Surface Water Supply of the United States 1954

Part 14. Pacific Slope Basins in Oregon and Lower Columbia River Basin

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GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1348

Prepared in cooperation with the States of Oregon and Washington and with other agencies

Surface Water Supply of the United States 1954

Part 14. Pacific Slope Basins in Oregon and Lower Columbia River Basin

Prepared under the direction of J. V. B. WELLS, *Chief, Surface Water Branch*

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Thomas B. Nolan, *Director*

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PREFACE

This report was prepared by the Geological Survey in cooperation with the States of Oregon and Washington and with other agencies, by personnel of the Water Resources Division, C. G. Paulsen, chief, under the general direction of J. V. B