 ft³/s (1.611 m³/s), 41,220 acre-ft/yr (50.8 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, 109 ft³/s (3.09 m³/s) Aug. 20, 22, gage height, 1.75 ft (0.533 m); no flow Oct. 1 to June 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	104	48	102
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	104	48	102
3	.00	.00	.00	.00	.00	.00	.00	.00	8.0	104	48	102
4	.00	.00	.00	.00	.00	.00	.00	.00	16	104	48	102
5	.00	.00	.00	.00	.00	.00	.00	.00	16	104	48	101
6	.00	.00	.00	.00	.00	.00	.00	.00	18	105	48	101
7	.00	.00	.00	.00	.00	.00	.00	.00	25	105	48	101
8	.00	.00	.00	.00	.00	.00	.00	.00	24	105	48	63
9	.00	.00	.00	.00	.00	.00	.00	.00	22	105	48	27
10	.00	.00	.00	.00	.00	.00	.00	.00	21	105	48	27
11	.00	.00	.00	.00	.00	.00	.00	.00	18	106	69	27
12	.00	.00	.00	.00	.00	.00	.00	.00	18	106	105	27
13	.00	.00	.00	.00	.00	.00	.00	.00	18	106	105	27
14	.00	.00	.00	.00	.00	.00	.00	.00	18	106	105	27
15	.00	.00	.00	.00	.00	.00	.00	.00	18	106	105	27
16	.00	.00	.00	.00	.00	.00	.00	.00	18	105	105	27
17	.00	.00	.00	.00	.00	.00	.00	.00	18	105	104	27
18	.00	.00	.00	.00	.00	.00	.00	.00	18	105	104	27
19	.00	.00	.00	.00	.00	.00	.00	.00	18	81	105	27
20	.00	.00	.00	.00	.00	.00	.00	.00	18	49	106	27
21	.00	.00	.00	.00	.00	.00	.00	.00	18	49	104	14
22	.00	.00	.00	.00	.00	.00	.00	.00	18	49	104	3.8
23	.00	.00	.00	.00	.00	.00	.00	.00	19	49	103	3.8
24	.00	.00	.00	.00	.00	.00	.00	.00	54	49	102	3.8
25	.00	.00	.00	.00	.00	.00	.00	.00	103	49	103	3.8
26	.00	.00	.00	.00	.00	.00	.00	.00	103	49	103	3.8
27	.00	.00	.00	.00	.00	.00	.00	.00	103	49	103	3.8
28	.00	.00	.00	.00	.00	.00	.00	.00	103	49	102	3.8
29	.00	.00	.00	.00	---	.00	.00	.00	103	49	102	3.8
30	.00	.00	.00	.00	---	.00	.00	.00	103	49	102	3.8
31	.00	---	.00	.00	---	.00	---	.00	---	49	102	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	1057.00	2559	2623	1146.2
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	35.2	82.5	84.6	38.2
MAX	.00	.00	.00	.00	.00	.00	.00	.00	103	106	106	102
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	49	48	3.8
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	2100	5080	5200	2270

CAL YR 1981 TOTAL 11402.90 MEAN 31.2 MAX 214 MIN .00 AC-FT 22620
WTR YR 1982 TOTAL 7385.20 MEAN 20.2 MAX 106 MIN .00 AC-FT 14650

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, 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 4,192.81 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 a present site at different datums.

REMARKS.--Records good. Flow regulated since 1922 by Crescent Lake (see station 14063000). Many diversions for irrigation above station.

AVERAGE DISCHARGE.--58 years (water years 1925-82), 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, 1,060 ft³/s (30.0 m³/s) Feb. 22, gage height, 6.78 ft (2.067 m); minimum, 22 ft³/s (0.62 m³/s) Oct. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	59	100	310	227	654	250	439	606	515	129	171
2	29	57	106	310	235	595	245	450	555	492	123	167
3	26	55	139	320	225	575	247	466	503	476	125	164
4	25	54	166	370	203	543	235	486	462	476	125	165
5	23	51	173	340	180	466	231	508	444	448	123	164
6	22	49	308	300	167	405	231	515	440	419	120	160
7	23	48	446	280	168	376	227	508	432	391	116	157
8	26	46	548	250	156	362	223	508	416	373	118	155
9	32	44	578	230	160	350	223	513	395	348	127	150
10	57	43	464	220	167	356	233	523	373	327	127	99
11	71	43	373	210	164	369	277	538	349	308	124	89
12	78	46	308	200	171	369	335	543	352	293	125	88
13	71	58	265	195	189	355	376	523	367	282	164	88
14	63	80	259	190	267	341	383	492	370	269	173	86
15	57	106	350	185	355	329	371	470	378	267	176	89
16	51	135	444	180	460	307	325	464	378	260	177	84
17	48	179	510	180	565	292	292	470	367	255	175	81
18	45	205	508	175	570	280	283	480	362	248	172	80
19	43	194	498	175	692	273	277	496	380	240	164	83
20	40	152	548	175	790	260	267	510	395	231	161	130
21	41	135	621	175	905	250	263	520	411	189	157	169
22	48	165	639	180	984	242	272	528	436	169	158	154
23	47	222	600	190	1020	239	292	528	470	161	161	120
24	47	228	498	230	1030	242	322	520	439	155	158	104
25	45	188	391	276	954	260	349	523	419	152	158	100
26	45	153	383	313	860	261	370	545	430	149	160	101
27	45	129	376	313	825	267	378	565	466	144	155	105
28	46	115	378	293	795	280	394	583	472	139	156	108
29	50	114	357	257	---	269	413	603	482	140	162	116
30	57	104	340	236	---	263	432	636	494	140	177	116
31	61	---	320	233	---	269	---	636	---	142	173	---
TOTAL	1396	3257	11994	7491	13484	10699	9016	16089	12843	8598	4619	3643
MEAN	45.0	109	387	242	482	345	301	519	428	277	149	121
MAX	78	228	639	370	1030	654	432	636	606	515	177	171
MIN	22	43	100	175	156	239	223	439	349	139	116	80
AC-FT	2770	6460	23790	14860	26750	21220	17880	31910	25470	17050	9160	7230

CAL YR 1981 TOTAL 51818 MEAN 142 MAX 639 MIN 22 AC-FT 102800
WTR YR 1982 TOTAL 103129 MEAN 283 MAX 1030 MIN 22 AC-FT 204600

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).

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.--Records good. Flow regulated by Crane Prairie Reservoir, Crescent Lake, and Wickiup Reservoir (see elsewhere in this report). Many diversions for irrigation above station.

AVERAGE DISCHARGE.--65 years (water years 1907-13, 1925-82), 1,408 ft³/s (39.87 m³/s), 1,020,000 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, 2,440 ft³/s (69.1 m³/s) May 28, gage height, 5.90 ft (1.798 m); minimum, 444 ft³/s (12.6 m³/s) Nov. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1040	466	536	623	606	1270	792	1750	2310	1560	2220	2090
2	1070	466	543	599	599	1220	784	1760	2220	1580	2190	2060
3	1080	466	539	550	595	1170	780	1780	2180	1640	2180	2040
4	1070	459	553	539	592	1130	772	1800	2130	1490	2150	1980
5	1070	459	592	530	571	1120	760	1860	2030	1430	2180	1970
6	1060	459	693	520	571	1080	752	1870	1950	1430	2190	1960
7	1020	455	740	500	560	1010	752	1860	1940	1470	2190	1960
8	995	452	788	500	539	937	744	1860	1980	1470	2180	1950
9	991	448	836	540	532	901	744	1870	2030	1570	2180	1940
10	968	448	883	600	525	883	748	1870	2100	1790	2180	1920
11	964	448	914	634	532	883	832	1880	2220	1960	2150	1920
12	977	455	874	644	536	883	1060	1880	2340	2070	2070	1910
13	959	462	788	648	550	887	1120	1890	2360	2130	2030	1890
14	928	469	744	651	616	883	1120	1940	2310	2240	2000	1830
15	901	501	768	648	679	869	1130	1940	2250	2260	2000	1810
16	852	539	772	641	784	852	1120	1920	2250	2260	2000	1790
17	844	574	804	641	865	836	1080	1920	2250	2260	2000	1740
18	816	592	860	634	896	820	1000	1920	2250	2210	2000	1720
19	588	606	968	627	1090	808	932	1920	2280	2130	2000	1750
20	490	620	995	616	1310	792	928	1920	2280	2100	1980	1710
21	473	599	977	606	1380	780	941	2000	2280	2090	1970	1490
22	455	581	959	599	1390	768	955	2090	2300	2130	1970	1470
23	455	599	968	613	1450	756	1120	2130	2250	2150	1950	1460
24	459	641	1010	623	1440	748	1310	2120	2220	2170	1950	1440
25	455	648	1000	641	1430	748	1450	2180	2240	2170	2000	1350
26	459	630	955	648	1410	764	1570	2270	2240	2170	2090	1320
27	459	595	878	658	1360	768	1600	2350	2220	2200	2130	1320
28	459	560	836	662	1310	776	1630	2420	1980	2230	2160	1310
29	459	529	828	648	---	792	1690	2410	1810	2230	2190	1280
30	462	532	740	641	---	788	1740	2340	1640	2240	2200	1240
31	466	---	651	616	---	792	---	2350	---	2240	2150	---
TOTAL	23744	15758	24992	18840	24718	27714	31956	62070	64840	61070	64830	51620
MEAN	766	525	806	608	883	894	1065	2002	2161	1970	2091	1721
MAX	1080	648	1010	662	1450	1270	1740	2420	2360	2260	2320	2090
MIN	455	448	536	500	525	748	744	1750	1640	1430	1 50	1240
AC-FT	47100	31260	49570	37370	49030	54970	63380	123100	128600	121100	128)0	102400

CAL YR 1981 TOTAL 418296 MEAN 1146 MAX 2130 MIN 448 AC-FT 829700
WTR YR 1982 TOTAL 472152 MEAN 1294 MAX 2420 MIN 448 AC-FT 936500

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 SW¼ 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 NE¼ 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 SW¼SE¼ 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 NE¼ 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 NE¼ 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 NE¼ 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 1981 to SEPTEMBER 1982

MONTH	ARNOLD CANAL	CENTRAL OREGON CANAL	DESCHUTES COUNTY MUNICIPAL IMPROVEMENT DISTRICT CANAL	NORTH UNIT MAIN CANAL	NORTH CANAL	SWALLEY CANAL	TOTAL
OCTOBER	1,670	10,050	0	9,330	8,130	3,180	32,360
NOVEMBER	563	2,340	0	0	2,140	460	5,500
DECEMBER	371	2,110	0	0	1,320	434	4,240
JANUARY	0	2,340	0	0	1,590	421	4,350
FEBRUARY	421	712	0	0	184	549	1,870
MARCH	333	2,120	0	0	1,550	222	4,220
APRIL	1,100	8,430	0	17,570	9,930	2,590	39,620
MAY	5,930	30,480	454	42,570	28,390	5,570	113,400
JUNE	6,210	30,670	476	46,070	29,560	6,920	119,900
JULY	6,370	29,650	883	39,240	29,050	6,250	111,400
AUGUST	6,620	34,370	6,060	30,410	33,320	7,380	118,400
SEPTEMBER	5,090	24,070	4,690	26,040	24,510	5,620	90,020
WTR YR 1982	34,890	177,400	12,570	211,200	169,700	39,600	645,400

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.--68 years, 499 ft³/s (14.13 m³/s), 361,500 acre-ft/yr (446 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, 1,500 ft³/s (42.5 m³/s) Feb. 24, gage height, 4.00 ft (1.219 m); minimum, 10 ft³/s (0.28 m³/s) Apr. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	400	485	579	278	910	598	25	115	38	27	76
2	25	400	485	546	391	856	604	25	53	76	27	98
3	24	395	485	540	515	800	592	24	31	177	26	92
4	25	400	485	515	520	821	586	24	31	70	25	48
5	26	395	540	500	505	974	580	23	31	60	26	30
6	27	395	634	490	495	934	568	27	30	39	29	30
7	26	395	662	480	490	814	562	29	30	59	29	29
8	26	395	704	480	475	535	556	29	30	28	28	29
9	26	395	770	500	465	505	550	29	30	28	45	29
10	26	391	810	540	465	485	556	28	30	27	45	29
11	26	395	840	562	460	500	505	28	31	27	76	29
12	69	400	800	573	465	737	296	28	33	26	68	47
13	87	404	720	573	480	730	186	27	31	28	33	128
14	66	418	670	579	525	712	82	28	31	28	27	128
15	66	342	490	579	562	676	80	27	30	28	27	103
16	59	206	300	573	617	670	78	33	30	27	39	123
17	46	209	250	573	686	652	74	43	29	27	44	125
18	177	230	440	568	698	646	43	36	29	27	30	94
19	318	206	612	557	819	664	36	35	28	27	29	62
20	180	238	764	551	1120	640	35	31	29	26	28	264
21	150	254	888	540	1280	628	33	29	30	26	26	292
22	148	234	848	530	1290	622	31	29	29	26	26	135
23	274	254	848	557	1300	604	29	28	29	25	25	143
24	334	330	880	562	1340	598	28	27	31	24	25	153
25	334	450	904	525	1320	598	28	27	30	34	25	133
26	338	568	920	342	1290	610	25	28	30	45	25	59
27	338	535	826	254	1260	616	27	28	30	38	25	82
28	342	505	777	220	1080	628	27	28	33	30	25	133
29	342	475	758	183	---	604	27	29	36	28	25	165
30	346	465	710	163	---	598	26	27	38	27	25	165
31	382	---	606	274	---	598	---	27	---	27	25	---
TOTAL	4679	11079	20911	15008	21191	20965	7448	886	1028	1203	985	3053
MEAN	151	369	675	484	757	676	248	28.6	34.3	38.8	31.8	102
MAX	382	568	920	579	1340	974	604	43	115	177	76	292
MIN	24	206	250	163	278	485	25	23	28	24	25	29
AC-FT	9280	21980	41480	29770	42030	41580	14770	1760	2040	2390	1950	6060

CAL YR 1981 TOTAL 85972 MEAN 236 MAX 920 MIN 21 AC-FT 170500
WTR YR 1982 TOTAL 108436 MEAN 297 MAX 1340 MIN 23 AC-FT 215100

14070700 BRIDGE CREEK NEAR BEND, OR

LOCATION.--Lat 44°01'52", long 121°34'16", in SW¼NE¼ sec.7, T.18 S., R.10 E., Deschutes County, Hydrologic Unit 17070301, on left bank 0.2 mi (0.3 km) upstream from city of Bend water intake dam, 14 mi (23 km) west of Bend, and at mile 0.4 (0.6 km).

DRAINAGE AREA.--6.58 mi^2 (17.0 km^2).

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,180 ft (1,579 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record July 1 to Aug. 3, which are fair. Water is diverted into Bridge Creek from unnamed springs on Middle Fork of Tumalo Creek 3.0 mi (4.8 km) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 382 ft^3/s (10.8 m^3/s) Dec. 25, 1980, gage height, 1.86 ft (0.567 m), from rating curve extended above 110 ft^3/s (3.12 m^3/s) on basis of slope-area measurement of peak flow; maximum gage height, 2.01 ft (0.613 m) Feb. 6, 1982 (backwater from ice); minimum discharge, 3.6 ft^3/s (0.10 m^3/s) Oct. 1-9, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 184 ft^3/s (5.21 m^3/s) Feb. 20, gage height, 1.72 ft (0.524 m); maximum gage height, 2.01 ft (0.613 m) Feb. 6 (backwater from ice); minimum discharge, 13 ft^3/s (0.37 m^3/s) Feb. 9-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	16	16	22	14	33	16	25	51	66	25	22
2	16	16	18	21	14	30	16	26	55	80	25	22
3	15	16	19	20	14	29	16	26	52	80	25	22
4	15	16	18	20	14	27	16	26	49	70	25	22
5	15	16	19	19	14	26	16	27	45	60	25	22
6	16	15	26	18	14	26	16	29	45	55	26	22
7	18	15	23	17	14	26	16	32	45	50	24	22
8	17	15	22	17	14	25	15	32	45	45	24	21
9	17	15	22	17	13	24	15	30	49	42	24	22
10	17	15	21	17	13	24	17	30	56	40	24	21
11	17	16	20	17	13	23	22	29	63	40	24	21
12	17	19	20	17	13	22	20	30	89	42	24	21
13	17	18	20	17	24	22	19	33	76	40	23	21
14	17	19	20	17	33	22	18	35	77	38	23	21
15	16	19	25	17	30	21	18	39	88	36	23	20
16	16	19	24	17	30	20	18	43	103	34	23	20
17	16	19	23	17	30	20	18	47	118	32	23	20
18	16	19	23	17	46	20	17	49	125	32	23	21
19	16	18	43	17	69	19	17	47	127	34	24	22
20	16	18	35	16	129	19	17	49	120	34	24	22
21	16	18	32	16	97	19	17	54	107	32	23	21
22	16	18	29	16	69	19	19	60	96	30	23	21
23	16	18	28	20	56	19	20	64	89	29	22	22
24	16	18	27	16	48	19	21	68	79	28	22	21
25	16	18	26	15	44	19	21	82	74	27	22	21
26	16	17	26	15	41	19	21	82	80	27	22	20
27	16	17	25	15	38	18	22	66	95	28	22	20
28	16	17	24	15	35	18	22	57	79	27	22	20
29	16	17	24	15	---	17	23	52	86	26	22	20
30	16	17	23	15	---	17	24	51	71	26	22	20
31	16	---	22	14	---	17	---	50	---	25	21	---
TOTAL	502	514	743	529	983	679	553	1370	2334	1255	724	633
MEAN	16.2	17.1	24.0	17.1	35.1	21.9	18.4	44.2	77.8	40.5	23.4	21.1
MAX	18	19	43	22	129	33	24	82	127	80	26	22
MIN	15	15	16	14	13	17	15	25	45	25	21	20
AC-FT	996	1020	1470	1050	1950	1350	1100	2720	4630	2490	1440	1260

CAL YR 1981 TOTAL 8064 MEAN 22.1 MAX 71 MIN 15 AC-FT 15990
WTR YR 1982 TOTAL 10819 MEAN 29.6 MAX 129 MIN 13 AC-FT 21460

NOTE.--No gage-height record July 1 to Aug. 3.

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 mi^2 (123 km^2).

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. 28, June 22-30, Sept. 24-30. 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, 4,680 acre-ft (5.77 hm^3), partly estimated, during water year 1982.

AVERAGE DISCHARGE.--64 years (water years 1914, 1917-21, 1924-35, 1937-82), 101 ft^3/s (2.860 m^3/s), 73,170 acre-ft/yr (90.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,140 ft^3/s (32.3 m^3/s) Nov. 9, 1968 (no flow in canal), from rating curve extended above 780 ft^3/s (22.1 m^3/s) on basis of slope-area measurement at 3.45 ft (1.052 m); minimum daily, 25 ft^3/s (0.71 m^3/s) Jan. 3, 1924.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 511 ft^3/s (14.5 m^3/s) June 20; minimum daily, 38 ft^3/s (1.08 m^3/s) Feb. 5, 6, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	62	60	79	62	122	74	101	216	297	132	78
2	55	58	72	80	64	112	76	105	220	382	115	75
3	55	60	65	82	62	105	74	108	208	328	104	79
4	54	58	62	86	45	105	72	107	183	275	100	81
5	54	57	78	82	38	105	70	107	171	259	94	77
6	58	57	107	76	38	101	70	115	174	267	94	76
7	70	57	88	73	43	101	67	126	179	290	94	73
8	60	57	82	70	42	99	67	129	178	281	102	72
9	64	57	82	68	42	96	67	123	203	269	101	74
10	72	54	80	65	45	96	72	121	232	269	109	79
11	65	57	74	65	74	94	99	116	255	281	102	75
12	60	76	74	64	84	92	92	119	374	297	101	79
13	58	65	74	64	101	90	88	131	339	282	93	75
14	57	69	84	64	173	88	86	139	310	278	99	72
15	57	67	101	67	149	86	80	149	356	244	98	73
16	57	67	84	69	158	84	78	160	388	224	93	70
17	57	72	80	67	149	82	76	185	400	224	88	70
18	58	64	88	67	152	82	74	181	417	227	87	63
19	57	62	173	67	346	78	74	172	411	246	86	83
20	57	62	130	62	378	78	72	181	406	251	89	94
21	55	72	117	65	414	76	72	207	358	241	90	78
22	55	67	107	65	290	76	76	222	278	205	88	75
23	55	65	103	70	246	76	84	234	263	178	82	70
24	55	65	99	74	207	76	90	239	239	173	83	105
25	54	62	96	69	179	78	90	272	207	175	85	101
26	57	62	96	69	158	80	88	280	218	182	85	99
27	57	58	92	65	140	78	92	231	302	188	81	96
28	62	58	90	64	127	78	90	211	260	180	81	94
29	58	54	88	65	---	76	88	197	334	165	91	96
30	57	56	84	64	---	76	95	199	278	159	93	96
31	60	---	78	62	---	74	---	205	---	149	84	---
TOTAL	1805	1857	2788	2149	4006	2740	2393	5172	8357	7466	2924	2428
MEAN	58.2	61.9	89.9	69.3	143	88.4	79.8	167	279	241	94.3	80.9
MAX	72	76	173	86	414	122	99	280	417	382	132	105
MIN	54	54	60	62	38	74	67	101	171	149	81	63
AC-FT	3580	3680	5530	4260	7950	5430	4750	10260	16580	14810	5800	4820

CAL YR 1981 TOTAL 31206 MEAN 85.5 MAX 451 MIN 38 AC-FT 61900
WTR YR 1982 TOTAL 44085 MEAN 121 MAX 417 MIN 38 AC-FT 87440

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.--70 years (water years 1907-18, 1920, 1926-82), 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, 2,000 ft³/s (56.6 m³/s) Dec. 25, 1980, from rating curve extended above 690 ft³/s (19.5 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.--Peak discharges above base of 470 ft³/s (13.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	1930	a*1,040	29.5	*3.83	1.167
June 20	2200	560	15.9	3.08	0.939
June 29	0100	765	21.7	3.49	1.064

Minimum recorded, 43 ft³/s (1.22 m³/s) Nov. 5.

a From rating curve extended above 410 ft³/s (11.6 m³/s).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	49	66	119	57	177	64	89	165	360	210	117
2	53	45	91	123	57	163	64	94	174	380	189	117
3	52	45	79	117	57	154	64	92	168	322	171	127
4	52	45	74	115	53	143	62	90	158	269	165	123
5	52	48	101	100	48	133	61	92	152	252	168	113
6	60	48	130	90	45	129	61	98	154	259	177	111
7	68	47	100	75	48	123	60	109	154	269	186	109
8	57	47	91	65	47	119	58	107	154	266	192	107
9	56	47	91	68	47	115	58	99	168	259	192	113
10	56	47	89	68	47	109	66	96	192	283	177	117
11	55	51	84	68	48	111	125	94	213	297	165	103
12	53	67	86	67	55	101	94	99	325	304	158	139
13	51	57	85	62	70	99	85	107	304	311	156	115
14	51	58	115	62	150	96	79	115	276	301	161	99
15	51	58	160	61	222	90	76	121	315	259	158	94
16	52	61	142	64	249	87	73	133	346	237	156	92
17	55	65	146	64	231	85	72	152	357	237	150	90
18	52	59	172	61	276	82	69	145	372	240	147	90
19	50	59	336	60	605	79	67	141	396	262	147	101
20	49	60	237	61	670	76	67	147	416	273	154	115
21	48	76	192	60	660	75	67	161	448	266	154	99
22	46	67	168	60	404	70	70	180	404	237	152	96
23	45	65	156	65	318	70	76	192	384	219	141	94
24	45	64	152	72	273	70	81	195	353	210	137	107
25	49	60	143	67	246	70	79	225	332	222	135	101
26	50	62	145	65	225	70	79	231	380	228	135	99
27	50	61	133	62	204	67	81	195	440	231	131	94
28	52	58	127	61	189	67	87	168	432	246	125	94
29	49	61	129	60	---	66	82	158	610	246	135	90
30	49	63	127	58	---	65	84	156	408	249	133	90
31	52	---	127	58	---	65	---	161	---	231	121	---
TOTAL	1613	1700	4074	2258	5601	3026	2211	4242	9150	8225	4878	3156
MEAN	52.0	56.7	131	72.8	200	97.6	73.7	137	305	265	157	105
MAX	68	76	336	123	670	177	125	231	610	380	210	139
MIN	45	45	66	58	45	65	58	89	152	210	121	90
AC-FT	3200	3370	8080	4480	11110	6000	4390	8410	18150	16310	9680	6260

CAL YR 1981 TOTAL 32896 MEAN 90.1 MAX 358 MIN 45 AC-FT 65250
WTR YR 1982 TOTAL 50134 MEAN 137 MAX 670 MIN 45 AC-FT 99440

14076500 DESCHUTES RIVER NEAR CULVER, 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. Flow regulated by Crescent Lake and Crane Prairie and Wickiup Reservoirs (see elsewhere in this report). Many diversions for irrigation above station.

AVERAGE DISCHARGE.--30 years, 905 ft³/s (25.63 m³/s), 655,700 acre-ft/yr (808 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, 2,600 ft³/s (73.6 m³/s) Feb. 21, gage height, 6.62 ft (2.018 m); minimum, 467 ft³/s (13.2 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	470	850	973	1140	739	1560	1170	488	474	908	537	507
2	507	852	1000	1110	802	1470	1170	488	520	890	534	513
3	507	853	970	1080	960	1400	1170	487	518	985	531	564
4	510	843	940	1040	1010	1340	1120	484	482	991	523	568
5	510	825	935	1010	979	1390	1110	482	473	852	505	550
6	514	814	1160	1040	970	1470	1110	479	474	793	502	519
7	518	842	1090	1040	1010	1440	1100	475	476	725	501	505
8	528	862	1100	1060	967	1270	1090	481	475	715	504	502
9	522	862	1180	1090	965	1140	1090	495	472	693	508	502
10	530	857	1220	1090	927	1120	1090	493	470	638	509	500
11	538	861	1230	1090	964	1100	1130	490	481	653	530	500
12	531	909	1300	1070	941	1100	1080	483	525	659	557	501
13	559	928	1290	1070	961	1190	875	480	738	674	558	502
14	583	932	1270	1080	1130	1180	770	481	689	677	522	528
15	560	938	1300	1080	1230	1190	691	490	661	659	508	584
16	556	825	1090	1080	1370	1180	643	478	771	615	502	543
17	557	728	862	1140	1380	1170	620	476	778	581	502	560
18	540	732	867	1110	1400	1160	583	484	809	553	510	569
19	698	732	1350	1070	1730	1160	567	488	852	556	509	550
20	755	712	1370	1050	2020	1160	548	485	867	586	502	576
21	661	755	1420	1050	2480	1200	514	483	926	598	502	666
22	634	767	1430	1030	2240	1190	504	480	893	603	500	720
23	633	751	1400	1170	2080	1170	498	479	828	556	500	586
24	787	799	1390	1160	2040	1170	498	487	748	550	497	581
25	813	858	1420	1070	1960	1170	499	490	712	539	497	597
26	816	1020	1430	1000	1920	1170	498	514	733	537	497	595
27	845	1050	1410	788	1800	1180	496	557	854	542	497	539
28	852	1020	1330	747	1720	1190	494	527	911	547	497	517
29	832	984	1290	700	---	1190	495	500	1000	539	497	567
30	802	966	1280	666	---	1170	491	484	1010	531	500	612
31	804	---	1200	625	---	1170	---	476	---	534	503	---
TOTAL	19472	25727	37497	31546	38695	38160	23714	15164	20620	20479	15841	16623
MEAN	628	858	1210	1018	1382	1231	790	489	687	661	511	554
MAX	852	1050	1430	1170	2480	1560	1170	557	1010	991	558	720
MIN	470	712	862	625	739	1100	491	475	470	531	497	500
AC-FT	38620	51030	74380	62570	76750	75690	47040	30080	40900	40620	31420	32970

CAL YR 1981 TOTAL 276682 MEAN 758 MAX 1830 MIN 455 AC-FT 548800
WTR YR 1982 TOTAL 303538 MEAN 832 MAX 2480 MIN 470 AC-FT 602100

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 Bureau of Reclamation). 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 Bureau of Reclamation.

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, 155,400 acre-ft (192 hm³) May 19-22, elevation, 3,235.64 ft (986.223 m); minimum, 91,930 acre-ft (113 hm³) Dec. 9, 10, elevation, 3,210.75 ft (978.637 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 1981 TO SEPTEMBER 1982
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3214.40	3211.92	3212.59	3211.50	3211.10	3225.50	3226.00	3235.45	3235.28	3234.20	3231.00	3225.00
2	3214.20	3211.86	3212.60	3211.76	3211.00	3225.53	3226.20	3235.37	3235.38	3234.21	3230.80	3224.80
3	3214.05	3211.80	3212.60	3211.98	3211.00	3225.55	3226.43	3235.30	3235.40	3234.21	3230.62	3224.70
4	3213.95	3211.72	3212.58	3212.18	3210.92	3225.55	3226.62	3235.11	3235.42	3234.20	3230.55	3224.58
5	3213.77	3211.60	3212.58	3211.82	3210.81	3225.50	3226.75	3235.08	3235.42	3234.20	3230.35	3224.38
6	3213.65	3211.62	3213.20	3211.50	3210.80	3224.97	3226.85	3235.08	3235.42	3234.22	3230.20	3224.22
7	3213.55	3211.64	3213.60	3211.52	3210.80	3224.57	3227.00	3235.08	3235.43	3234.22	3230.00	3223.98
8	3213.40	3211.74	3213.20	3211.54	3210.80	3224.55	3227.10	3235.08	3235.44	3234.21	3229.76	3223.80
9	3213.30	3211.76	3212.35	3211.64	3210.75	3224.90	3227.20	3235.08	3235.45	3234.20	3229.50	3223.62
10	3213.25	3211.80	3211.44	3211.78	3210.76	3224.55	3227.40	3235.08	3235.38	3234.18	3229.25	3223.40
11	3213.20	3211.84	3211.10	3211.82	3210.77	3224.70	3229.42	3235.08	3235.22	3234.08	3229.05	3223.24
12	3213.13	3211.90	3211.10	3211.82	3210.80	3224.95	3230.53	3235.28	3235.20	3234.00	3228.82	3223.05
13	3213.12	3211.98	3211.44	3211.80	3210.84	3224.97	3231.15	3235.30	3235.22	3233.82	3228.63	3222.82
14	3213.08	3212.00	3211.40	3211.34	3211.15	3225.05	3231.45	3235.50	3235.26	3233.74	3228.42	3222.64
15	3213.02	3212.00	3211.50	3211.08	3212.75	3225.15	3231.75	3235.50	3235.28	3233.70	3228.25	3222.48
16	3212.90	3212.12	3212.00	3211.07	3216.40	3225.15	3231.75	3235.52	3235.25	3233.50	3228.10	3222.34
17	3212.90	3212.22	3212.40	3211.06	3219.82	3225.15	3231.75	3235.52	3235.22	3233.40	3227.88	3222.15
18	3212.88	3212.21	3212.22	3211.05	3221.18	3224.95	3231.75	3235.62	3235.15	3233.28	3227.74	3222.00
19	3212.76	3212.23	3214.05	3211.05	3222.98	3224.70	3231.25	3235.64	3235.00	3233.12	3227.55	3221.84
20	3212.75	3212.30	3216.96	3211.05	3225.50	3224.35	3231.20	3235.64	3234.88	3232.92	3227.40	3221.80
21	3212.73	3212.30	3217.82	3211.05	3229.04	3224.00	3231.25	3235.64	3234.78	3232.72	3227.22	3221.60
22	3212.55	3212.30	3217.80	3211.05	3230.10	3223.60	3231.77	3235.60	3234.72	3232.56	3227.02	3221.48
23	3212.55	3212.30	3217.20	3211.12	3230.30	3223.30	3232.50	3235.55	3234.66	3232.40	3226.78	3221.40
24	3212.58	3212.47	3216.44	3211.24	3229.61	3223.05	3233.40	3235.42	3234.58	3232.28	3226.52	3221.24
25	3212.58	3212.50	3215.72	3211.62	3228.63	3222.85	3234.15	3235.40	3234.48	3232.18	3226.28	3221.20
26	3212.55	3212.50	3214.76	3212.00	3227.57	3222.85	3234.58	3235.35	3234.38	3232.00	3226.08	3220.92
27	3212.40	3212.50	3213.70	3212.20	3226.37	3223.60	3234.80	3235.28	3234.32	3231.83	3225.84	3220.74
28	3212.20	3212.60	3212.80	3212.10	3225.57	3224.20	3235.05	3235.20	3234.24	3231.70	3225.64	3220.58
29	3212.14	3212.62	3211.96	3211.54	---	3224.71	3235.25	3235.22	3234.22	3231.60	3225.48	3220.38
30	3212.02	3212.58	3211.40	3211.44	---	3225.15	3235.55	3235.25	3234.20	3231.41	3225.28	3220.20
31	3211.95	---	3211.24	3211.26	---	3225.65	---	3235.28	---	3231.22	3225.16	---
MEAN	3213.02	3212.10	3213.28	3211.52	3217.79	3224.62	3230.60	3235.34	3235.01	3233.21	3228.10	3222.55
MAX	3214.40	3212.62	3217.82	3212.20	3230.30	3225.65	3235.55	3235.64	3235.45	3234.22	3231.00	3225.00
MIN	3211.95	3211.60	3211.10	3211.05	3210.75	3222.85	3226.00	3235.08	3234.20	3231.22	3225.16	3220.20
(†)	94450	95800	92960	93000	126600	126800	155100	154300	151000	142200	125600	113100
(‡)	-5550	+1350	-2840	+40	+33600	+200	+28300	-800	-3300	-8800	-16600	-12500

WTR YR 1982 MEAN 3223.12 MAX 3235.64 MIN 3210.75 AC-FT‡ +13100

† 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); 22 years (water years 1961-82), 325 ft³/s (9.204 m³/s), 235,500 acre-ft/yr (290 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, 3,170 ft³/s (89.8 m³/s) Feb. 23, gage height, 7.68 ft (2.341 m); minimum, 7.0 ft³/s (0.198 m³/s) Oct. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	182	130	174	124	702	1630	580	1930	398	229	287	222
2	182	130	174	124	575	1630	581	1870	401	230	287	222
3	182	130	174	124	520	1630	580	1790	406	231	284	222
4	184	129	174	339	475	1630	580	1640	408	231	281	222
5	184	93	174	688	364	1630	580	1480	409	231	280	222
6	184	33	173	476	324	1630	580	1210	412	231	279	222
7	184	33	410	208	324	1630	580	1120	410	231	276	222
8	185	33	1100	208	327	1120	580	1120	408	231	276	222
9	168	33	1400	208	273	859	580	1120	405	273	274	222
10	140	33	1390	208	236	1670	582	1120	401	306	273	222
11	140	33	663	278	236	1450	584	1120	364	306	272	222
12	141	33	191	338	244	1270	946	1070	301	306	272	222
13	141	33	144	485	256	1270	1620	725	301	306	270	221
14	141	32	360	738	256	1270	1770	607	303	306	270	220
15	140	32	591	523	632	1270	1770	860	304	305	270	220
16	140	33	390	357	1200	1270	1770	860	304	304	269	220
17	140	66	624	357	1530	1270	1770	862	301	304	267	220
18	141	120	979	341	2050	1270	1760	866	301	304	267	220
19	108	120	1160	329	2540	1270	1560	875	299	304	267	220
20	108	120	1230	330	2900	1260	1230	876	299	303	267	220
21	169	120	1490	330	3120	1260	1130	871	299	301	266	220
22	117	120	1700	330	3140	1260	958	864	300	301	265	220
23	21	120	1690	331	3150	1260	1050	856	301	275	265	220
24	111	134	1680	329	3150	1250	1180	717	301	249	265	220
25	169	157	1680	431	3130	1250	1180	636	301	249	265	220
26	167	157	1670	669	3010	942	1460	635	266	249	265	220
27	167	157	1670	1030	3130	521	1940	596	227	247	239	246
28	151	163	1660	1240	2540	521	2020	469	227	246	222	263
29	169	174	1250	1120	---	523	1700	394	229	244	222	263
30	167	174	915	776	---	368	1660	396	229	244	222	263
31	159	---	487	775	---	262	---	396	---	257	222	---
TOTAL	4682	2875	27567	14144	40334	37346	34861	29951	9815	8334	8206	6780
MEAN	151	95.8	889	456	1441	1205	1162	966	327	269	265	226
MAX	185	174	1700	1240	3150	1670	2020	1930	412	306	287	263
MIN	21	32	144	124	236	262	580	394	227	229	222	220
AC-FT	9290	5700	54680	28050	80000	74080	69150	59410	19470	16530	16280	13450

CAL YR 1981 TOTAL 111233 MEAN 305 MAX 1700 MIN 11 AC-FT 220600
WTR YR 1982 TOTAL 224895 MEAN 616 MAX 3150 MIN 21 AC-FT 446100

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 mi^2 (11,100 km^2), approximately, of which 500 mi^2 (1,300 km^2) 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 hm^3). 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.--21 years, 1,561 ft^3/s (44.21 m^3/s), 1,131,000 acre-ft/yr (1.40 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,660 ft^3/s (189 m^3/s) Dec. 24, 1964, gage height, 9.36 ft (2.853 m); minimum, 836 ft^3/s (23.7 m^3/s) Sept. 8, 1981, caused by refilling of small forebay upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,160 ft^3/s (146 m^3/s) Feb. 21, gage height, 8.10 ft (2.469 m); minimum, 1,000 ft^3/s (28.3 m^3/s) Aug. 4, caused by refilling of small forebay upstream from gage; minimum daily, 1,140 ft^3/s (32.3 m^3/s) July 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1390	1370	1350	1930	2460	4240	1580	3090	1520	1440	1150	1380
2	1410	1330	1350	1570	2370	3510	1880	3260	1470	1410	1210	1380
3	1430	1330	1350	1540	2150	3440	1870	3170	1440	1560	1250	1370
4	1430	1320	1350	1530	2030	3420	1860	3060	1450	1550	1270	1370
5	1440	1320	1360	1740	1930	3380	1860	2810	1460	1560	1290	1370
6	1440	1320	1420	2110	1820	3350	1850	2610	1470	1540	1270	1380
7	1440	1240	1580	1790	1790	3340	1850	2340	1470	1520	1280	1370
8	1450	1210	1670	1630	1760	3330	1850	2250	1460	1420	1310	1340
9	1440	1210	2430	1600	1760	2590	1850	2240	1450	1370	1320	1300
10	1440	1210	2680	1580	1680	2860	1860	2240	1430	1380	1300	1290
11	1420	1210	2670	1570	1650	3380	1900	2220	1420	1420	1310	1310
12	1400	1200	1850	1650	1630	3110	1970	2200	1440	1410	1340	1320
13	1390	1200	1450	1670	1640	2990	2520	2080	1410	1390	1330	1320
14	1390	1200	1440	1850	1700	2980	3120	1730	1400	1360	1340	1320
15	1390	1200	2020	2080	1980	2980	3310	1690	1400	1340	1370	1320
16	1440	1210	2210	1840	2820	2960	3320	1900	1380	1350	1380	1320
17	1420	1230	1900	1710	3470	2960	3350	1920	1330	1320	1390	1320
18	1400	1210	2200	1720	3680	2950	3390	1960	1320	1310	1350	1330
19	1390	1270	3110	1700	4050	2930	3390	1980	1310	1310	1340	1330
20	1380	1300	3780	1680	4620	2920	3140	1970	1310	1260	1340	1440
21	1300	1310	3450	1670	4940	2910	2800	1920	1400	1240	1360	1480
22	1370	1350	3460	1650	5110	2900	2690	1900	1380	1220	1350	1480
23	1380	1330	3620	1660	5020	2900	2270	1870	1330	1220	1360	1500
24	1320	1350	3590	1820	4950	2890	2430	1880	1320	1230	1340	1490
25	1270	1350	3570	2020	4900	2890	2500	1740	1380	1220	1330	1510
26	1380	1370	3580	2540	4870	2890	2500	1660	1360	1210	1330	1490
27	1390	1340	3550	2610	4750	2470	2800	1660	1480	1180	1330	1500
28	1380	1330	3510	2880	4830	2070	3120	1640	1550	1160	1310	1530
29	1360	1330	3490	3000	---	2030	3300	1540	1660	1150	1280	1540
30	1360	1340	2790	2790	---	2020	2860	1470	1600	1150	1360	1520
31	1370	---	2500	2500	---	1700	---	1480	---	1140	1370	---
TOTAL	43210	38490	76280	59630	86360	91290	74990	65480	42800	41340	40860	41920
MEAN	1394	1283	2461	1924	3084	2945	2500	2112	1427	1334	1318	1397
MAX	1450	1370	3780	3000	5110	4240	3390	3260	1660	1560	1390	1540
MIN	1270	1200	1350	1530	1630	1700	1580	1470	1310	1140	1150	1290
AC-FT	85710	76340	151300	118300	171300	181100	148700	129900	84890	82000	81050	83150

CAL YR 1981 TOTAL 524530 MEAN 1437 MAX 3780 MIN 1090 AC-FT 1040000
WTR YR 1982 TOTAL 702650 MEAN 1925 MAX 5110 MIN 1140 AC-FT 1394000

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 mi^2 (57.5 km^2).

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. WDR OR-81-1: 1974(M), 1978(M).

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 excellent. No regulation or diversion above station.

AVERAGE DISCHARGE.--67 years (water years 1916-82), 52.5 ft^3/s (1.487 m^3/s), 38,040 acre-ft/yr (46.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded discharge, 446 ft^3/s (12.6 m^3/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 ft^3/s (0.028 m^3/s) Nov. 4, 5, 1940; minimum daily, 8 ft^3/s (0.23 m^3/s) Nov. 5, 1940, Oct. 6, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 356 ft^3/s (10.1 m^3/s) Feb. 22, gage height, 4.39 ft (1.338 m); minimum, 22 ft^3/s (0.62 m^3/s) Oct. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	24	41	79	53	130	61	71	85	56	31	30
2	26	24	48	78	51	118	65	73	82	55	29	30
3	25	25	45	85	48	112	68	75	81	53	31	30
4	24	24	43	89	43	107	61	79	80	48	34	30
5	24	24	65	76	39	95	57	83	79	48	34	30
6	27	25	94	70	38	88	56	83	78	48	33	30
7	30	25	102	65	41	84	54	83	77	48	34	30
8	28	25	119	63	41	80	52	83	74	45	34	30
9	29	25	120	61	41	79	51	87	69	43	34	31
10	32	26	118	59	41	78	52	87	69	43	31	34
11	29	27	109	57	41	83	57	87	70	42	33	32
12	26	35	102	54	41	80	60	86	79	41	33	36
13	25	40	100	53	42	79	69	85	78	41	32	32
14	25	40	100	51	43	78	78	87	80	39	31	30
15	25	40	112	50	44	76	75	88	80	38	31	29
16	25	41	107	54	43	73	66	90	79	36	31	29
17	25	48	110	51	52	71	65	91	77	35	31	30
18	25	41	115	47	74	69	62	93	75	41	31	31
19	25	34	132	43	131	67	60	101	70	41	32	33
20	25	32	134	42	253	65	59	103	69	35	32	35
21	25	42	148	42	304	63	57	115	71	33	32	31
22	25	46	140	43	340	61	49	109	70	33	32	30
23	25	41	130	45	326	59	49	103	67	34	30	30
24	26	40	126	50	272	57	54	105	65	36	31	33
25	25	37	115	53	213	59	58	110	62	37	31	34
26	27	39	116	61	175	59	62	110	58	35	31	33
27	26	37	112	61	157	59	64	109	58	34	30	33
28	29	35	104	61	142	61	68	107	57	34	29	34
29	30	36	92	58	---	60	69	104	61	33	32	33
30	28	37	85	56	---	60	70	96	57	34	33	30
31	25	---	81	55	---	64	---	88	---	31	31	---
TOTAL	818	1015	3165	1812	3129	2374	1828	2871	2157	1250	984	943
MEAN	26.4	33.8	102	58.5	112	76.6	60.9	92.6	71.9	40.3	31.7	31.4
MAX	32	48	148	89	340	130	78	115	85	56	34	36
MIN	24	24	41	42	38	57	49	71	57	31	29	29
AC-FT	1620	2010	6280	3590	6210	4710	3630	5690	4280	2480	1950	1870

CAL YR 1981 TOTAL 17269 MEAN 47.3 MAX 148 MIN 23 AC-FT 34250
WTR YR 1982 TOTAL 22346 MEAN 61.2 MAX 340 MIN 24 AC-FT 44320

14090400 WHITEWATER RIVER NEAR CAMP SHERMAN, OR

LOCATION.--Lat 44°43'04", long 121°38'07", in SE¼NE¼ sec.11, T.10 S., R.9 E., Jefferson County, Hydrologic Unit 17070301, Warm Springs Indian Reservation, on left bank 0.2 mi (0.3 km) downstream from Lionshead Creek, 18 mi (29 km) north of Camp Sherman, and at mile 7.1 (11.4 km).

DRAINAGE AREA.--22.9 mi^2 (59.3 km^2).

PERIOD OF RECORD.--July to September 1982.

GAGE.--Water-stage recorder. Altitude of gage is 3,230 ft (985 m), from topographic map.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period July to September, 183 ft^3/s (5.18 m^3/s) July 11, gage height, 2.09 ft (0.637 m); minimum, 55 ft^3/s (1.56 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, JULY 1982 TO SEPTEMBER 1982
MEAN VALUES

DAY	JUL	AUG	SEP
1	167	118	83
2	163	103	83
3	157	93	88
4	143	91	88
5	136	91	84
6	130	93	83
7	132	99	81
8	139	108	79
9	134	105	84
10	132	101	90
11	147	93	79
12	161	91	105
13	155	91	84
14	167	95	73
15	136	93	65
16	126	91	61
17	122	90	59
18	130	86	61
19	141	88	67
20	143	91	79
21	143	97	67
22	130	93	63
23	114	88	64
24	110	86	71
25	112	86	68
26	118	88	65
27	128	88	60
28	134	84	60
29	134	88	58
30	139	93	56
31	130	86	---
TOTAL	4253	2888	2208
MEAN	137	93.2	73.6
MAX	167	118	105
MIN	110	84	56
AC-FT	8440	5730	4380

14091500 METOLIUS RIVER NEAR GRANDVIEW, OR

LOCATION.--Lat 44°37'33", long 121°28'55", in SE¼SW¼ sec.12, T.11 S., R.10 E., Jefferson County, Hydrologic Unit 17070301, Deschutes National Forest, on right bank 1.0 mi (1.6 km) upstream from maximum controlled pool of Lake Billy Chinook, 15.0 mi (24.1 km) northwest of Culver, and at mile 13.6 (21.9 km).

DRAINAGE AREA.--316 mi² (818 km²), at cableway 1.0 mi (1.6 km) downstream, where all discharge measurements are made. Hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--April 1910 to February 1912 (gage heights and discharge measurements only), March 1912 to December 1913, October 1921 to current year. Published as "at Hubbard's ranch, near Sisters" 1910, and as "at Hubbard's ranch, near Grandview" 1910-13.

REVISED RECORDS.--WSP 1448: 1913.

GAGE.--Water-stage recorder. Datum of gage is 1,974.36 ft (601.785 m) National Geodetic Vertical Datum of 1929 (levels by Portland General Electric Co.). Prior to Dec. 31, 1913, nonrecording gage at site 2.3 mi (3.7 km) upstream at different datum. Oct. 1, 1921, to May 3, 1949, nonrecording gage and May 4, 1949, to June 18, 1963, water-stage recorder at site 2.7 mi (4.3 km) downstream at datum 64 ft (19.5 m) lower.

REMARKS.--Records excellent. No regulation. Many small diversions for irrigation above station. Stream is spring fed. Records herein are for measuring site.

AVERAGE DISCHARGE.--62 years (water years 1913, 1922-82), 1,493 ft³/s (42.28 m³/s), 1,082,000 acre-ft/yr (1.33 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,530 ft³/s (213 m³/s) Dec. 24, 1964, gage height, 6.81 ft (2.076 m); minimum, 1,080 ft³/s (30.6 m³/s) Feb. 17, 1932, Oct. 2-31, Nov. 6, 7, 10-14, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,360 ft³/s (152 m³/s) Feb. 20, gage height, 5.25 ft (1.600 m); minimum, 1,210 ft³/s (34.3 m³/s) Nov. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1240	1240	1300	1580	1620	2210	1610	1630	1710	1800	1600	1480
2	1260	1230	1520	1550	1610	2140	1620	1640	1720	1810	1580	1480
3	1240	1230	1430	1560	1600	2080	1610	1630	1700	1800	1570	1490
4	1240	1230	1370	1540	1560	2050	1590	1620	1700	1760	1560	1510
5	1240	1220	1640	1510	1530	1980	1580	1620	1680	1740	1560	1480
6	1310	1220	2060	1460	1520	1940	1580	1620	1670	1740	1570	1480
7	1330	1220	1810	1450	1520	1900	1580	1650	1660	1740	1570	1480
8	1270	1220	1680	1450	1500	1880	1570	1650	1650	1730	1580	1480
9	1290	1220	1630	1440	1490	1870	1570	1640	1650	1720	1570	1490
10	1310	1220	1620	1440	1480	1870	1580	1630	1680	1730	1560	1510
11	1280	1220	1550	1450	1480	1890	1700	1620	1730	1740	1550	1480
12	1250	1250	1520	1440	1470	1860	1710	1620	1870	1740	1550	1540
13	1250	1250	1520	1430	1570	1840	1740	1640	1850	1740	1540	1510
14	1240	1280	1630	1430	2230	1820	1770	1650	1820	1710	1550	1480
15	1240	1280	2040	1430	2520	1800	1740	1650	1860	1700	1540	1460
16	1230	1290	1870	1470	3010	1780	1710	1670	1890	1680	1540	1450
17	1230	1310	1740	1570	3240	1750	1700	1700	1890	1660	1530	1450
18	1230	1290	1720	1530	3030	1740	1670	1700	1910	1670	1530	1450
19	1230	1260	2370	1500	3820	1720	1650	1690	1940	1700	1520	1480
20	1230	1250	2230	1480	4200	1700	1640	1690	1940	1680	1530	1530
21	1230	1370	2020	1470	4340	1690	1620	1700	1940	1670	1530	1480
22	1230	1370	1900	1460	3450	1670	1610	1740	1920	1650	1530	1460
23	1230	1320	1820	1800	3090	1660	1610	1770	1910	1620	1510	1450
24	1230	1310	1810	2100	2810	1650	1620	1770	1860	1610	1510	1480
25	1230	1280	1790	1980	2600	1650	1620	1810	1840	1610	1510	1480
26	1230	1280	1760	1900	2450	1640	1610	1850	1860	1620	1510	1470
27	1230	1260	1720	1820	2330	1630	1620	1790	1900	1630	1500	1460
28	1240	1250	1680	1760	2260	1630	1640	1750	1870	1630	1490	1470
29	1240	1250	1640	1700	---	1620	1630	1730	1840	1620	1510	1460
30	1230	1250	1610	1670	---	1620	1620	1720	1820	1630	1510	1450
31	1240	---	1590	1650	---	1620	---	1700	---	1620	1490	---
TOTAL	38700	37870	53590	49020	65330	55900	49120	52290	54280	52500	47700	44370
MEAN	1248	1262	1729	1581	2333	1803	1637	1687	1809	1694	1539	1479
MAX	1330	1370	2370	2100	4340	2210	1770	1850	1940	1810	1600	1540
MIN	1230	1220	1300	1430	1470	1620	1570	1620	1650	1610	1490	1450
AC-FT	76760	75120	106300	97230	129600	110900	97430	103700	107700	104100	94610	88010

CAL YR 1981 TOTAL 514810 MEAN 1410 MAX 2600 MIN 1220 AC-FT 1021000
WTR YR 1982 TOTAL 600670 MEAN 1646 MAX 4340 MIN 1220 AC-FT 1191000

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, 536,300 acre-ft (661 hm³) Feb. 22, elevation, 1,945.39 ft (592.955 m); minimum observed, 514,200 acre-ft (634 hm³) Jan. 14, elevation, 1,939.72 ft (591.227 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	1,944.56	533,000	-
Oct. 31	1,944.32	532,000	-1,000
Nov. 30	1,944.73	533,700	+1,700
Dec. 31	1,941.66	521,700	-12,000
CAL YR 1981	-	-	-8,300
Jan. 31	1,942.00	523,000	+1,300
Feb. 28	1,944.91	534,300	+11,300
Mar. 31	1,940.93	518,900	-15,400
Apr. 30	1,944.42	532,400	+13,500
May 31	1,943.44	528,600	-3,800
June 30	1,945.00	534,700	+6,100
July 31	1,944.54	532,900	-1,800
Aug. 31	1,944.44	532,500	-400
Sept.30	1,944.27	531,800	-700
WTR YR 1982	-	-	-1,200

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 mi^2 (20,250 km^2), 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 hm^3). Some winter and spring runoff stored in Ochoco Reservoir, capacity, 47,500 acre-ft (58.6 hm^3), in Crescent Lake, Crane Prairie and Wickiup Reservoirs, combined capacity, 354,600 acre-ft (437 hm^3), and since 1960, in Prineville Reservoir, capacity, 152,800 acre-ft (188 hm^3), and since 1964, in Lake Billy Chinook, capacity, 534,700 acre-ft (659 hm^3). Large diversions in upper basin for irrigation.

AVERAGE DISCHARGE.--59 years, 4,493 ft^3/s (127.2 m^3/s), 3,255,000 acre-ft/yr (4.01 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,800 ft^3/s (447 m^3/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, 916 ft^3/s (25.9 m^3/s) July 4, 1982, caused by power company testing control gates on dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,100 ft^3/s (428 m^3/s) Feb. 21, gage height, 6.13 ft (1.868 m); minimum, 916 ft^3/s (25.9 m^3/s) July 4, caused by power company testing control gates on dam; minimum daily, 3,540 ft^3/s (100 m^3/s) Oct. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4090	4640	4720	6130	5850	10300	5590	5910	4450	5550	4160	4330
2	4090	4140	4780	5660	5640	9420	5170	5940	4130	5550	4160	4330
3	4100	4060	4780	5320	5570	8460	4890	5940	4010	5430	4220	4300
4	4090	4110	4780	5210	6020	8020	4900	6030	4050	5050	4270	4300
5	4520	4110	4750	5520	6420	7910	4960	6010	4030	5210	4140	4300
6	4120	4170	5530	5980	6400	7930	5380	6500	4280	5080	4200	4310
7	4060	4240	5970	6000	5680	7920	5340	6620	4410	4860	4140	4250
8	3920	4320	6140	5700	5300	7890	5270	5790	4380	4530	4130	3980
9	3540	4380	6180	5100	5010	7390	5320	5390	4360	4300	4310	3990
10	3840	4530	5830	5240	5050	6570	5400	4970	4260	4310	4430	4180
11	3800	4390	6680	5220	4900	6680	5340	4430	4180	4300	4310	4090
12	4090	4300	6720	5190	4750	7000	5350	4160	4410	4510	4120	4100
13	4190	4170	6590	5280	4770	7060	5550	4220	4720	4730	4160	4120
14	4200	4250	5870	5180	4840	6980	5960	4780	4990	4840	4140	4060
15	4210	4440	6170	4970	4810	6800	6200	5050	5040	5040	4130	4060
16	4200	4450	6630	5070	5580	6760	6550	5070	5430	4520	4160	4110
17	4190	4480	6430	5000	8700	6590	6580	4610	4760	4410	4160	4260
18	4190	4620	6110	5070	9730	6410	6630	4270	4210	4410	4090	4200
19	4130	4350	6530	5120	10600	6420	6350	4720	4460	4270	4130	4190
20	4120	4280	8620	5090	11000	6430	6100	4860	4960	4160	4210	4520
21	4130	4170	9320	5060	14300	6350	5890	4770	5290	4170	4300	4990
22	4310	4180	9320	5040	12700	6440	5140	4900	5450	4160	4380	4990
23	4800	4360	8680	5090	12700	6520	4960	4930	5400	4230	4420	4660
24	4780	4470	7370	5340	11100	6570	5310	5020	5330	4290	4120	4420
25	4770	4520	7230	5730	10200	6660	5300	5240	4540	4290	3980	4450
26	4080	4500	7570	6630	10300	6510	4910	5250	4590	4220	4000	4440
27	3970	4520	7860	6870	10200	6540	4440	4860	5130	4170	4070	4450
28	3970	4540	7870	6300	10100	6610	4360	4680	5440	4110	4240	4400
29	3980	4510	7480	5860	---	6240	4670	4630	5540	4100	4170	4320
30	4040	4540	7220	5800	---	5740	5550	4640	5510	4140	4170	4220
31	4390	---	6590	5770	---	5670	---	4650	---	4180	4270	---
TOTAL	128910	130740	206320	170540	218220	218790	163360	158840	141740	141120	129910	129320
MEAN	4158	4358	6655	5501	7794	7058	5445	5124	4725	4552	4191	4311
MAX	4800	4640	9320	6870	14300	10300	6630	6620	5540	5550	4430	4990
MIN	3540	4060	4720	4970	4750	5670	4360	4160	4010	4100	3980	3980
AC-FT	255700	259300	409200	338300	432800	434000	324000	315100	281100	279900	257700	256500

CAL YR 1981 TOTAL 1648580 MEAN 4517 MAX 9320 MIN 3150 AC-FT 3270000
WTR YR 1982 TOTAL 1937810 MEAN 5309 MAX 14300 MIN 3540 AC-FT 3844000

14092500 DESCHUTES RIVER NEAR MADRAS, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1971 to current year.

INSTRUMENTATION.--Temperature recorder since October 1971.

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 recorded, 13.5°C Oct. 7; minimum, 5.0°C Feb. 10.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---			9.0	8.5	6.5	6.5	6.0	6.0	6.0	6.0
2	---	---			9.0	8.5	6.5	6.5	6.5	6.0	6.0	5.5
3	---	---			8.5	8.5	6.5	6.5	6.0	6.0	5.5	5.5
4	---	---			9.0	8.5	6.5	6.0	6.0	5.5	6.0	5.5
5	---	---			8.5	8.5	6.5	6.0	6.0	5.5	6.0	5.5
6	---	---			8.5	8.5	6.5	6.0	6.0	5.5	6.0	5.5
7	13.5	13.0			8.5	8.5	6.0	6.0	5.5	5.5	6.0	5.5
8	13.0	13.0			8.5	8.5	6.0	6.0	5.5	5.5	6.0	6.0
9	13.0	12.5			8.5	8.5	6.0	6.0	5.5	5.5	6.5	6.0
10	13.0	12.5			8.5	8.0	6.0	6.0	5.5	5.0	6.5	6.0
11	13.0	12.5			8.0	8.0	6.0	6.0	5.5	5.5	6.5	6.0
12	13.0	12.5			8.0	8.0	6.0	6.0	5.5	5.5	6.5	6.0
13	13.0	12.5			8.0	7.5	6.0	6.0	6.0	5.5	6.5	6.0
14	13.0	12.5			8.0	8.0	6.0	6.0	6.0	6.0	6.5	6.0
15	12.5	12.0			8.0	7.5	6.0	6.0	6.0	6.0	6.5	6.0
16	12.5	12.0			8.0	7.5	6.0	6.0	6.5	6.0	6.5	6.0
17	12.5	12.0			7.5	7.5	6.0	6.0	6.0	6.0	6.5	6.0
18	12.0	12.0			7.5	7.5	6.0	6.0	6.0	6.0	6.5	6.0
19	12.0	12.0			7.5	7.5	6.0	6.0	6.5	6.0	6.5	6.0
20	---	---			7.5	7.5	6.0	6.0	6.5	6.5	6.5	6.0
21	---	---			7.5	7.5	6.0	6.0	6.5	6.0	6.5	6.0
22	---	---			7.5	7.0	6.0	6.0	6.0	5.5	6.5	6.0
23	---	---			7.5	7.0	6.5	6.0	6.0	5.5	6.5	6.0
24	---	---			7.5	7.0	6.5	6.0	6.0	6.0	7.0	6.5
25	---	---			7.5	7.0	6.5	6.0	6.0	6.0	6.5	6.5
26	---	---			7.5	7.0	6.5	6.0	6.0	6.0	6.5	6.5
27	---	---			7.5	7.0	6.0	6.0	6.0	6.0	6.5	6.5
28	---	---			7.0	7.0	6.5	6.0	6.0	5.5	6.5	6.0
29	---	---			7.0	6.5	6.5	6.0	---	---	6.5	6.0
30	---	---			7.0	6.5	6.0	6.0	---	---	6.5	6.5
31	---	---			7.0	6.5	6.0	6.0	---	---	7.0	6.5
MONTH	13.5	12.0			9.0	6.5	6.5	6.0	6.5	5.0	7.0	5.5

14092500 DESCHUTES RIVER NEAR MADRAS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	6.5	6.5	8.0	7.0	9.5	9.0	11.0	10.5	---	---	12.5	12.5
2	6.5	6.0	7.5	7.5	9.5	8.5	11.0	10.5	---	---	13.0	12.0
3	6.5	6.0	8.0	7.5	9.5	9.0	11.0	10.5	---	---	13.0	12.0
4	6.5	6.0	8.0	7.5	9.0	9.0	11.0	10.5	---	---	13.0	12.0
5	6.5	6.5	8.0	7.5	9.5	9.0	11.0	10.5	---	---	13.0	12.5
6	6.5	6.0	8.0	7.5	9.5	9.0	11.5	10.5	12.5	12.0	13.0	12.0
7	6.5	6.0	8.0	7.5	9.5	9.0	11.0	10.5	12.5	12.0	12.5	12.0
8	7.0	6.5	8.0	7.5	10.0	9.0	11.5	10.5	12.5	12.0	12.5	12.0
9	7.0	6.5	8.0	7.5	10.0	9.0	11.5	10.5	12.5	12.0	12.5	12.0
10	6.5	6.5	8.5	7.5	10.0	9.5	11.5	10.5	12.5	12.0	12.0	12.0
11	7.0	6.5	8.5	7.5	10.0	9.5	11.5	11.0	12.5	12.0	12.0	11.5
12	7.0	6.5	8.5	7.5	10.0	9.5	11.5	11.0	13.0	12.0	12.0	11.5
13	7.0	6.5	8.5	7.5	10.0	9.5	11.5	11.0	12.5	12.0	12.0	11.5
14	7.0	6.5	8.5	8.0	10.5	9.5	11.5	11.0	13.0	12.0	12.0	11.5
15	7.0	6.5	9.0	8.0	10.5	9.5	11.5	11.0	13.0	12.0	12.5	11.5
16	7.0	6.5	9.0	8.0	10.5	9.5	12.0	11.0	13.0	12.0	12.0	11.5
17	7.5	6.5	8.5	8.0	10.5	9.5	12.0	11.0	13.0	12.0	11.5	11.5
18	7.0	6.5	9.0	8.0	10.5	10.0	12.0	11.0	13.0	12.0	---	---
19	7.0	6.5	9.0	8.0	10.5	10.0	12.0	11.0	13.0	12.0	---	---
20	7.5	6.5	9.5	8.5	10.5	10.0	12.0	11.5	13.0	12.5	---	---
21	7.5	7.0	9.5	9.0	10.5	10.0	12.0	11.0	13.0	12.0	---	---
22	7.5	6.5	9.5	8.5	11.0	10.0	12.0	11.5	13.0	12.5	---	---
23	7.5	6.5	10.0	8.5	11.0	10.0	12.0	11.5	13.0	12.5	---	---
24	7.5	6.5	9.5	8.5	10.5	10.0	12.0	11.5	13.0	12.5	---	---
25	7.5	6.5	9.5	8.5	11.0	10.0	12.5	12.0	13.0	12.0	---	---
26	7.5	7.0	9.0	8.5	10.5	10.5	12.5	12.0	13.0	12.0	---	---
27	8.0	7.0	9.0	8.5	10.5	10.5	12.5	12.0	13.0	12.5	---	---
28	7.5	7.0	9.0	8.5	10.5	10.0	12.5	12.0	13.0	12.5	---	---
29	8.0	7.5	9.0	8.5	11.0	10.5	12.5	12.0	13.0	12.0	---	---
30	7.5	7.0	9.5	8.5	11.0	10.5	12.5	12.0	13.0	12.5	---	---
31	---	---	9.0	8.5	---	---	12.5	11.5	13.0	12.5	---	---
MONTH	8.0	6.0	10.0	7.0	11.0	8.5	12.5	10.5	13.0	12.0	13.0	11.5

14092750 SHITIKE CREEK AT PETERS PASTURE, NEAR WARM SPRINGS, OR

LOCATION.--Lat 44°45'02", long 121°37'56", in NW¼NE¼ sec.35, T.9 S., R.9 E., Jefferson County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on left bank 0.5 mi (0.8 km) downstream from Peters Pasture, and 18 mi (29 km) west of Warm Springs.

DRAINAGE AREA.--22.9 mi^2 (59.3 km^2).

PERIOD OF RECORD.--July to September 1982.

GAGE.--Water-stage recorder. Altitude of gage is 3,580 ft (1,091 m), from topographic map.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period July to September, 164 ft^3/s (4.64 m^3/s) July 1, gage height, 1.63 ft (0.497 m); minimum, 45 ft^3/s (1.27 m^3/s) Sept. 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	JUL	AUG	SEP
1	150	97	49
2	142	95	48
3	134	93	48
4	117	92	48
5	113	90	48
6	108	88	47
7	106	86	46
8	106	81	46
9	106	80	46
10	104	78	52
11	110	77	51
12	122	77	61
13	122	74	54
14	127	74	50
15	110	72	49
16	106	69	48
17	113	68	47
18	119	66	47
19	131	63	46
20	129	61	59
21	129	58	55
22	124	57	51
23	117	56	48
24	117	56	48
25	119	55	47
26	119	52	47
27	119	51	48
28	119	50	48
29	115	51	50
30	115	55	49
31	110	51	---
TOTAL	3678	2173	1481
MEAN	119	70.1	49.4
MAX	150	97	61
MIN	104	50	46
AC-FT	7300	4310	2940

14092885 SHITIKE CREEK BELOW WOLFORD CANYON, NEAR WARM SPRINGS, OR

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.

DRAINAGE AREA.--75.8 mi² (196.3 km²).

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.

GAGE.--Water-stage recorder. Altitude of gage is 1,600 ft (488 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record Feb. 14-22, which are fair. No regulation. Some diversion for irrigation and Warm Springs water supply.

AVERAGE DISCHARGE.--8 years, 93.2 ft³/s (2.639 m³/s), 16.70 in/yr (424 mm/yr), 67,520 acre-ft/yr (83.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,480 ft³/s (41.9 m³/s) Feb. 21, 1982, gage height, 6.91 ft (2.106 m), from floodmark; maximum gage height, 7.35 ft (2.240 m) Dec. 13, 1977; minimum daily discharge, 17 ft³/s (0.48 m³/s) Oct. 12-15, 17-22, 24-27, Nov. 12, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 6	0300	544	15.4	5.91	1.801
Dec. 15	1730	487	13.8	5.66	1.725
Dec. 19	1100	636	18.0	5.95	1.814
Feb. 21	unknown	*1,480	41.9	*a6.91	2.106

Minimum, 36 ft³/s (1.02 m³/s) Oct. 24-27.

a From floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	47	61	125	138	243	95	136	168	212	101	68
2	40	47	143	119	134	225	97	139	178	215	97	65
3	42	45	174	119	131	212	93	144	173	208	94	65
4	40	44	135	115	119	201	90	143	167	196	92	68
5	39	43	196	110	115	190	89	138	158	185	92	66
6	45	42	473	105	125	182	87	137	151	180	91	65
7	88	41	315	111	110	175	85	147	148	174	89	65
8	59	40	231	119	113	169	83	159	144	173	90	64
9	68	40	192	106	99	168	83	154	148	166	89	63
10	73	39	177	103	110	170	84	147	164	160	88	73
11	68	39	156	94	104	177	111	140	191	153	88	72
12	57	44	143	85	91	174	132	138	232	156	86	82
13	52	53	136	83	96	170	151	147	234	154	84	76
14	49	62	153	83	260	166	154	158	220	151	86	68
15	45	66	348	86	400	158	145	167	250	141	84	65
16	44	67	300	90	500	151	137	175	258	130	80	64
17	42	62	246	132	700	146	134	191	260	128	77	63
18	42	61	224	123	650	140	127	193	276	126	75	62
19	41	56	517	111	700	133	120	179	283	140	74	64
20	40	55	424	103	800	126	114	174	278	137	73	87
21	40	77	322	99	950	120	109	181	277	134	72	78
22	39	100	259	94	650	113	109	208	263	126	70	68
23	38	87	224	182	450	109	114	232	250	114	69	65
24	38	80	208	269	379	106	122	220	239	112	68	67
25	37	69	204	248	333	105	126	241	232	111	67	67
26	37	66	188	227	299	104	127	255	242	115	67	65
27	38	60	170	201	268	105	129	219	255	113	67	67
28	42	56	160	182	245	107	135	189	240	115	66	66
29	43	54	147	165	---	102	137	171	224	109	70	69
30	43	52	138	155	---	100	137	164	214	109	76	66
31	44	---	131	147	---	100	---	166	---	107	71	---
TOTAL	1455	1694	6895	4091	9069	4647	3456	5352	6517	4550	2493	2043
MEAN	46.9	56.5	222	132	324	150	115	173	217	147	80.4	68.1
MAX	88	100	517	269	950	243	154	255	283	215	101	87
MIN	37	39	61	83	91	100	83	136	144	107	66	62
CFSM	.62	.75	2.93	1.74	4.27	1.98	1.52	2.28	2.86	1.94	1.06	.90
IN.	.71	.83	3.38	2.01	4.45	2.28	1.70	2.63	3.20	2.23	1.22	1.00
AC-FT	2890	3360	13680	8110	17990	9220	6850	10620	12930	9020	4940	4050

CAL YR 1981 TOTAL 36152 MEAN 99.0 MAX 1040 MIN 28 CFSM 1.31 IN 17.74 AC-FT 71710
WTR YR 1982 TOTAL 52262 MEAN 143 MAX 950 MIN 37 CFSM 1.89 IN 25.65 AC-FT 103700

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 excellent. No regulation. Diversions above station.

AVERAGE DISCHARGE.--10 years, 442 ft³/s (12.52 m³/s), 11.41 in/yr (290 mm/yr), 320,200 acre-ft/yr (395 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 discharges above base of 1,700 ft³/s (48.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 6	0900	3,090	87.5	5.66	1.725	Jan. 23	2200	3,920	111	6.49	1.978
Dec. 15	2000	4,170	118	6.73	2.051	Feb. 17	1600	3,850	109	6.42	1.957
Dec. 19	1600	3,560	101	6.14	1.871	Feb. 21	0530	*4,840	137	*7.33	2.234
Jan. 17	2130	1,780	50.4	4.14	1.262						

Minimum, 225 ft³/s (6.37 m³/s) Oct. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	233	238	286	556	756	1210	578	636	600	402	293	290
2	231	236	424	523	712	1120	571	640	595	397	296	287
3	231	235	565	513	701	1010	580	650	592	399	301	288
4	231	233	446	513	613	968	557	653	582	388	300	292
5	231	231	509	481	517	905	543	635	573	378	297	289
6	243	231	2480	403	524	852	537	631	562	368	296	286
7	259	231	1410	446	539	824	540	646	552	363	293	286
8	248	231	893	477	475	800	523	674	537	354	293	285
9	246	231	701	433	498	792	511	669	524	347	295	284
10	253	231	634	412	436	801	505	652	522	343	298	292
11	249	234	565	420	484	844	625	639	526	341	302	293
12	241	239	500	416	478	865	658	631	555	337	300	295
13	238	246	468	399	482	827	641	639	596	332	297	295
14	237	267	490	412	927	806	690	640	568	330	295	290
15	235	285	1830	504	1640	776	673	648	542	327	299	287
16	235	297	1710	634	2260	742	647	657	528	327	295	286
17	233	305	976	1480	3420	718	629	683	521	323	293	288
18	231	304	786	1290	2930	702	610	702	513	323	291	289
19	230	275	2310	940	3200	679	592	688	506	319	291	304
20	230	261	1980	743	3300	655	575	670	502	316	289	350
21	229	281	1550	664	4440	637	566	664	490	313	289	340
22	230	360	1070	589	3270	620	563	678	471	308	286	309
23	231	355	870	1920	2570	609	568	711	452	307	286	300
24	231	332	803	3130	2050	597	581	719	439	305	286	305
25	231	299	1000	2180	1710	588	596	724	435	305	286	310
26	232	290	831	1680	1490	587	604	744	427	304	286	302
27	235	280	754	1330	1330	588	604	729	447	302	285	304
28	238	268	716	1110	1190	603	620	686	428	301	283	302
29	238	258	644	958	---	597	640	650	421	300	291	316
30	238	261	604	869	---	583	636	625	415	297	301	307
31	241	---	565	823	---	585	---	609	---	296	295	---
TOTAL	7339	8025	29370	27248	42942	23490	17763	20622	15421	10352	9088	8951
MEAN	237	268	947	879	1534	758	592	665	514	334	293	298
MAX	259	360	2480	3130	4440	1210	690	744	600	402	302	350
MIN	229	231	286	399	436	583	505	609	415	296	283	284
CFSM	.45	.51	1.80	1.67	2.92	1.44	1.13	1.26	.98	.64	.56	.57
IN.	.52	.57	2.08	1.93	3.04	1.66	1.26	1.46	1.09	.73	.64	.63
AC-FT	14560	15920	58260	54050	85180	46590	35230	40900	30590	20530	18030	17750

CAL YR 1981 TOTAL 144974 MEAN 397 MAX 2840 MIN 214 CFSM .76 IN 10.25 AC-FT 287600
WTR YR 1982 TOTAL 220611 MEAN 604 MAX 4440 MIN 229 CFSM 1.15 IN 15.60 AC-FT 437600

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).

WATER-DISCHARGE RECORDS

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 good. No regulation. Diversions above station for irrigation.

AVERAGE DISCHARGE.--65 years, 427 ft³/s (12.09 m³/s), 309,400 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 discharges above base of 1,600 ft³/s (45.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 6	1000	1,660	47.0	4.48	1.366	Jan. 24	1130	3,060	86.7	6.04	1.841
Dec. 15	2030	2,070	58.6	4.97	1.515	Feb. 20	2330	*4,940	140	*7.58	2.310
Dec. 19	1800	2,590	73.3	5.56	1.695						

Minimum, 105 ft³/s (2.97 m³/s) Oct. 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	149	183	549	939	1250	554	718	685	339	142	130
2	126	139	505	526	883	1160	553	741	673	332	140	126
3	126	133	548	503	852	1070	543	746	638	324	139	126
4	124	129	402	506	769	1030	518	723	609	308	136	130
5	124	125	497	472	687	961	503	701	579	294	135	127
6	128	123	1380	382	671	897	495	695	579	276	133	125
7	142	122	1050	370	651	859	482	782	549	262	133	128
8	163	119	740	429	608	834	467	794	522	251	137	127
9	157	119	593	393	601	808	457	752	509	233	140	124
10	173	118	560	380	541	889	459	723	528	225	139	147
11	168	119	482	377	575	967	612	684	569	223	141	143
12	152	132	427	369	550	948	656	690	646	219	142	164
13	137	139	401	355	582	903	654	735	621	210	139	148
14	132	162	400	424	1190	882	679	741	594	212	142	132
15	124	171	1180	655	1760	843	644	764	587	206	138	124
16	122	189	1290	805	2270	795	617	806	596	197	133	118
17	119	213	889	1350	2820	755	606	881	610	191	130	116
18	117	229	755	1140	2590	726	588	868	612	190	128	116
19	113	194	1870	947	3170	687	561	830	604	187	130	127
20	107	179	1890	804	3660	655	541	806	576	180	129	218
21	105	195	1410	713	4160	628	538	830	570	169	129	208
22	105	274	1080	633	3060	609	552	913	528	163	131	162
23	105	249	913	1760	2450	596	599	947	487	160	129	149
24	107	220	845	2830	2060	592	665	927	455	155	124	147
25	109	195	1020	2240	1760	585	675	1020	439	155	120	153
26	114	186	880	1820	1560	590	673	1050	433	154	119	147
27	121	176	800	1560	1390	599	701	924	465	152	121	144
28	123	164	751	1350	1260	616	735	818	417	152	123	143
29	125	156	671	1190	---	595	735	757	380	150	131	171
30	127	160	613	1090	---	575	718	706	358	146	148	155
31	163	---	576	1030	---	569	---	690	---	146	134	---
TOTAL	3986	4978	25601	27952	44069	24473	17780	24762	16418	6561	4135	4275
MEAN	129	166	826	902	1574	789	593	799	547	212	133	143
MAX	173	274	1890	2830	4160	1250	735	1050	685	339	148	218
MIN	105	118	183	355	541	569	457	684	358	146	119	116
AC-FT	7910	9870	50780	55440	87410	48540	35270	49120	32570	13010	8200	8480

CAL YR 1981 TOTAL 123413 MEAN 338 MAX 3150 MIN 90 AC-FT 244800
WTR YR 1982 TOTAL 204990 MEAN 562 MAX 4160 MIN 105 AC-FT 406600

14101500 WHITE RIVER BELOW TYGH VALLEY, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
TEMPERATURES: October 1981 to September 1982.
SEDIMENT DISCHARGES: October 1981 to September 1982

INSTRUMENTATION.--Temperature recorder since October 1981. Automatic pumping sampler since October 1981.

REMARKS.--Supplemental tables for sediment concentration and discharge for greater-than and less-than 0.062 mm are included.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 23.5°C July 29, 30; minimum, 0.5°C Feb. 5, 6, 10, 11.
SEDIMENT CONCENTRATIONS: Maximum daily, 17,900 mg/l Dec. 15; minimum daily, 4 mg/l on many days throughout the year.
SEDIMENT DISCHARGE: Maximum daily, 57,800 tons (52,400 tonnes) Dec. 6; minimum daily, 1.4 tons (1.3 tonnes) Aug. 16, Sept. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM
DEC								
10...	1230	574	440	682	--	--	--	--
15...	1300	1040	3920	11000	--	4	3	8
22...	1400	1050	500	1420	--	--	--	--
JAN								
16...	1430	741	490	980	--	--	12	12
23...	1430	2380	1310	8420	--	8	11	18
26...	1100	1830	270	1330	--	--	--	--
APR								
11...	1030	584	90	142	18	--	--	--
15...	1600	574	31	48	17	--	--	--
18...	0930	540	54	79	10	--	--	--
27...	1100	641	53	92	16	--	--	--
MAY								
05...	1300	641	61	106	10	--	--	--
10...	1230	662	36	64	15	--	--	--
13...	1200	673	46	84	11	--	--	--
18...	1130	800	126	272	7	--	--	--
20...	1130	741	61	122	9	--	--	--
23...	1730	875	30	71	19	--	--	--
27...	1300	855	76	175	17	--	--	--
29...	1030	701	39	74	19	--	--	--
JUL								
29...	0800	150	3000	1220	--	22	38	61

DATE	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM
DEC							
10...	--	--	31	65	99	--	--
15...	9	14	26	50	87	98	100
22...	--	--	15	26	70	100	--
JAN							
16...	19	20	26	33	58	100	--
23...	--	29	40	58	85	99	100
26...	--	--	25	44	83	100	--
APR							
11...	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--
MAY							
05...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--
JUL							
29...	80	90	--	--	--	--	--

14101500 WHITE RIVER BELOW TYGH VALLEY, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	---	---	10.0	6.5	5.5	4.5	2.0	1.5	5.0	4.0	6.5	5.0
2	---	---	9.5	5.5	6.5	3.5	2.5	2.0	5.5	4.5	6.5	4.5
3	---	---	9.5	5.5	4.5	3.0	2.5	2.0	5.0	4.0	7.0	5.5
4	---	---	8.0	5.0	5.0	4.0	2.5	2.0	4.0	1.0	6.5	5.5
5	---	---	6.5	3.0	6.5	5.0	2.0	1.5	1.0	.5	6.5	4.0
6	---	---	7.0	3.5	6.0	5.0	2.0	1.5	1.5	.5	6.0	4.0
7	---	---	7.5	4.0	5.5	4.5	1.5	1.0	2.0	1.0	7.0	5.0
8	---	---	8.0	4.5	5.5	5.0	1.5	1.0	1.5	1.0	7.0	5.5
9	11.5	9.0	7.0	4.0	6.0	5.5	1.5	1.5	2.5	1.0	---	---
10	10.5	9.5	7.5	4.5	6.0	5.0	2.0	1.5	1.5	.5	---	---
11	11.5	8.0	8.5	6.5	5.0	4.5	2.0	2.0	2.5	.5	---	---
12	9.5	6.5	10.0	8.0	4.5	4.0	2.5	2.0	4.0	2.0	5.5	4.0
13	10.0	5.5	9.0	6.5	4.0	4.0	2.5	2.5	5.5	4.0	6.0	4.5
14	9.5	5.0	8.5	6.5	4.0	3.5	3.0	2.5	5.5	5.0	6.0	5.0
15	10.0	5.0	8.0	6.5	3.5	3.5	3.0	2.0	6.0	4.5	6.0	4.5
16	10.5	5.5	6.5	6.0	4.5	3.0	4.0	3.0	6.5	5.0	5.0	3.5
17	11.5	6.5	7.0	6.0	4.5	4.0	4.0	3.0	6.5	5.0	5.0	3.5
18	11.5	7.0	6.5	5.0	4.0	4.0	4.0	3.0	5.5	4.0	5.5	4.5
19	12.0	7.0	7.0	5.0	4.5	3.5	4.5	3.5	7.0	5.0	5.0	4.0
20	11.0	7.0	7.0	6.0	5.0	4.0	4.0	3.0	7.0	5.0	5.5	4.5
21	9.0	5.0	8.5	6.5	5.0	4.0	4.0	3.0	5.0	4.0	6.0	4.5
22	8.0	3.5	7.0	6.0	4.0	3.0	3.5	2.5	5.0	3.5	6.0	4.5
23	7.5	3.5	7.0	5.5	4.0	3.0	5.5	3.5	4.5	3.0	6.5	5.0
24	9.5	4.5	6.5	5.5	4.5	3.5	5.0	4.5	5.0	3.0	7.0	5.5
25	10.5	6.0	5.5	3.5	4.5	4.0	5.5	4.5	4.5	3.0	7.0	5.0
26	11.5	10.0	5.0	4.5	4.5	3.0	5.0	4.5	5.0	4.0	7.5	6.5
27	11.0	10.0	6.0	4.0	3.5	2.5	5.0	4.0	5.5	4.0	7.0	6.0
28	11.5	8.5	4.5	2.5	3.5	2.5	5.0	3.5	5.0	4.0	7.0	6.0
29	9.5	7.0	4.5	2.5	2.5	2.0	4.5	3.0	---	---	7.0	5.0
30	8.0	6.0	4.5	3.0	2.0	1.5	5.5	4.0	---	---	6.5	5.0
31	9.0	7.0	---	---	2.5	1.5	5.0	4.0	---	---	7.5	4.5
MONTH	12.0	3.5	10.0	2.5	6.5	1.5	5.5	1.0	7.0	.5	7.5	3.5

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

14101500 WHITE RIVER BELOW TYGH VALLEY, OR--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	80	28	170	68	380	188	280	415	85	216	155	523
2	75	26	120	45	780	1060	255	362	70	167	130	407
3	75	26	80	29	370	547	195	265	65	150	110	318
4	68	23	80	28	120	130	195	266	65	135	98	273
5	68	23	70	24	940	1260	150	191	55	102	88	228
6	80	28	67	22	15500	57800	85	88	42	76	76	184
7	120	46	57	19	5000	14200	85	85	42	74	66	153
8	230	101	57	18	1150	2300	125	145	36	59	61	137
9	230	97	57	18	560	897	75	80	40	65	56	122
10	310	145	57	18	450	680	70	72	40	58	77	185
11	310	141	57	18	210	273	65	66	39	61	89	232
12	160	66	80	29	160	184	60	60	34	50	76	195
13	120	44	120	45	115	125	45	43	39	61	73	178
14	80	29	230	101	115	124	60	69	135	434	74	176
15	57	19	320	148	17900	57000	65	115	355	1690	63	143
16	57	19	600	306	1120	3900	140	304	620	3800	55	118
17	57	18	950	546	1100	2640	245	893	930	7080	56	114
18	57	18	1900	1170	450	917	150	462	780	5450	46	90
19	43	13	600	314	9290	46900	105	268	1170	10000	45	83
20	43	12	410	198	700	3570	75	163	1620	16000	41	73
21	30	8.5	700	369	330	1260	55	106	2160	24300	41	70
22	30	8.5	6300	4660	170	496	55	94	1120	9250	35	58
23	30	8.5	3500	2350	115	283	610	2900	675	4470	35	56
24	43	12	1500	891	110	251	1000	7640	450	2500	35	56
25	43	13	650	342	1110	3060	560	3390	315	1500	30	47
26	43	13	550	276	1870	4440	370	1820	225	948	30	48
27	57	19	380	181	1550	3350	285	1200	175	657	25	40
28	57	19	230	102	930	1890	185	674	155	527	30	50
29	57	19	230	97	630	1140	140	450	---	---	22	35
30	80	27	230	99	430	712	115	338	---	---	20	31
31	220	97	---	---	280	435	105	292	---	---	15	23
TOTAL	---	1166.5	---	12531	---	212012	---	23316	---	89880	---	4446

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	16	24	60	116	16	30	20	18	4	1.5	8	2.8
2	16	24	60	120	10	18	14	13	4	1.5	8	2.7
3	14	21	60	121	18	31	12	10	4	1.5	8	2.7
4	18	25	60	117	16	26	10	8.3	6	2.2	8	2.8
5	12	16	60	114	14	22	8	6.4	12	4.4	6	2.1
6	10	13	60	113	12	19	8	6.0	6	2.2	6	2.0
7	10	13	65	137	10	15	6	4.2	8	2.9	4	1.4
8	12	15	65	139	10	14	6	4.1	8	3.0	6	2.1
9	12	15	50	102	16	22	6	3.8	6	2.3	25	8.4
10	14	17	35	68	20	29	8	4.9	6	2.3	8	3.2
11	70	116	30	55	25	38	10	6.0	6	2.3	12	4.6
12	60	106	35	65	30	52	12	7.1	8	3.1	10	4.4
13	50	88	45	89	30	50	8	4.5	4	1.5	65	26
14	40	73	40	80	40	64	10	5.7	6	2.3	25	8.9
15	30	52	35	72	20	32	14	7.8	8	3.0	18	6.0
16	30	50	60	131	25	40	14	7.4	4	1.4	16	5.1
17	30	49	80	190	25	41	12	6.2	6	2.1	8	2.5
18	30	48	100	234	25	41	12	6.2	6	2.1	18	5.6
19	16	24	80	179	25	41	10	5.0	6	2.1	20	6.9
20	16	23	60	131	110	171	10	4.9	6	2.1	120	71
21	16	23	50	112	70	108	10	4.6	6	2.1	70	39
22	16	24	50	123	35	50	10	4.4	6	2.1	20	8.7
23	18	29	50	128	35	46	10	4.3	6	2.1	20	8.0
24	20	36	60	150	35	43	10	4.2	6	2.0	30	12
25	30	55	100	275	30	36	10	4.2	8	2.6	85	35
26	45	82	90	255	25	29	16	6.7	8	2.6	25	9.9
27	55	104	80	200	20	25	6	2.5	8	2.6	16	6.2
28	55	109	50	110	20	23	6	2.5	8	2.7	25	9.7
29	60	119	35	72	25	26	6	2.4	8	2.8	40	18
30	60	116	25	48	25	24	6	2.4	8	3.2	14	5.9
31	---	---	20	37	---	---	6	2.4	8	2.9	---	---
TOTAL	---	1509	---	3883	---	1206	---	180.1	---	73.5	---	323.6

14101500 WHITE RIVER BELOW TYGH VALLEY, OR--Continued

SUSPENDED-SEDIMENT, LESS THAN 0.062 MM, WATER YEAR OCTOBER 1981 TO MARCH 1982

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	70	24	130	52	230	114	20	30	15	38	15	51
2	65	22	100	38	240	327	15	21	10	24	10	31
3	65	22	70	25	120	178	15	20	10	23	10	29
4	60	20	70	24	50	54	15	20	15	31	8	22
5	60	20	60	20	210	282	20	25	15	28	8	21
6	70	24	60	20	2500	9310	25	26	7	13	6	15
7	100	38	50	16	1000	2840	30	30	7	12	6	14
8	170	75	50	16	350	699	25	29	6	9.8	6	14
9	170	72	50	16	160	256	15	16	10	16	6	13
10	210	98	50	16	150	227	10	10	15	22	7	17
11	210	95	50	16	80	104	10	10	9	14	9	23
12	130	53	70	25	60	69	10	10	9	13	6	15
13	100	37	100	38	45	49	15	14	9	14	3	7.3
14	70	25	170	74	45	49	30	34	15	48	4	9.5
15	50	17	220	102	2900	9240	30	53	55	261	3	6.8
16	50	16	350	179	120	418	85	185	120	735	5	11
17	50	16	450	259	600	1440	85	310	180	1370	6	12
18	50	16	700	433	350	713	30	92	130	909	6	12
19	40	12	350	183	8900	44900	25	64	170	1460	5	9.3
20	40	12	260	126	350	1790	25	54	220	2170	6	11
21	30	8.5	400	211	150	571	15	29	360	4040	6	10
22	30	8.5	1300	962	70	204	25	43	170	1400	5	8.2
23	30	8.5	1000	672	45	111	240	1140	75	496	5	8.0
24	40	12	600	356	50	114	250	1910	50	278	5	8.0
25	40	12	350	184	110	303	110	665	35	166	5	7.9
26	40	12	350	176	70	166	70	344	25	105	5	8.0
27	50	16	280	133	45	97	35	147	15	56	5	8.1
28	50	17	170	75	30	61	25	91	15	51	10	17
29	50	17	170	72	30	54	20	64	---	---	7	11
30	70	24	170	73	30	50	15	44	---	---	5	7.8
31	160	70	---	---	30	47	15	42	---	---	5	7.7
TOTAL	---	919.5	---	4592	---	74837	---	5572	---	13802.8	---	445.6

SUSPENDED-SEDIMENT, GREATER THAN 0.062 MM, WATER YEAR OCTOBER 1981 TO MARCH 1982

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	10	3.5	40	16	150	74	260	385	70	177	140	472
2	10	3.4	20	7.5	540	736	240	341	60	143	120	376
3	10	3.4	10	3.6	250	370	180	244	55	127	100	289
4	8	2.7	10	3.5	70	76	180	246	50	104	90	250
5	8	2.7	10	3.4	730	980	130	166	40	74	80	208
6	10	3.5	7	2.3	13000	48400	60	62	35	63	70	170
7	20	7.7	7	2.3	4000	11300	55	55	35	62	60	139
8	60	26	7	2.2	800	1600	100	116	30	49	55	124
9	60	25	7	2.2	400	640	60	64	30	49	50	109
10	100	47	7	2.2	300	454	60	62	25	37	70	168
11	100	45	7	2.2	130	169	55	56	30	47	80	209
12	30	12	10	3.6	100	115	50	50	25	37	70	179
13	20	7.4	20	7.5	70	76	30	29	30	47	70	171
14	10	3.6	60	26	70	76	30	34	120	386	70	167
15	7	2.3	100	46	15000	47800	35	62	300	1430	60	137
16	7	2.3	250	128	1000	3480	55	120	500	3060	50	107
17	7	2.2	500	288	500	1200	160	583	750	5710	50	102
18	7	2.2	1200	742	100	204	120	369	650	4550	40	78
19	3	.92	250	131	390	1970	80	205	1000	8560	40	74
20	3	.87	150	72	350	1790	50	109	1400	13800	35	62
21	0	.00	300	158	180	685	40	77	1800	20200	35	59
22	0	.00	5000	3700	100	292	30	51	950	7850	30	49
23	0	.00	2500	1680	70	173	370	1760	600	3970	30	48
24	3	.87	900	535	60	137	750	5730	400	2220	30	48
25	3	.88	300	158	1000	2750	450	2720	280	1330	25	39
26	3	.92	200	100	1800	4280	300	1470	200	842	25	40
27	7	2.3	100	48	1500	3240	250	1050	160	600	20	32
28	7	2.3	60	27	900	1820	160	583	140	476	20	33
29	7	2.4	60	25	600	1090	120	386	---	---	15	24
30	10	3.4	60	26	400	662	100	294	---	---	15	23
31	60	26	---	---	250	389	90	250	---	---	10	15
TOTAL	---	242.76	---	7948.5	---	137028	---	17729	---	76000	---	4001

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.--78 years, 5,827 ft³/s (165.0 m³/s), 4,222,000 acre-ft/yr (5.21 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, 27,400 ft³/s (776 m³/s) Feb. 21, gage height, 7.42 ft (2.262 m); minimum, 4,110 ft³/s (116 m³/s) Oct. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4660	5110	5230	8130	8150	13500	7070	7490	5940	6240	4340	4600
2	4690	5200	5630	7910	8000	13500	6940	7580	5740	6240	4330	4640
3	4690	4720	6350	7060	7660	11700	6340	7640	5380	6230	4370	4610
4	4720	4660	6110	7050	7500	10700	6230	7690	5330	5880	4450	4620
5	4690	4720	5940	6750	7930	10400	6230	7700	5300	5710	4480	4620
6	5200	4690	12800	7240	7930	10200	6460	7740	5260	5780	4360	4610
7	4780	4780	11500	7210	7740	10100	6700	8460	5500	5540	4390	4610
8	4780	4840	9010	7350	7010	9990	6610	8050	5520	5320	4330	4540
9	4460	4870	8310	6820	6390	9750	6470	7320	5440	4900	4360	4190
10	4260	5020	7890	6380	6260	9180	6580	7050	5430	4780	4670	4380
11	4570	5110	7750	6410	6250	8460	6870	6310	5290	4750	4600	4500
12	4460	4990	8140	6460	6060	9170	7180	5780	5410	4750	4490	4460
13	4810	4900	8070	6480	5990	9170	7190	5700	5850	5060	4370	4500
14	4840	4810	7680	6600	6720	9110	7540	5700	6060	5140	4400	4440
15	4810	5020	10700	7020	9040	9100	7900	6500	6160	5330	4400	4390
16	4870	5200	14200	7140	10200	8640	8180	6540	6370	5280	4390	4390
17	4840	5310	10100	9280	14900	8690	8280	6670	6500	4770	4380	4480
18	4810	5310	8950	9530	17000	8260	8330	6010	5810	4720	4400	4590
19	4810	5370	13500	8530	18000	8180	8150	5940	5270	4710	4340	4590
20	4720	4990	17400	7910	19300	8150	7800	6460	5760	4490	4400	4760
21	4750	4990	15700	7490	23900	8020	7600	6380	6140	4410	4450	5340
22	4720	4990	13800	7170	22800	7950	7060	6530	6430	4380	4570	5480
23	5080	5140	12700	8130	19500	8030	6300	6670	6390	4380	4640	5430
24	5430	5250	10700	16300	17500	8020	6720	6760	6260	4460	4690	5020
25	5400	5340	10300	13100	15300	8140	6860	7040	6020	4460	4230	4930
26	5340	5310	10100	11700	14400	8030	6920	7150	5200	4460	4220	4950
27	4600	5250	10300	11300	14100	8060	6220	7120	5710	4350	4200	4940
28	4570	5230	10300	10200	13500	8180	6010	6370	6070	4340	4360	4980
29	4570	5230	9920	9150	---	8160	5970	6210	6380	4300	4540	4970
30	4570	5170	9400	8570	---	7450	6560	6100	6300	4300	4480	4800
31	4720	---	9020	8310	---	7210	---	6000	---	4330	4480	---
TOTAL	148220	151520	307500	258680	329030	283200	209270	210660	174220	153790	137110	141360
MEAN	4781	5051	9919	8345	11750	9135	6976	6795	5807	4961	4423	4712
MAX	5430	5370	17400	16300	23900	13500	8330	8460	6500	6240	4690	5480
MIN	4260	4660	5230	6380	5990	7210	5970	5700	5200	4300	4200	4190
AC-FT	294000	300500	609900	513100	652600	561700	415100	417800	345600	305000	272000	280400

CAL YR 1981 TOTAL 2049680 MEAN 5616 MAX 17400 MIN 3790 AC-FT 4066000
WTR YR 1982 TOTAL 2504560 MEAN 6862 MAX 23900 MIN 4190 AC-FT 4968000

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 September 1981.
WATER TEMPERATURES: December 1952 to February 1954, November 1954 to September 1958, June 1962 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT											
13...	1330	4800	133	7.8	12.0	12.1	K15	40	44	8.2	5.6
DEC											
15...	1515	10200	134	--	7.0	12.6	--	--	48	11	5.1
FEB											
02...	1355	8080	146	--	7.0	12.0	K4	K11	49	10	5.8
APR											
05...	1415	6390	122	--	8.5	12.2	K3	42	44	9.9	4.7
JUN											
01...	1430	5930	110	7.9	16.0	11.0	K18	55	40	8.6	4.5
JUL											
26...	1400	4460	125	8.2	20.0	9.8	62	43	43	9.1	4.9

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (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, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT										
13...	11	2.0	64	<5.0	2.2	.1	.080	.16	.29	.18
DEC										
15...	9.8	2.2	61	5.0	2.5	.2	<.060	<.10	.86	.28
FEB										
02...	12	1.9	69	<5.0	2.6	.1	<.060	.27	.33	--
APR										
05...	9.3	1.6	61	5.0	2.1	.2	<.060	.13	<.21	.15
JUN										
01...	8.8	1.7	55	<5.0	2.1	.2	<.060	<.10	1.20	.06
JUL										
26...	9.9	2.1	67	<5.0	2.2	.1	.090	<.10	.80	.21

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, TOTAL (MG/L AS P)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	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										
13...	.060	.070	33	99	--	1280	3.1	11	143	57
DEC										
15...	.060	.160	30	90	103	2480	30	640	17600	54
FEB										
02...	<.010	.020	33	100	--	2180	6.5	53	1160	32
APR										
05...	.030	.030	30	99	100	1710	4.7	20	345	40
JUN										
01...	.040	.050	28	84	--	1340	4.4	18	288	51
JUL										
26...	.070	.090	28	93	--	1120	2.9	14	169	56

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	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)	COBALT, DIS-SOLVED (UG/L AS CO)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)
OCT										
13...	2	3	9	100	<1	<1	<10	<10	<3	4
DEC										
15...	1	3	20	<100	<1	<1	<10	<10	<3	<1
FEB										
02...	2	2	17	<100	<1	<1	<10	10	<3	4
APR										
05...	1	1	29	100	<1	<1	<10	<10	<1	2
JUL										
26...	1	1	14	<100	<1	<1	<10	10	<1	<1

DATE	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)	MERCURY DIS-SOLVED (UG/L AS HG)
OCT									
13...	1	8	15	140	1	<1	2	10	<.1
DEC									
15...	2	14	71	4500	<1	2	13	130	.3
FEB									
02...	1	6	47	760	3	<1	2	50	<.1
APR									
05...	1	6	46	600	<1	4	5	30	.1
JUL									
26...	1	2	14	150	<1	<1	2	20	<.1

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	NICKEL, DIS-SOLVED (UG/L AS NI)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SELE-NIUM, TOTAL (UG/L AS SE)	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)
OCT									
13...	.1	3	3	<1	<1	<1	<1	<3	20
DEC									
15...	.1	<1	<1	<1	<1	<1	<1	20	20
FEB									
02...	.1	2	2	<1	<1	<1	<1	4	20
APR									
05...	.6	<1	3	<1	<1	<1	<1	29	20
JUL									
26...	.2	<1	1	<1	<1	<1	<1	13	20

K - Results based on colony count outside acceptable range (non-ideal colony count).

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.--104 years, 193,400 ft³/s (5,477 m³/s), 140,100,000 acre-ft/yr (173 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (1858-1982), 1,240,000 ft³/s (35,100 m³/s) June 6, 1894, gage height, 106.5 ft (32.46 m); minimum (1878-1982), 12,100 ft³/s (343 m³/s) Apr. 16, 1968 (due to closure of John Day dam, recorded by AVM).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 443,000 ft³/s (12,500 m³/s) June 20; maximum gage height, 85.05 ft (25.923 m) (date unknown); minimum daily discharge, 63,500 ft³/s (1,800 m³/s) Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	132000	84300	135000	160000	192000	339000	288000	276000	315000	426000	132000	145000
2	129000	121000	146000	155000	187000	348000	284000	289000	334000	405000	177000	134000
3	81000	120000	147000	135000	190000	351000	276000	303000	337000	399000	164000	124000
4	63500	128000	163000	198000	203000	344000	261000	333000	331000	405000	177000	95800
5	151000	151000	143000	189000	185000	318000	274000	336000	341000	375000	213000	99700
6	144000	139000	139000	187000	191000	299000	289000	339000	351000	360000	234000	104000
7	145000	107000	173000	183000	197000	285000	292000	315000	336000	364000	230000	145000
8	144000	87000	188000	194000	202000	301000	246000	291000	336000	345000	217000	164000
9	129000	126000	163000	197000	191000	307000	230000	330000	311000	314000	210000	178000
10	98200	131000	141000	176000	194000	323000	223000	337000	312000	306000	180000	161000
11	91400	132000	155000	182000	201000	329000	242000	340000	313000	328000	176000	136000
12	135000	111000	155000	184000	195000	352000	280000	318000	314000	326000	207000	127000
13	129000	122000	153000	196000	189000	347000	303000	318000	322000	291000	173000	142000
14	128000	114000	159000	177000	182000	383000	366000	319000	335000	295000	153000	157000
15	132000	115000	159000	177000	167000	383000	359000	319000	401000	273000	117000	164000
16	151000	121000	173000	152000	175000	373000	365000	336000	410000	266000	148000	137000
17	112000	130000	173000	170000	163000	377000	279000	354000	420000	248000	166000	136000
18	76000	122000	164000	171000	260000	370000	281000	408000	428000	236000	177000	102000
19	130000	152000	197000	189000	288000	320000	314000	395000	432000	231000	180000	105000
20	123000	142000	151000	188000	309000	299000	318000	394000	443000	234000	203000	129000
21	142000	133000	176000	184000	279000	298000	334000	421000	441000	235000	153000	117000
22	140000	100000	172000	196000	317000	295000	308000	380000	439000	254000	134000	116000
23	161000	128000	171000	169000	353000	297000	256000	371000	438000	232000	145000	117000
24	142000	133000	177000	143000	380000	299000	274000	381000	440000	196000	147000	117000
25	99600	148000	169000	178000	386000	300000	265000	409000	433000	199000	132000	98200
26	114000	116000	166000	186000	340000	293000	262000	390000	429000	228000	110000	91200
27	119000	148000	168000	201000	342000	278000	264000	439000	422000	230000	104000	111000
28	139000	136000	170000	203000	326000	289000	292000	403000	422000	231000	97000	118000
29	139000	114000	174000	213000	---	285000	283000	390000	421000	219000	93200	114000
30	134000	122000	147000	202000	---	279000	257000	380000	422000	234000	113000	110000
31	107000	---	157000	184000	---	291000	---	318000	---	161000	148000	---
TOTAL	3860700	3733300	5024000	5619000	6784000	9952000	8565000	10932000	11429000	8846000	5010200	3794900
MEAN	124500	124400	162100	181300	242300	321000	285500	352600	381000	285400	161600	126500
MAX	161000	152000	197000	213000	386000	383000	366000	439000	443000	426000	234000	178000
MIN	63500	84300	135000	135000	163000	278000	223000	276000	311000	161000	93200	91200
AC-FT	7658000	7405000	9965000	11150000	13460000	19740000	16990000	21680000	22670000	17550000	9938000	7527000

CAL YR 1981 TOTAL 68477700 MEAN 187600 MAX 449000 MIN 63500 AC-FT 135800000
WTR YR 1982 TOTAL 83550100 MEAN 228900 MAX 443000 MIN 63500 AC-FT 165700000

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, 212 micromhos Feb. 5; minimum daily recorded, 97 micromhos June 24.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	196	201	---	198	157	162	135	103	129	130
2	158	---	209	201	---	182	155	170	133	105	128	130
3	158	171	200	206	206	175	152	171	133	110	128	---
4	157	176	197	206	205	166	160	175	132	108	129	130
5	158	173	194	205	212	162	157	175	131	---	128	130
6	162	169	197	208	206	161	153	168	127	110	129	---
7	161	167	190	206	---	157	160	173	128	---	129	131
8	165	166	206	---	209	162	159	168	124	116	129	131
9	168	164	202	189	202	170	162	165	121	114	129	132
10	168	---	201	---	203	177	166	164	121	---	129	133
11	166	171	203	---	196	186	158	152	122	116	---	133
12	164	167	203	---	191	185	160	155	122	115	129	133
13	---	171	194	---	187	180	163	144	124	117	128	133
14	171	166	194	---	182	175	166	151	126	116	128	135
15	173	159	191	---	181	---	165	154	127	120	126	141
16	---	160	192	---	175	160	161	149	123	---	128	140
17	173	163	183	---	176	158	162	---	127	119	128	141
18	---	164	195	---	174	160	165	146	133	122	129	139
19	169	173	202	---	173	163	164	148	128	120	128	140
20	---	171	200	---	170	162	166	141	125	120	128	139
21	171	158	194	---	165	155	170	146	123	---	131	139
22	165	---	185	---	162	160	175	148	110	121	129	140
23	171	159	180	---	168	155	175	146	102	123	132	141
24	167	171	179	---	183	150	178	152	97	125	132	141
25	163	---	180	---	176	156	179	145	---	124	132	140
26	167	172	186	---	189	151	177	144	111	---	129	139
27	---	179	185	---	---	150	170	142	102	124	130	147
28	174	174	185	---	204	155	161	138	99	128	130	141
29	---	177	184	---	---	156	164	137	101	129	131	140
30	168	181	---	---	---	154	162	137	102	127	130	---
31	---	---	186	---	---	155	---	135	---	131	129	---
MEAN	166	169	193	203	187	165	164	153	120	119	129	137

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.

REVISED RECORDS.--WDR OR-80-1: 1972(M).

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 excellent. 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.--51 years (water years 1914, 1933-82), 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 discharges above base of 4,100 ft³/s (116 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 2	0930	4,970	141	8.92	2.719
Dec. 5	1900	4,630	131	8.64	2.633
Jan. 24	0430	5,900	167	9.64	2.938
Feb. 14	1230	4,230	120	8.30	2.530
Feb. 20	1500	*9,510	269	*11.88	3.621

Minimum, 146 ft³/s (4.13 m³/s) Sept. 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	258	851	499	752	783	430	644	475	294	205	161
2	229	228	2890	472	711	762	424	639	446	288	196	163
3	198	217	1580	465	678	789	409	692	426	283	191	166
4	197	206	1110	438	612	1010	403	625	415	269	185	164
5	191	194	2560	410	561	857	394	583	420	263	183	159
6	468	187	3310	391	522	757	385	598	472	260	187	154
7	460	182	2060	389	490	696	376	665	426	255	191	152
8	436	177	1360	375	462	660	366	631	404	249	201	152
9	606	173	1030	349	439	849	362	574	406	244	195	175
10	429	170	903	338	420	1120	369	541	427	242	192	227
11	347	176	765	352	408	1340	611	537	460	243	195	173
12	298	284	663	340	390	1040	813	541	500	243	193	274
13	266	264	613	347	863	940	879	542	457	247	190	196
14	241	304	629	413	3300	876	876	569	434	279	199	171
15	224	328	1600	576	2870	778	743	614	426	244	179	160
16	212	376	1530	1560	3330	698	670	618	430	229	176	158
17	201	469	1040	2130	3140	641	653	648	431	226	172	157
18	193	596	857	1280	2470	598	616	593	456	230	172	158
19	188	466	1510	946	4330	558	567	558	468	234	173	175
20	179	460	1250	776	6570	522	540	566	421	231	180	354
21	172	757	1020	675	4160	495	543	592	400	230	179	233
22	171	922	846	636	2230	484	576	615	369	216	172	193
23	185	735	734	3370	1590	483	650	584	369	207	166	180
24	177	581	899	4080	1230	486	664	621	354	205	166	187
25	169	481	1050	1980	1020	484	621	717	342	206	165	189
26	169	423	876	1540	901	503	604	652	340	217	168	193
27	184	371	778	1210	811	519	610	556	349	235	165	182
28	181	331	704	989	747	511	779	490	330	226	158	209
29	196	316	620	853	---	481	700	472	306	222	176	213
30	259	334	562	789	---	465	653	467	299	232	191	189
31	338	---	526	855	---	449	---	473	---	225	170	---
TOTAL	7935	10966	36726	29823	46007	21634	17286	18217	12258	7474	5631	5617
MEAN	256	366	1185	962	1643	698	576	588	409	241	182	187
MAX	606	922	3310	4080	6570	1340	879	717	500	294	205	354
MIN	169	170	526	338	390	449	362	467	299	205	158	152
AC-FT	15740	21750	72850	59150	91250	42910	34290	36130	24310	14820	11170	11140

CAL YR 1981 TOTAL 178587 MEAN 489 MAX 3790 MIN 131 AC-FT 354200
WTR YR 1982 TOTAL 219574 MEAN 602 MAX 6570 MIN 152 AC-FT 435500

HOOD RIVER BASIN

14120000 HOOD RIVER AT TUCKER BRIDGE, NEAR HOOD RIVER, OR

LOCATION.--Lat 45°39'20", long 121°32'50", in SE¼ 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), 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.--22 years (water years 1898-99, 1914, 1916-17, 1966-82), 1,089 ft³/s (30.84 m³/s), 789,000 acre-ft/yr (973 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 (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 2	1130	7,670	217	9.42	2.871	Feb. 14	1400	7,690	218	9.39	2.862
Dec. 5	1900	7,460	211	9.32	2.841	Feb. 16	1600	7,200	204	9.14	2.786
Jan. 24	0530	11,500	326	10.99	3.350	Feb. 20	1500	*18,700	530	*14.05	4.282

Minimum, 321 ft³/s (9.09 m³/s) Sept. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	369	549	1290	1030	1570	1760	906	1180	993	749	503	355
2	475	496	4120	988	1490	1670	903	1190	956	752	455	368
3	415	477	2220	985	1430	1640	878	1250	907	714	414	386
4	403	459	1570	943	1320	1830	868	1160	880	669	393	372
5	394	440	3750	890	1230	1620	857	1110	859	648	389	346
6	876	434	5520	830	1180	1470	845	1130	915	630	407	333
7	853	428	3280	830	1140	1390	826	1240	859	617	437	325
8	748	422	2180	810	1090	1330	808	1190	819	614	502	332
9	933	415	1700	790	1050	1510	796	1110	823	592	481	382
10	729	410	1510	750	1000	1860	811	1070	845	587	433	509
11	616	416	1300	770	990	2150	1170	1060	906	599	416	406
12	546	566	1160	750	959	1850	1380	1070	1020	628	409	582
13	501	541	1100	770	1610	1640	1440	1090	964	637	414	452
14	471	643	1130	900	5860	1560	1460	1110	940	690	444	388
15	441	661	2580	1100	5510	1430	1310	1150	964	603	387	358
16	428	717	2490	3000	6150	1330	1200	1160	982	547	382	344
17	413	801	1760	4000	6000	1260	1180	1230	1010	535	372	339
18	405	952	1510	2600	4900	1190	1130	1160	1090	545	374	339
19	398	797	3000	1710	8570	1130	1060	1100	1110	574	383	389
20	384	791	2450	1430	13200	1090	1020	1110	1030	577	422	783
21	374	1140	1980	1290	9180	1050	1020	1140	1030	569	438	572
22	368	1450	1640	1210	4610	1030	1060	1200	974	529	409	486
23	386	1140	1430	5820	3400	1020	1160	1180	933	492	384	457
24	382	941	1630	7780	2810	1010	1190	1200	882	481	392	485
25	375	814	1890	3990	2380	1000	1140	1380	853	486	381	500
26	382	769	1600	3110	2050	1020	1120	1330	878	520	382	476
27	411	717	1440	2520	1860	1040	1130	1170	924	556	372	449
28	405	665	1350	2130	1730	1040	1340	1040	874	571	350	465
29	412	645	1220	1840	---	985	1240	1000	790	575	390	476
30	484	685	1130	1690	---	959	1180	982	753	605	436	435
31	695	---	1070	1770	---	939	---	994	---	581	377	---
TOTAL	15472	20381	62000	59026	94269	41803	32428	35486	27763	18472	12728	12889
MEAN	499	679	2000	1904	3367	1348	1081	1145	925	596	411	430
MAX	933	1450	5520	7780	13200	2150	1460	1380	1110	752	503	783
MIN	368	410	1070	750	959	939	796	982	753	481	350	325
AC-FT	30690	40430	123000	117100	187000	82920	64320	70390	55070	36640	25250	25570

CAL YR 1981 TOTAL 344971 MEAN 945 MAX 7120 MIN 247 AC-FT 684200
WTR YR 1982 TOTAL 432717 MEAN 1186 MAX 13200 MIN 325 AC-FT 858300

14128600 COLUMBIA RIVER AT STEVENSON, WA

LOCATION.--Lat 45°41'58", long 121°52'02", in NW¼SE¼ sec.36, T.3 N., R.7-1/2 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, 70.39 ft (21.455 m) Oct. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 79.29 ft (24.168 m) May 27; minimum, 70.39 ft (21.455 m) Oct. 25.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	75.88	74.21	74.98	74.86	73.17	73.57	76.25	72.36	74.31	75.65	72.68	74.23
2	76.29	74.47	75.49	75.97	72.47	74.32	76.52	73.45	75.20	76.02	74.18	75.11
3	76.31	74.94	75.35	75.53	72.85	74.14	75.73	73.86	75.07	76.06	75.06	75.72
4	75.47	73.22	74.49	76.73	74.06	75.44	76.59	73.23	74.81	76.36	73.25	74.70
5	76.15	72.18	74.03	76.56	73.21	74.59	76.96	73.56	75.37	76.61	73.99	75.38
6	76.37	73.05	74.79	76.58	73.03	75.06	76.93	74.70	75.83	76.47	73.76	75.26
7	76.45	74.43	75.66	75.66	74.05	74.75	76.73	74.52	75.64	76.20	73.96	75.02
8	76.53	73.86	75.09	74.96	73.04	73.67	76.35	73.95	75.21	76.09	73.85	75.05
9	76.63	74.62	75.93	75.10	72.10	73.36	76.38	73.18	74.93	76.19	73.88	75.21
10	76.41	75.11	75.79	75.18	73.16	73.86	75.93	73.19	74.69	76.05	73.08	74.39
11	76.24	74.60	75.22	75.04	72.72	73.83	76.68	74.36	75.77	74.83	72.47	73.88
12	75.16	73.46	74.44	75.30	73.05	74.17	76.39	74.37	75.56	75.75	73.16	74.66
13	75.63	73.05	74.71	76.46	73.87	75.10	76.20	74.84	75.46	76.53	72.78	74.83
14	75.03	72.35	74.17	76.52	74.57	75.47	76.58	73.88	75.31	76.44	73.67	75.19
15	75.66	73.02	74.73	75.59	73.96	74.53	77.20	74.90	76.06	76.82	73.57	75.22
16	76.32	73.17	74.97	75.15	72.03	73.38	77.31	76.06	76.66	76.98	74.34	75.56
17	76.23	73.64	74.93	76.71	73.83	75.10	76.47	74.33	75.38	76.67	74.33	75.65
18	76.19	73.75	74.66	76.85	74.55	75.57	76.55	73.57	75.21	76.66	74.25	75.42
19	75.50	72.26	73.62	76.89	73.87	75.26	76.55	73.99	75.32	76.53	72.63	74.67
20	75.47	73.35	74.52	76.69	75.40	76.21	76.21	74.62	75.21	76.23	73.48	74.99
21	75.34	72.80	74.28	76.25	73.88	74.70	76.09	72.46	74.14	76.47	73.53	75.21
22	75.07	72.59	74.02	75.16	72.97	74.00	76.08	73.04	74.66	77.31	73.69	75.54
23	76.05	72.56	74.39	75.41	72.84	74.15	76.26	73.92	75.31	76.72	74.40	75.57
24	75.19	72.60	73.45	75.87	74.14	75.26	76.32	74.34	75.39	76.70	75.20	75.80
25	73.11	70.39	72.06	76.45	73.08	74.71	76.57	73.72	75.08	76.47	73.90	75.27
26	74.57	72.16	73.41	76.37	74.00	75.20	76.50	74.58	75.53	76.44	73.59	74.98
27	75.06	72.75	73.99	76.46	74.08	75.42	76.06	73.30	74.47	76.84	73.58	75.35
28	75.05	72.16	73.79	76.49	73.93	75.21	75.86	72.85	74.07	76.44	73.45	75.12
29	75.26	72.37	74.08	75.81	73.84	74.60	76.17	73.19	74.66	76.17	73.42	74.83
30	75.73	72.67	74.19	75.50	72.67	74.16	76.45	73.59	75.07	76.04	73.39	74.51
31	74.82	72.20	73.41	---	---	---	75.93	74.13	75.11	75.63	74.28	74.92
MONTH	76.63	70.39	74.47	76.89	72.03	74.63	77.31	72.36	75.18	77.31	72.47	75.07

14128600 COLUMBIA RIVER AT STEVENSON, WA--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	75.32	72.84	74.36	75.86	75.01	75.44	76.03	74.43	75.10	76.38	74.97	75.89
2	75.39	72.96	74.18	75.67	74.77	75.14	75.00	74.39	74.70	76.56	75.88	76.22
3	75.52	72.94	74.35	76.53	75.45	76.03	75.33	74.50	74.98	76.62	75.56	76.02
4	76.43	73.07	74.78	77.52	76.43	76.86	74.84	74.26	74.59	76.75	75.84	76.37
5	76.36	72.77	75.12	78.17	75.44	77.02	75.77	74.12	74.95	76.91	75.76	76.40
6	76.60	72.65	74.31	75.51	74.13	74.87	75.79	74.33	74.85	77.30	75.94	76.69
7	75.93	73.08	74.37	74.71	74.18	74.52	75.21	74.09	74.54	77.55	75.53	76.54
8	76.70	73.12	74.81	75.65	73.95	74.76	75.45	73.25	74.58	77.67	76.18	76.70
9	76.52	73.53	74.90	77.71	75.68	76.85	75.68	73.94	74.69	78.23	76.64	77.61
10	76.22	73.20	74.65	78.10	77.00	77.52	76.18	74.32	75.05	78.33	77.08	77.82
11	76.02	72.97	74.53	77.34	76.57	76.94	77.21	75.63	76.46	78.43	77.17	77.81
12	75.82	73.17	74.41	77.26	76.57	76.90	76.24	74.01	75.14	77.67	76.45	76.90
13	75.66	72.73	74.18	77.87	76.84	77.30	77.25	75.57	76.54	77.43	76.00	76.83
14	76.41	73.36	74.65	78.37	77.36	77.83	78.29	76.57	77.71	77.49	76.62	77.04
15	76.49	74.98	75.67	77.43	76.06	76.70	76.57	75.40	75.91	77.92	76.83	77.46
16	76.62	73.39	74.77	76.54	74.96	75.71	77.74	76.53	77.14	77.91	77.06	77.40
17	76.58	73.77	75.30	75.74	75.00	75.32	77.22	75.23	75.90	77.94	76.97	77.56
18	77.08	73.87	75.07	75.64	75.17	75.41	75.63	74.68	74.99	78.51	77.64	78.08
19	77.70	74.53	76.03	75.91	74.35	75.07	77.33	74.52	75.91	78.53	77.37	77.80
20	78.50	76.74	77.63	76.07	75.05	75.63	77.47	74.32	76.08	78.25	77.37	77.73
21	77.73	76.76	77.09	75.99	74.58	75.34	75.97	74.47	75.43	78.60	77.85	78.16
22	77.35	76.48	76.91	74.81	73.76	74.32	75.93	74.62	75.41	78.31	77.28	77.87
23	77.65	76.70	77.38	74.37	73.94	74.16	76.34	75.24	75.89	78.46	77.54	77.88
24	77.85	77.33	77.57	74.55	74.08	74.38	75.41	74.62	75.06	78.38	77.11	77.73
25	77.99	77.58	77.79	74.92	74.16	74.46	75.42	74.12	74.86	78.69	77.22	78.02
26	77.93	75.27	77.00	75.03	74.46	74.74	75.51	73.81	74.70	78.60	76.85	77.95
27	77.24	74.57	75.97	75.92	74.34	74.96	75.62	74.35	75.08	79.29	77.75	78.44
28	77.40	75.87	76.45	75.12	74.31	74.77	77.58	75.18	76.61	78.81	77.58	78.13
29	---	---	---	75.52	74.63	75.06	77.47	76.01	76.79	78.45	77.09	77.83
30	---	---	---	76.43	74.88	75.68	75.93	74.04	75.05	78.36	77.39	77.95
31	---	---	---	76.33	74.83	75.45	---	---	---	77.87	76.96	77.35
MONTH	78.50	72.65	75.51	78.37	73.76	75.65	78.29	73.25	75.49	79.29	74.97	77.36

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	77.59	75.95	76.62	78.56	77.97	78.29	76.65	75.98	76.33	76.89	75.36	76.03
2	78.88	77.13	77.74	78.77	77.65	78.14	76.60	75.37	75.86	76.83	75.77	76.40
3	78.45	76.66	77.45	78.34	77.60	78.05	77.17	74.99	75.97	76.79	75.29	75.97
4	78.26	77.32	77.72	77.90	77.40	77.62	77.00	75.83	76.39	76.65	76.25	76.44
5	78.10	77.26	77.75	78.00	77.35	77.68	77.09	74.23	75.49	76.82	76.34	76.59
6	78.22	77.33	77.79	77.96	76.73	77.08	77.47	75.22	76.55	76.62	75.62	76.05
7	78.21	77.43	77.73	78.02	77.16	77.56	77.45	76.94	77.22	77.07	75.41	76.08
8	78.28	77.07	77.75	77.80	76.93	77.38	77.26	75.97	76.81	76.66	75.50	76.06
9	77.46	76.19	77.04	78.17	76.40	77.37	75.90	73.74	74.71	76.86	75.43	76.17
10	78.31	76.69	77.40	77.60	76.51	77.07	76.41	74.26	75.32	77.04	75.58	76.06
11	77.89	76.99	77.36	77.58	76.64	77.04	76.68	74.07	75.54	76.97	74.85	75.98
12	77.75	77.10	77.42	78.34	77.46	77.87	77.32	74.87	76.32	76.83	75.66	76.33
13	78.12	77.27	77.55	78.09	76.28	77.50	76.83	74.24	75.35	77.05	75.44	76.19
14	78.13	76.66	77.59	77.90	76.47	77.32	76.95	76.31	76.63	76.97	75.15	75.98
15	78.53	77.70	78.08	78.00	76.90	77.52	76.51	74.93	75.36	76.92	75.31	76.32
16	78.47	77.31	77.89	78.10	76.03	77.16	76.43	74.00	74.93	76.86	75.17	76.00
17	77.66	76.22	77.17	77.43	76.46	76.78	76.49	75.80	76.08	76.72	75.30	76.22
18	76.24	75.44	75.74	76.93	76.25	76.62	76.62	75.53	75.92	76.78	75.41	75.93
19	77.46	75.87	76.43	77.35	76.05	76.69	76.80	76.09	76.49	76.33	75.62	75.92
20	78.73	77.18	78.09	77.66	75.69	76.68	77.45	75.19	76.26	76.62	75.57	76.13
21	78.84	77.92	78.33	76.79	75.85	76.42	77.18	75.47	76.47	76.52	75.31	75.91
22	78.84	78.13	78.43	76.90	76.30	76.63	76.89	75.73	76.13	76.52	75.37	76.11
23	78.91	78.29	78.59	77.04	76.55	76.74	77.02	75.19	75.99	76.54	75.41	76.11
24	78.63	78.09	78.37	76.89	76.23	76.64	76.98	75.36	76.14	76.69	75.28	76.11
25	78.78	77.95	78.25	77.10	76.51	76.72	76.83	75.81	76.36	76.67	75.77	76.17
26	78.55	77.75	78.14	77.56	76.07	76.75	76.62	75.74	76.13	76.51	75.65	75.99
27	78.93	77.84	78.39	77.33	74.74	75.99	76.80	75.91	76.40	76.69	75.57	76.03
28	78.41	77.73	78.03	77.55	74.89	76.52	76.67	76.30	76.52	76.70	75.45	76.03
29	78.89	78.13	78.44	76.76	74.08	75.16	76.52	75.92	76.09	76.57	75.60	75.90
30	78.48	77.74	78.06	76.33	73.65	74.91	76.50	75.83	76.24	75.74	74.66	75.28
31	---	---	---	76.88	75.37	76.05	76.99	75.34	76.22	---	---	---
MONTH	78.93	75.44	77.71	78.77	73.65	76.97	77.47	73.74	76.07	77.07	74.66	76.08
YEAR	79.29	70.39	75.85									

14128860 COLUMBIA RIVER AT BONNEVILLE DAM, OR

LOCATION.--Lat 45°38'36", long 121°56'21", in sec.22, T.2 N., R.7 E., Multnomah County, Hydrologic Unit 17080001, on north shore of Bradford Island, 200 ft (60 m) upstream from Bonneville Dam, at mile 146.1 (235.1 km).

DRAINAGE AREA.--239,900 mi² (621,300 km²), approximately.

PERIOD OF RECORD.--May 1981 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, 76.61 ft (23.351 m) May 20, 1981; minimum, 69.65 ft (21.229 m) Oct. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 76.58 ft (23.342 m) June 10; minimum, 69.65 ft (21.229 m) Oct. 25.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	75.36	73.62	74.42	74.31	72.64	73.09	75.54	71.55	73.60	74.82	71.70	73.41
2	75.77	73.85	74.97	75.66	72.03	73.90	75.83	72.41	74.40	75.43	73.32	74.39
3	75.90	74.49	74.97	75.13	72.27	73.63	75.05	72.93	74.29	75.42	74.13	75.02
4	75.11	72.94	74.09	76.11	73.58	74.92	76.00	72.34	74.04	75.50	72.10	73.68
5	75.62	71.47	73.50	76.05	72.41	73.95	76.24	72.56	74.56	75.74	72.88	74.43
6	75.79	72.27	74.14	76.11	72.09	74.43	76.23	73.81	75.00	75.51	72.66	74.32
7	75.83	73.70	75.02	75.20	73.39	74.25	75.90	73.38	74.62	75.24	72.87	74.07
8	75.96	73.13	74.42	74.50	72.57	73.23	75.43	72.83	74.22	75.20	72.67	74.13
9	76.25	73.89	75.36	74.62	71.63	72.90	75.37	72.09	74.05	75.32	72.79	74.24
10	76.06	74.63	75.36	74.74	72.30	73.23	74.97	72.27	73.90	75.02	71.89	73.40
11	75.86	74.09	74.74	74.43	72.05	73.26	76.11	73.57	75.06	74.00	71.42	72.92
12	74.68	72.65	73.82	74.85	72.36	73.66	75.62	73.53	74.84	74.94	72.15	73.74
13	75.22	72.32	74.11	76.04	73.31	74.64	75.54	74.07	74.73	75.67	71.62	73.86
14	74.63	71.66	73.62	76.04	73.81	74.90	75.86	73.07	74.58	75.69	72.66	74.28
15	75.19	72.38	74.20	75.05	73.45	73.98	76.40	74.05	75.26	76.00	72.53	74.31
16	75.67	72.25	74.29	74.85	71.24	72.82	76.43	75.13	75.71	76.18	73.48	74.78
17	75.86	73.13	74.48	76.17	73.30	74.58	75.80	73.26	74.58	75.78	73.20	74.68
18	75.85	73.13	74.22	76.24	73.81	74.97	75.82	72.74	74.45	75.77	73.05	74.43
19	75.03	71.67	73.11	76.33	73.13	74.61	75.42	72.57	74.14	75.59	71.46	73.62
20	75.00	72.69	73.99	76.07	74.64	75.55	75.19	73.68	74.27	75.33	72.30	74.02
21	74.76	72.18	73.70	75.59	72.99	73.99	75.31	71.25	73.18	75.55	72.38	74.24
22	74.52	71.66	73.43	74.57	72.42	73.46	75.24	71.92	73.74	76.38	72.55	74.53
23	75.53	71.89	73.70	74.84	72.09	73.57	75.47	72.86	74.43	75.77	73.13	74.45
24	74.42	71.65	72.59	75.30	73.42	74.63	75.47	73.30	74.50	75.78	74.18	74.82
25	72.80	69.65	71.55	75.90	72.32	74.04	75.79	72.65	74.16	75.54	72.79	74.28
26	74.15	71.64	72.97	75.79	73.46	74.67	75.75	73.67	74.65	75.35	72.38	73.89
27	74.49	72.19	73.49	75.84	73.46	74.79	75.10	72.28	73.53	75.87	72.15	74.23
28	74.55	71.41	73.16	75.89	73.14	74.56	74.92	71.68	73.07	75.38	72.06	73.94
29	74.63	71.62	73.44	75.27	73.19	74.03	75.50	72.21	73.82	75.00	71.97	73.57
30	75.07	71.93	73.50	75.02	71.82	73.56	75.80	72.70	74.33	74.83	71.95	73.30
31	74.48	71.50	72.92	---	---	---	75.22	73.23	74.35	74.64	73.10	73.87
MONTH	76.25	69.65	73.91	76.33	71.24	74.06	76.43	71.25	74.32	76.38	71.42	74.09

14128860 COLUMBIA RIVER AT BONNEVILLE DAM, OR--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	74.35	71.58	73.28	73.54	71.99	72.65	74.21	72.01	73.02	74.77	73.58	74.31
2	74.42	71.75	73.10	72.76	71.61	72.13	73.06	72.21	72.69	74.85	73.93	74.43
3	74.68	71.67	73.33	73.89	72.65	73.36	73.60	72.54	73.13	74.86	73.57	74.09
4	75.60	71.93	73.83	75.14	73.72	74.29	73.31	72.47	72.86	75.02	73.37	74.06
5	75.57	71.56	74.21	75.78	72.87	74.50	74.04	72.36	73.33	74.47	73.24	73.99
6	75.75	71.49	73.33	73.22	71.64	72.49	73.84	72.08	72.66	75.13	73.68	74.32
7	75.06	71.89	73.37	72.90	71.89	72.51	73.17	71.94	72.48	75.85	73.10	74.47
8	75.90	71.94	73.85	73.67	71.51	72.77	74.42	71.47	73.00	76.04	74.29	74.89
9	75.68	72.37	73.92	76.01	73.71	75.00	74.82	72.13	73.29	76.31	74.88	75.66
10	75.35	72.07	73.66	75.88	74.37	75.25	75.00	72.96	73.87	76.34	74.73	75.62
11	75.13	71.73	73.52	74.82	73.72	74.28	75.98	74.39	75.17	76.14	74.77	75.52
12	74.91	71.95	73.39	74.72	73.82	74.28	74.52	71.85	73.28	75.48	74.13	74.67
13	74.72	71.49	73.10	75.35	74.19	74.71	75.32	73.70	74.65	75.25	74.17	74.82
14	75.52	72.12	73.61	75.73	73.93	74.83	75.68	73.30	74.90	75.56	74.63	75.05
15	75.59	73.88	74.68	74.03	72.47	73.17	73.83	72.40	72.96	75.81	74.58	75.35
16	75.58	72.01	73.61	73.29	71.33	72.30	75.39	73.78	74.35	75.70	74.86	75.21
17	75.65	72.35	74.16	72.35	71.42	71.94	75.44	73.21	73.96	75.53	74.53	75.11
18	74.89	71.99	73.31	72.51	71.91	72.20	73.70	72.60	72.97	75.41	74.56	74.99
19	75.91	71.83	73.74	73.97	71.57	72.50	75.70	72.47	73.89	75.36	73.88	74.68
20	75.38	74.26	74.81	74.07	72.95	73.59	75.58	71.66	73.72	75.23	74.41	74.83
21	74.98	74.34	74.63	74.04	72.18	73.03	73.91	71.89	73.02	75.21	74.14	74.78
22	74.90	73.97	74.59	72.85	71.31	72.04	73.99	72.25	73.25	75.47	74.43	75.08
23	75.17	74.07	74.65	72.20	71.45	71.84	75.09	73.17	74.27	75.83	74.72	75.30
24	75.23	74.30	74.65	72.39	71.75	72.15	74.05	72.49	73.21	75.80	74.11	74.96
25	74.98	74.50	74.74	72.85	71.82	72.24	73.50	72.24	72.99	75.53	74.32	75.02
26	75.00	72.26	74.13	72.93	72.26	72.59	73.77	72.19	73.06	75.55	74.00	74.91
27	74.78	72.06	73.63	74.01	72.22	72.88	74.14	72.71	73.50	75.49	74.65	75.08
28	74.95	73.34	73.93	73.05	72.12	72.66	75.92	73.62	75.00	75.54	74.37	74.92
29	---	---	---	73.83	72.36	73.17	75.78	74.21	75.01	75.79	74.73	75.10
30	---	---	---	74.84	72.99	74.00	74.25	72.12	73.35	75.79	74.53	75.09
31	---	---	---	74.39	72.86	73.47	---	---	---	76.01	74.63	75.29
MONTH	75.91	71.49	73.88	76.01	71.31	73.19	75.98	71.47	73.56	76.34	73.10	74.89

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	75.65	73.43	74.62	75.34	74.08	74.88	76.11	75.43	75.80	76.36	74.68	75.42
2	76.42	74.86	75.54	75.42	74.24	74.85	76.02	74.72	75.18	76.37	75.22	75.88
3	76.33	74.81	75.37	75.28	74.19	74.91	76.45	74.27	75.31	76.36	74.71	75.46
4	76.13	75.01	75.56	74.78	74.06	74.47	76.07	75.14	75.58	76.20	75.87	76.03
5	75.87	75.23	75.58	75.32	74.16	74.89	76.10	73.10	74.48	76.43	75.92	76.18
6	75.93	74.93	75.48	75.36	73.83	74.60	76.45	74.10	75.45	76.19	75.15	75.60
7	76.12	74.89	75.53	75.68	74.12	75.02	76.43	75.84	76.15	76.41	74.86	75.50
8	76.17	74.79	75.53	76.02	74.30	75.06	76.16	74.81	75.69	75.82	74.81	75.33
9	75.53	74.30	75.05	76.39	74.76	75.51	74.70	72.31	73.56	76.22	74.55	75.37
10	76.58	74.84	75.59	75.69	74.70	75.28	75.69	73.39	74.53	76.48	74.74	75.36
11	76.07	74.99	75.47	75.83	74.57	75.05	76.00	73.18	74.77	76.45	74.25	75.41
12	75.95	75.19	75.50	76.31	75.45	75.92	76.26	74.06	75.36	76.34	75.09	75.80
13	76.57	75.31	75.65	76.41	74.51	75.79	75.91	73.36	74.53	76.43	74.81	75.60
14	76.35	74.70	75.44	76.25	74.36	75.61	76.21	75.69	76.00	76.31	74.39	75.33
15	75.83	74.72	75.14	76.52	75.25	75.92	75.96	74.33	74.79	76.26	74.59	75.64
16	75.21	73.58	74.51	76.50	74.52	75.66	75.85	73.37	74.34	76.22	74.57	75.44
17	74.15	72.11	73.41	76.19	75.08	75.46	75.96	74.87	75.35	76.26	74.77	75.67
18	72.12	71.35	71.69	75.78	74.92	75.34	75.84	74.74	75.17	76.21	74.95	75.51
19	74.04	71.85	72.71	76.08	74.84	75.56	76.03	75.20	75.72	75.97	75.21	75.47
20	75.21	73.70	74.69	76.37	74.47	75.40	76.43	74.26	75.37	76.06	75.01	75.60
21	75.41	74.47	74.79	75.71	74.69	75.28	76.47	74.77	75.80	76.04	74.78	75.44
22	75.36	74.50	74.92	75.86	74.96	75.32	76.20	75.16	75.52	76.05	74.86	75.65
23	75.38	74.67	75.04	76.08	75.20	75.59	76.47	74.57	75.45	76.13	74.95	75.66
24	75.09	73.81	74.75	76.03	75.33	75.76	76.42	74.79	75.57	76.30	74.75	75.64
25	74.96	74.13	74.70	76.26	75.57	75.84	76.29	75.29	75.82	76.29	75.32	75.76
26	75.53	74.46	74.90	76.44	75.04	75.66	76.18	75.27	75.67	76.14	75.24	75.59
27	75.53	74.40	75.09	76.36	73.42	74.87	76.39	75.43	75.99	76.18	75.16	75.58
28	75.31	74.34	74.77	76.53	73.75	75.39	76.26	75.88	76.11	76.24	74.83	75.50
29	75.75	74.70	75.23	75.56	72.69	73.91	76.08	75.46	75.69	76.08	75.03	75.38
30	75.51	74.31	74.76	75.18	72.59	73.72	76.02	75.40	75.80	75.55	74.20	74.82
31	---	---	---	76.02	74.62	75.33	76.36	74.77	75.64	---	---	---
MONTH	76.58	71.35	74.90	76.53	72.59	75.22	76.47	72.31	75.36	76.48	74.20	75.55
YEAR	76.58	69.65	74.42									

14128870 COLUMBIA RIVER BELOW BONNEVILLE DAM, OR

LOCATION.--Lat 45°38'20", long 121°57'16", in sec.21, T.2 N., R.7 E., Multnomah County, Hydrologic Unit 17080001, on left bank 0.4 mi (0.6 km) downstream from Bonneville Dam left bank powerhouse, 0.5 mi (0.8 km) upstream from Tanner Creek, and at mile 145.0 (233.3 km).

DRAINAGE AREA.--239,900 mi² (621,300 km²), approximately.

PERIOD OF RECORD.--May 1981 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, 30.40 ft (9.266 m) June 11, 1981; minimum, 7.00 ft (2.134 m) Oct. 4, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 30.22 ft (9.211 m) June 24; minimum, 7.00 ft (2.134 m) Oct. 4.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13.00	11.56	12.16	10.57	9.73	10.08	14.49	11.42	13.12	16.02	15.46	15.76
2	12.52	11.19	11.98	12.31	8.77	10.15	15.59	14.48	15.26	15.84	14.50	15.18
3	12.21	7.38	9.66	12.53	10.95	11.32	15.54	15.18	15.39	16.50	14.19	14.67
4	9.30	7.00	8.45	13.32	9.61	11.21	15.54	14.89	15.26	17.58	16.53	17.16
5	12.70	8.56	11.40	14.02	12.00	13.37	16.22	14.84	15.61	17.69	16.25	17.22
6	13.31	12.10	12.95	14.25	9.69	12.97	18.06	16.05	16.99	17.69	16.48	17.45
7	13.79	13.21	13.56	12.05	10.78	11.49	19.29	18.03	18.88	17.77	16.34	17.43
8	13.88	13.42	13.71	10.74	9.43	9.98	19.10	18.76	18.91	17.75	15.75	17.13
9	13.87	11.28	12.97	11.77	9.14	10.00	19.02	16.67	17.99	17.89	17.49	17.64
10	12.00	9.27	10.59	14.12	11.63	12.67	17.72	15.30	16.84	17.72	16.78	17.30
11	11.43	8.96	10.60	13.40	11.82	12.37	16.98	15.39	16.25	17.16	15.72	16.59
12	13.43	11.03	12.63	13.19	10.86	11.98	16.40	15.84	16.08	16.77	16.15	16.52
13	14.66	12.31	13.17	12.60	10.64	11.43	16.28	15.66	15.89	17.37	16.38	16.90
14	12.69	11.58	12.30	13.98	12.02	12.91	16.39	14.94	15.71	17.36	15.92	16.63
15	12.57	11.98	12.30	13.92	12.55	13.11	17.26	15.72	16.57	17.22	15.49	16.47
16	14.61	12.28	13.60	14.01	11.14	12.90	19.17	17.17	18.57	16.93	15.06	15.82
17	14.66	10.00	11.70	12.92	10.57	11.81	18.93	16.18	17.62	18.37	16.75	17.71
18	10.80	9.60	10.00	13.89	12.88	13.42	17.15	16.14	16.61	18.40	17.52	18.20
19	11.63	10.20	11.05	14.46	13.10	13.76	19.55	16.69	19.08	18.30	17.50	18.09
20	12.25	11.46	11.86	14.48	14.01	14.25	19.12	17.41	18.18	18.03	17.07	17.70
21	13.78	11.84	12.74	15.03	13.34	14.36	18.03	16.84	17.58	18.10	15.50	17.58
22	14.04	12.51	12.92	13.34	11.39	12.35	17.53	17.01	17.32	18.02	17.29	17.78
23	14.45	12.53	13.70	13.09	11.87	12.59	17.13	16.89	17.02	19.48	17.79	18.61
24	15.03	13.64	14.66	14.32	12.64	13.53	17.46	16.67	17.10	19.68	19.26	19.48
25	13.41	9.30	11.16	14.73	13.36	14.01	17.32	17.08	17.23	19.65	19.11	19.32
26	11.34	8.40	10.04	14.75	11.54	12.83	17.32	16.79	17.03	20.30	19.06	19.70
27	13.10	10.65	11.25	14.65	12.69	13.73	17.31	17.02	17.15	20.30	19.90	20.10
28	13.58	12.75	13.09	14.75	12.95	14.05	17.78	17.03	17.27	20.34	19.88	20.11
29	14.09	12.62	13.30	13.18	12.08	12.61	17.24	16.05	16.72	20.32	20.05	20.17
30	14.58	12.80	13.46	14.06	11.13	12.34	16.24	14.70	15.54	20.20	18.84	19.66
31	14.57	9.52	11.33	---	---	---	16.07	15.10	15.59	18.93	18.19	18.50
MONTH	15.03	7.00	12.07	15.03	8.77	12.45	19.55	11.42	16.79	20.34	14.19	17.70

14128870 COLUMBIA RIVER BELOW BONNEVILLE DAM, OR--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	18.26	17.85	18.05	26.92	25.31	26.19	23.54	22.60	22.94	21.75	20.41	21.30
2	17.95	15.86	17.67	27.23	26.28	26.75	23.25	22.07	22.65	22.73	21.71	22.40
3	17.82	17.47	17.66	26.48	25.67	26.34	22.37	22.03	22.20	23.26	22.65	22.86
4	17.65	17.28	17.48	26.55	26.18	26.37	22.20	21.09	21.67	24.67	22.70	24.17
5	17.36	16.79	17.14	26.60	25.51	26.31	22.38	20.78	21.15	25.33	24.15	24.76
6	17.29	16.95	17.12	25.55	24.36	25.08	23.63	22.39	23.03	25.29	24.31	24.85
7	17.59	17.10	17.31	24.34	22.83	23.60	22.98	22.02	22.68	24.86	22.82	23.94
8	17.49	17.24	17.38	23.67	22.63	23.16	22.92	18.59	20.97	23.07	22.79	22.90
9	17.55	16.81	17.38	23.65	23.16	23.43	21.07	18.13	20.00	24.20	22.81	23.59
10	17.48	16.87	17.34	25.98	23.37	24.89	19.58	17.40	18.60	25.19	24.14	24.62
11	17.63	17.04	17.47	26.35	25.58	25.96	21.60	18.89	19.79	25.39	24.50	25.04
12	17.64	17.32	17.48	26.22	25.44	26.02	22.83	21.66	22.11	25.20	23.55	24.50
13	17.75	17.28	17.51	26.60	25.99	26.24	24.43	21.72	22.99	24.56	22.92	23.69
14	18.44	17.75	18.15	28.27	26.56	27.27	27.61	24.36	26.35	23.94	23.39	23.57
15	18.84	18.35	18.56	28.32	27.59	28.12	27.60	25.79	26.65	24.22	23.55	23.92
16	20.00	18.60	19.24	28.24	26.05	27.53	28.00	26.38	27.13	24.89	24.01	24.20
17	20.30	19.53	19.97	27.42	26.88	27.18	---	---	---	25.94	24.68	25.13
18	25.15	19.12	22.05	26.97	26.65	26.82	---	---	---	28.16	25.92	26.96
19	25.83	25.08	25.51	26.70	23.58	25.15	24.13	---	---	28.24	26.63	27.51
20	29.98	26.01	28.07	23.59	23.15	23.36	25.23	23.50	24.51	28.10	26.34	26.96
21	29.38	27.72	28.56	24.18	23.10	23.67	24.98	23.74	24.40	28.79	27.65	28.26
22	28.09	27.19	27.68	23.85	22.80	23.32	24.84	23.20	23.77	27.69	25.97	26.95
23	28.72	27.60	28.19	23.68	23.00	23.19	23.28	20.28	21.95	26.80	25.95	26.27
24	28.68	27.96	28.44	23.30	22.99	23.18	23.13	20.50	21.95	27.14	26.29	26.73
25	28.82	28.37	28.60	23.29	23.08	23.16	23.28	21.18	22.50	28.04	26.33	27.17
26	28.45	27.52	27.87	23.45	22.52	23.00	22.09	20.73	21.34	28.30	26.15	27.57
27	27.52	24.52	25.94	22.68	22.13	22.47	21.59	20.93	21.20	29.48	27.02	28.12
28	26.46	25.49	26.13	22.62	22.40	22.48	22.80	21.06	21.76	29.51	27.18	28.25
29	---	---	---	23.42	21.93	22.40	23.17	22.45	22.83	27.77	25.62	26.76
30	---	---	---	22.38	21.67	21.86	23.13	20.43	21.90	27.75	25.94	27.17
31	---	---	---	23.52	22.29	22.73	---	---	---	26.00	23.59	24.66
MONTH	29.98	15.86	21.43	28.32	21.67	24.75	28.00	17.40	22.56	29.51	20.41	25.32

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	24.15	22.51	23.48	29.19	27.54	28.19	14.66	11.93	12.71	14.46	12.70	13.64
2	25.86	23.52	24.43	28.55	27.24	27.97	15.90	12.69	14.89	13.09	12.12	12.60
3	25.20	23.20	24.01	27.90	26.96	27.48	15.55	13.90	14.55	13.03	11.39	12.05
4	25.81	23.04	24.55	28.01	26.75	27.24	17.73	14.44	15.55	11.55	9.69	10.22
5	24.93	23.07	24.29	27.40	25.84	26.47	18.07	16.00	17.11	10.46	9.57	9.99
6	25.13	24.86	24.97	26.29	24.78	25.44	18.93	18.08	18.61	11.46	9.88	10.41
7	25.73	23.72	24.70	26.43	24.87	25.55	19.06	18.75	18.87	14.10	11.27	12.63
8	25.70	23.65	24.65	26.04	25.68	25.03	19.08	18.77	18.95	15.80	13.95	14.48
9	24.17	23.00	23.79	24.47	22.56	23.52	19.10	16.33	18.33	16.50	14.68	15.65
10	24.05	22.60	23.17	24.11	22.21	22.78	16.35	15.41	15.86	15.48	13.68	14.77
11	23.53	22.86	23.27	23.86	22.99	23.53	15.85	14.87	15.38	14.21	12.28	13.02
12	23.51	23.25	23.40	24.59	22.76	23.59	18.41	14.88	16.79	12.70	11.85	12.21
13	23.55	22.64	23.44	23.31	22.33	22.66	18.55	14.20	16.03	14.46	12.00	12.95
14	25.11	22.60	23.77	23.18	22.06	22.43	15.70	13.17	14.28	14.65	13.19	14.08
15	27.25	24.99	26.50	22.93	20.87	22.07	13.42	12.07	12.67	15.26	14.13	14.70
16	28.38	26.84	27.70	22.41	20.41	21.36	13.10	11.93	12.67	14.91	12.47	13.44
17	28.94	27.89	28.44	20.41	20.02	20.21	16.14	12.65	14.84	13.94	12.21	12.90
18	28.90	28.36	28.60	20.37	18.47	19.82	16.46	13.28	15.23	13.27	10.12	11.13
19	28.63	28.19	28.37	19.73	17.49	18.71	16.44	15.31	15.92	11.90	9.78	10.99
20	28.90	27.82	28.37	21.41	18.55	19.49	18.04	16.30	16.78	13.35	10.20	12.25
21	29.16	28.43	28.87	20.00	18.15	18.93	18.23	13.87	15.07	12.99	11.40	11.85
22	29.13	28.68	28.86	20.33	19.16	20.02	14.63	12.99	13.85	12.07	11.04	11.38
23	29.28	28.80	29.03	20.32	17.62	19.42	13.43	12.29	12.84	11.64	10.90	11.18
24	30.22	28.57	29.07	17.68	16.66	17.11	13.77	13.30	13.55	11.72	10.15	11.30
25	29.40	28.45	28.89	17.14	16.40	16.85	14.16	12.05	12.97	10.99	9.31	9.83
26	28.78	27.74	28.25	19.50	16.70	18.36	12.40	10.17	10.85	9.78	8.99	9.43
27	28.85	27.88	28.26	19.62	17.57	18.67	10.87	9.01	10.08	11.14	9.27	10.00
28	28.35	27.63	28.07	19.24	18.33	18.87	9.87	8.66	9.52	12.31	10.78	11.42
29	28.51	27.64	28.02	19.14	18.52	18.97	9.91	8.90	9.56	12.55	11.05	11.68
30	28.51	27.32	28.08	19.12	17.01	18.38	11.39	8.18	10.36	11.52	10.40	10.95
31	---	---	---	18.70	14.44	15.35	14.34	10.13	12.72	---	---	---
MONTH	30.22	22.51	26.31	29.19	14.44	21.76	19.10	8.18	14.43	16.50	8.99	12.10
YEAR	30.22	7.00	18.93									

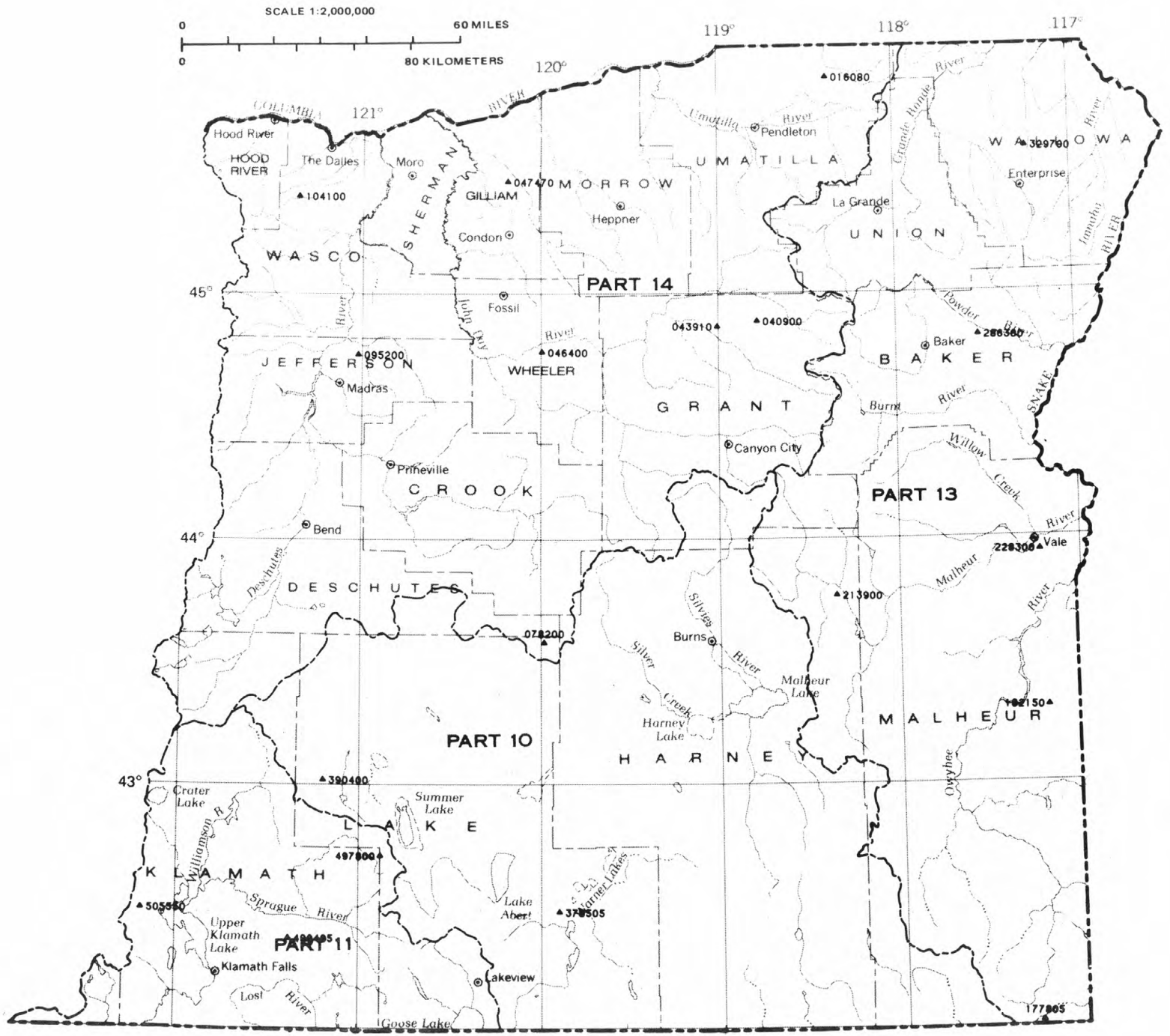


Figure 4.—Map of Eastern Oregon showing location of partial-record stations.

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	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		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	1980-82	8-22-82	-	1,170
		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 northwest of Thompson Reservoir, and 11 miles southwest of town of Silver Lake.	10.6	1965-82	2-18-82	10.26	70
		KLAMATH RIVER BASIN					
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	1965-82	2-18-82	13.92	77
11499495	WEST FORK WHISKEY CREEK NEAR BEATTY, OR (Station discontinued)	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 southwest of Beatty.	4.40	1980-82	2-18-82	17.37	68
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	1966-82	12-19-81	10.50	120
		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	1974-82	-	-	0
13182150	LONG GULCH NEAR ROCKVILLE, OR	Lat 43°19'17", long 117°11'42", in NW¼NE¼ sec.10, T.26 S., R.45 E., Malheur County, at culvert on Bureau of Land Management Lesle Gulch road, 1.3 miles upstream from Bannock Gulch, and 4 miles west of Rockville.	1.38	1970-79, 1982	-	-	0
		MALHEUR RIVER BASIN					
13213900	MALHEUR RIVER TRIBUTARY 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	1964-82	2-14-82	9.44	39
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	1968-82	2-15-82	10.28	56
		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	1968-82	9-19-82	15.70	86

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		GRANDE RONDE RIVER BASIN					
13329700	TROUT CREEK TRIBUTARY 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	1967-82	2-21-82	9.56	9.0
		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	1967-82	-	-	0
		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	1969-82	4-29-82	12.39	45
14043910	GRANITE CREEK BELOW BARNES CREEK, NEAR DALE, OR (Station discontinued)	Lat 44°52'33", long 119°01'00", in NW¼ sec.17, T.8 S., R.31 E., Grant County, at culvert on U.S. Highway 395, 1.2 miles downstream from Barnes Creek and 8.5 miles south of Dale.	10.4	1981-82	2-15-82	37.55	185
14046400	DONNELY CREEK TRIBUTARY 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	1964-82	1-27-82	10.46	22
14047470	JUNIPER CANYON TRIBUTARY 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	1972-82	-	-	0
		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	1965-82	6-12-82	7.56	4.6
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	1957-82	2-21-82	10.90	12
		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	1965-82	2-20-82	-	280

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 1982

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
Part 11		KLAMATH RIVER BASIN				
Munson Creek	Annie Creek	Lat 42°52'45", long 122°08'15".	-	1967-68, 1977-81	10-14-81	*3.02
					7-28-82	*21.9
					8-24-82	*11.5
Part 14		DESCHUTES RIVER BASIN				
Deschutes River	Columbia River	SE¼SE¼ sec.20, T.21 S., R.8 E., just below Sheep Springs, 15 mi northwest of La Pine.	-	1938-49‡, 1950, 1952-57, 1960-81	10- 1-81	a493
					11-19-81	a378
					1-11-82	a397
					3- 5-82	a333
					4-15-82	a299
					6- 3-82	a830
					7- 6-82	a823
					8-13-82	a874
Whitewater River	Metolius River	SW¼ sec.9, T.10 S., R.9 E., (above Milk Creek).	-	-	8-26-82	46.9
.....Do.....	.....do.....	SW¼ sec.9, T.10 S., R.9 E., (below Milk Creek).	-	-	8-26-82	85.2
.....Do.....	.....do.....	NE¼ sec.28, T.10 S., R.10 E.	-	-	8-26-82	85.5

* Base flow.
‡ Operated as a continuous record gaging station.
a Base flow from intervening springs can be obtained by subtracting flow of Deschutes River below Crane Prairie Reservoir.

ANALYSES OF WETFALL SAMPLES COLLECTED AT ATMOSPHERIC DEPOSITION SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

441614121271100 - SISTERS GENE COCHRAN

DATE	PH (STAND-ARD UNITS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	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 DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 06-13	4.9	6	.1	1.1	.1	<.2	.4	.4
NOV 10-17	5.3	2	.1	.1	.1	<.2	.1	.1

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	BROMIDE DIS-SOLVED (MG/L AS BR)	CADMIUM DIS-SOLVED (UG/L AS CD)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
OCT 06-13	.1	.79	<.100	3	<1	<.05	5	1	<10
NOV 10-17	<.1	.02	<.100	<2	<1	<.05	<1	<3	<10

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LITHIUM DIS-SOLVED (UG/L AS LI)	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)
OCT 06-13	<10	<4	<10	2	<10	1	<6.0	14
NOV 10-17	<10	<4	<10	<1	<10	<1	<6.0	<3

444109119405000 - FOSSIL BENJAMIN LADD

DATE	PH (STAND-ARD UNITS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	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 DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT 06-13	5.1	4	.1	.1	<.1	<.2	.2	.2
NOV 10-17	7.1	14	2.2	.5	.1	2.5	.3	.4

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	BROMIDE DIS-SOLVED (MG/L AS BR)	CADMIUM DIS-SOLVED (UG/L AS CD)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
OCT 06-13	.1	.07	<.100	<2	<1	<.05	2	<3	<10
NOV 10-17	<.1	.01	<.100	<2	<1	<.05	<1	<3	<10

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LITHIUM DIS-SOLVED (UG/L AS LI)	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)
OCT 06-13	<10	<4	<10	<1	<10	<1	<6.0	4
NOV 10-17	140	<4	<10	4	<10	2	<6.0	<4

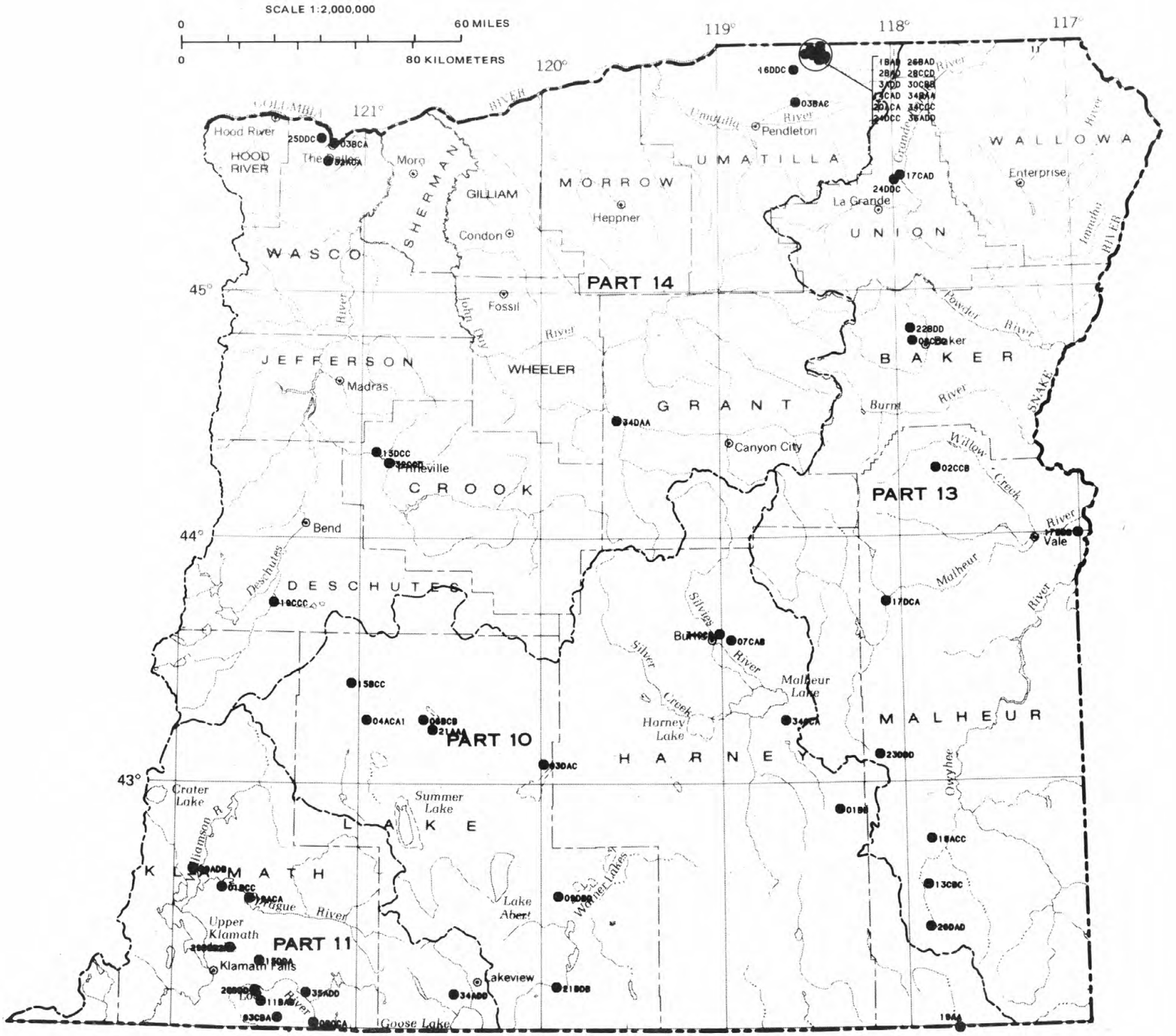


Figure 5.–Map of Eastern Oregon showing location of observation wells.

BAKER COUNTY

445116117551601. Local number 8S/39E-22BDD.
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 1¼-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, 0.90 ft (0.27 m) below datum, Feb. 19, 1982; lowest measured, 9.87 ft (3.01 m) below datum, Sept. 29, 1939.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	3.80	FEB 19	0.90	MAY 12	3.34	AUG 6	3.46

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	12.21	FEB 19	4.34	MAY 12	4.73	AUG 6	7.89

CROOK COUNTY

442100120541701. Local number 14S/15E-15DCC.
LOCATION.--Lat 44°12'00", long 120°54'48", Hydrologic Unit 17070305.
Owner: Evert Hibbitts. 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.

WATER LEVEL, IN FEET ABOVE LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 13	46.2	APR 1	47.9	-	-	-	-

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 1981 TO SEPTEMBER 1982

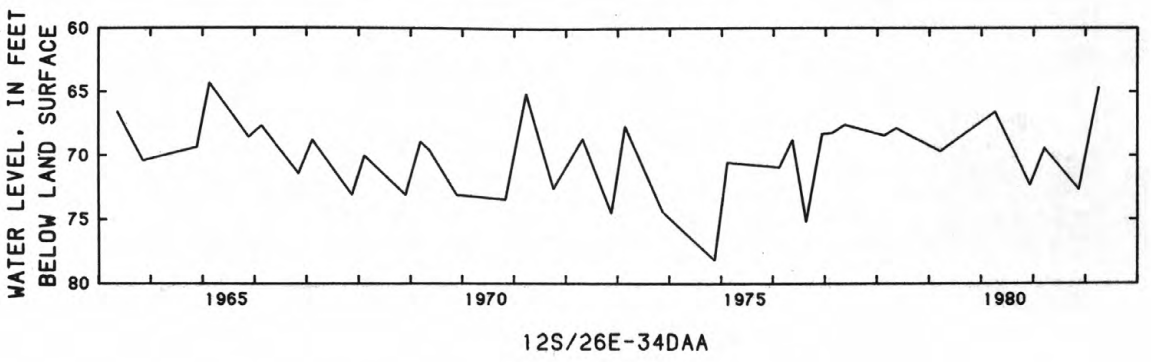
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 19	25.96	-	-	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 13	72.68	APR 1	64.69	-	-	-	-

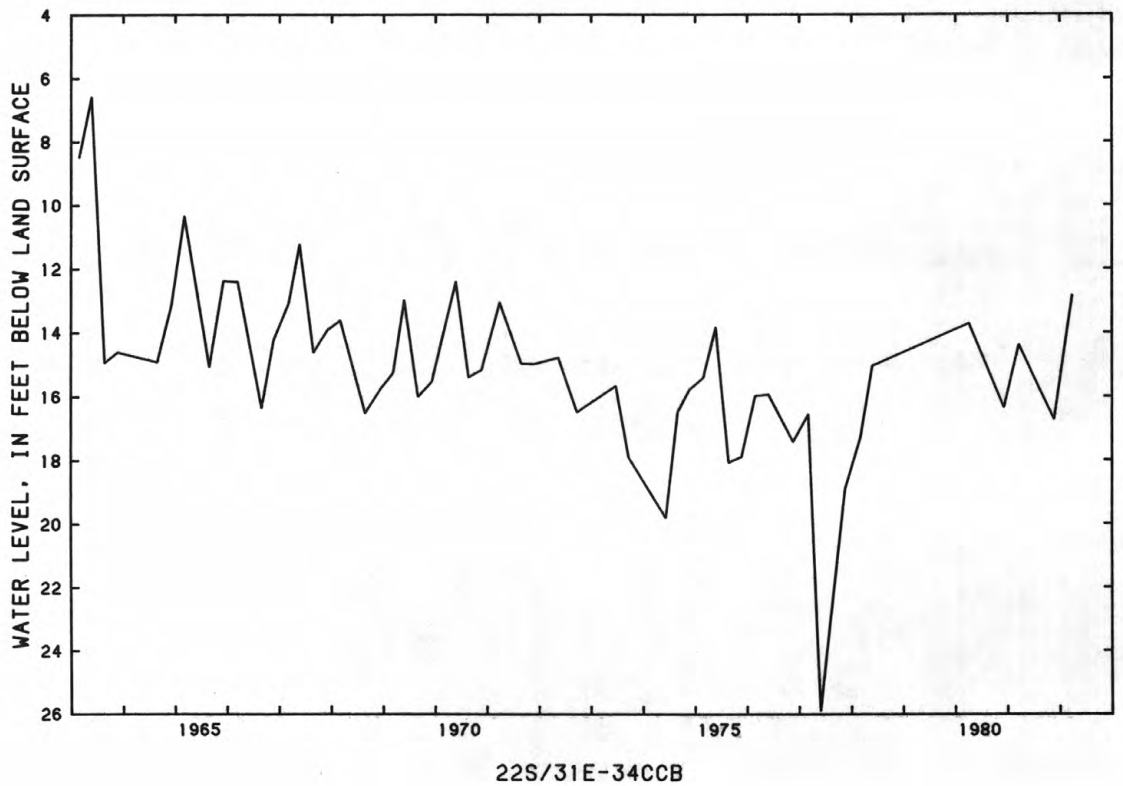


HARNEY COUNTY

433701118595401. 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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	16.73	MAR 26	12.86	-	-	-	-



HARNEY COUNTY--Continued

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	10.43	MAR 26	4.16	-	-	-	-

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, 18.95 ft (5.78 m) below datum, Mar. 30, 1982; lowest measured, 22.57 ft (6.88 m) below datum, Sept. 17, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 21	22.43	MAR 30	18.95	SEP 17	1/ 22.57	-	-

425400118205001. Local number 31S/35E-1BB.
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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	8.86	MAR 25	4.60	-	-	-	-

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.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 6	20.92	-	-	-	-	-	-

423133121340801. 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, 6.70 ft (2.04 m) below datum, Mar. 7, 1982; lowest measured, 51.60 ft (15.73 m) below datum, Nov. 6, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 6	R/ 51.60	MAR 7	R/ 6.70	-	-	-	-

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, 34.56 ft (10.53 m) below datum, Nov. 5, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	34.56	MAR 10	33.64	-	-	-	-

421610121303001. Local number 38S/11½E-15DDA.
LOCATION.--Lat 42°16'12", long 121°30'25", Hydrologic Unit 18010204.
Owner: George McCollum.
AQUIFER.--Lava rock and cinders.
WELL CHARCTERISTICS.--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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	80.43	MAR 9	78.75	-	-	-	-

420908121313701. Local number 39S/11½E-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 mm) below datum, July 24, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	R/ 15.30	MAR 9	R/ 15.23	-	-	-	-

KLAMATH COUNTY--Continued

420844121150801. 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, 43.92 ft (13.39 m) below datum, Nov. 5, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	R/ 43.92	MAR 9	37.80	-	-	-	-

420632121293601. 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 ¼-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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	22.31	MAR 9	16.99	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	3.20	MAR 9	2.65	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	17.82	MAR 9	15.79	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 23	46.39	MAR 18	46.16	JUL 21	(P)	-	-

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, 39.82 ft (12.14 m) below datum, Nov. 23, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 23	39.82	MAR 18	39.18	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 22	18.28	MAR 17	17.82	JUL 22	17.27	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	18.17	MAR 16	19.52	-	-	-	-

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 1981 TO SEPTEMBER 1982

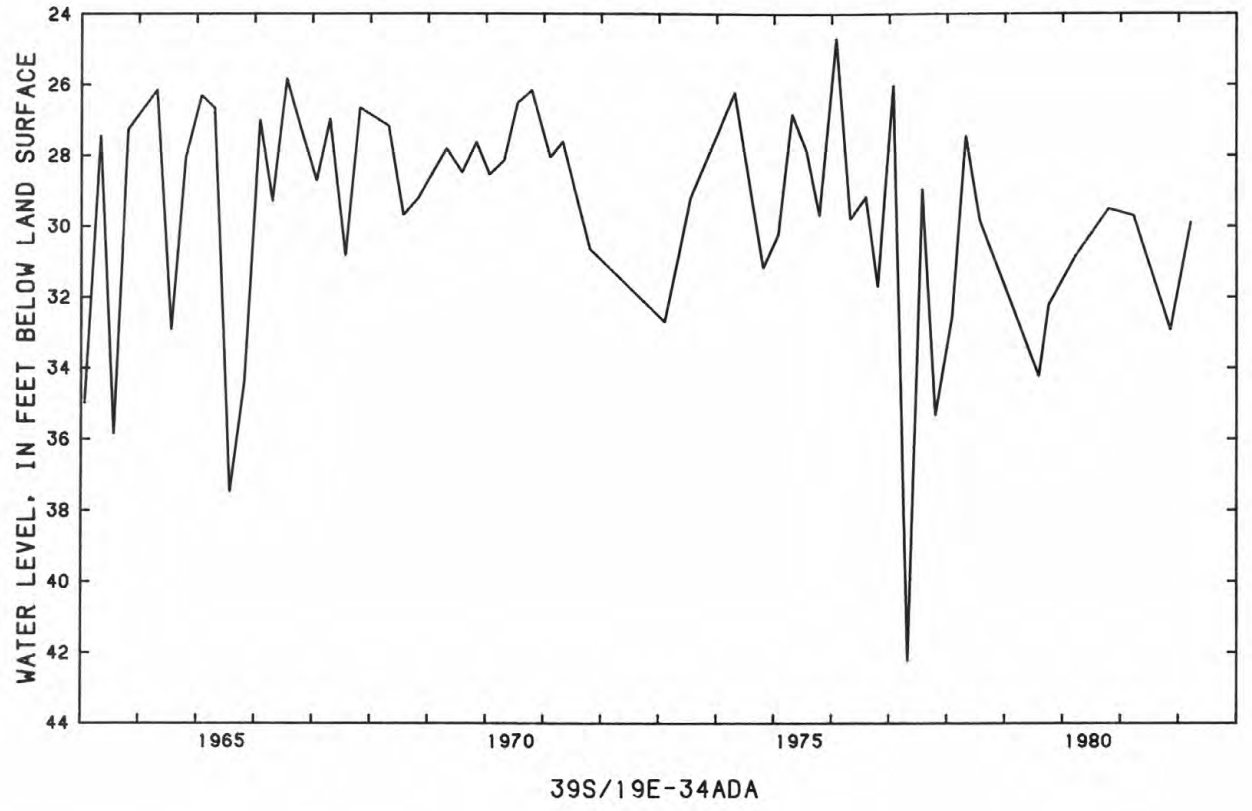
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	9.12	MAR 16	7.92	-	-	-	-

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, R/32.93 ft (10.04 m) below datum, Nov. 7, 1981.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	R/32.93	MAR 16	R/29.90	-	-	-	-



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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	19.32	MAR 16	16.83	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16	57.85	APR 15	53.35	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	10.45	MAR 24	8.37	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	7.47	MAR 23	8.25	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 21	7.30	MAR 30	4.60	-	-	-	-

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, 234.13 ft (71.36 m) below datum, Nov. 19, 1981; lowest measured, 243.89 ft (74.34 m) below datum, June 4, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 19	234.13	MAR 24	234.50	-	-	-	-

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). Meauring 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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 19	193.73	MAR 24	194.12	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 19	209.59	MAR 24	209.87	-	-	-	-

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 19	17.54	MAR 24	14.43	-	-	-	-

UMATILLA COUNTY

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.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 5	126.18	FEB 22	102.42	-	-	-	-

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, 137.39 ft (41.88 m) below datum, Dec. 15, 1981; lowest measured, R/162.50 ft (49.53 m) below datum, Nov. 30, 1956.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 5	137.39	FEB 22	137.89	-	-	-	-

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 1981 TO SEPTEMBER 1982

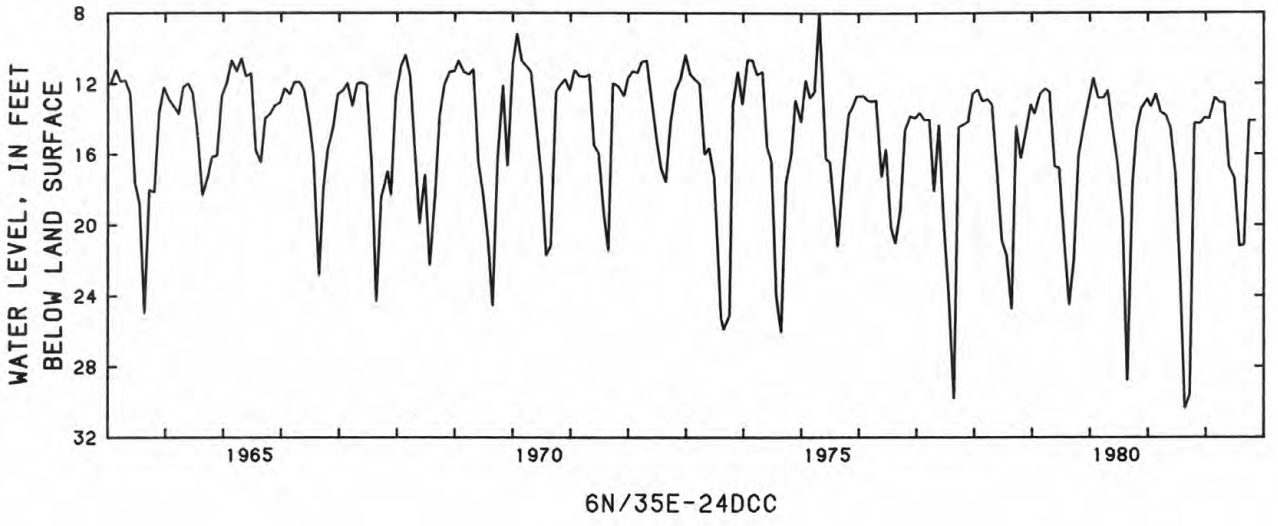
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 19	25.75	JAN 22	25.00	APR 26	22.0	JUL 29	25.10
NOV 24	22.85	FEB 26	22.75	MAY 24	22.45	AUG 27	27.36
DEC 22	23.90	MAR 26	22.15	JUN 28	24.20	SEP 28	25.60

UMATILLA COUNTY--Continued

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 19	14.25	JAN 22	13.97	APR 26	13.10	JUL 29	21.2
NOV 24	14.26	FEB 26	12.80	MAY 24	16.70	AUG 27	21.11
DEC 22	13.95	MAR 26	13.05	JUN 28	17.35	SEP 28	14.10



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.
REMARKS.--No measurements in 1981.
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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 24	28.60	FEB 26	27.40	MAY 24	24.70	AUG 27	20.60
DEC 22	27.92	MAR 26	26.70	JUN 28	14.70	SEP 28	22.10
JAN 22	28.90	APR 26	25.10	JUL 29	23.90		

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	82.23	FEB 19	84.54	MAY 12	86.85	AUG 6	85.70

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, 4.07 ft (1.24 m) below datum, Feb. 19, 1982; lowest measured, 19.54 ft (5.96 m) below datum, Aug. 29, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

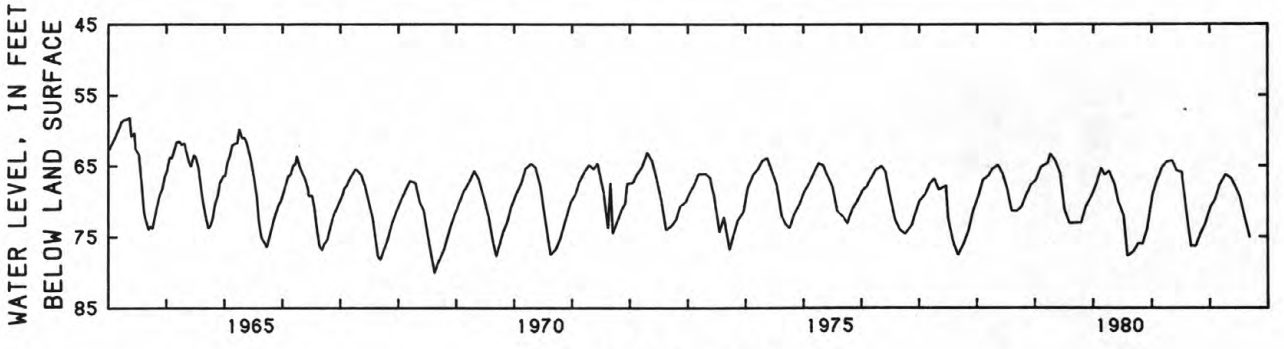
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	10.80	FEB 196	4.07	MAY 12	5.44	AUG 6	8.19

WASCO COUNTY

453606121105701. Local number 1N/13E-3BCA.
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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	76.30	JAN 4	70.76	APR 6	66.25	JUL 6	69.28
NOV 3	74.54	FEB 1	69.79	MAY 10	66.70	AUG 2	71.90
DEC 3	73.10	MAR 1	67.66	JUN 1	67.62	SEP 7	75.00



1N/13E-3BCA

WASCO COUNTY--Continued

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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	97.71	MAR 30	109.26	-	-	-	-

453715121151801. Local number 2N/12E-25DDC.
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 1981 TO SEPTEMBER 1982

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	113.47	MAR 30	109.15	-	-	-	-

P pumping.
R Recently pumped.

October 1, 1978

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
	Length	
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)
	Area	
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)
	Volume	
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)
	Flow	
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)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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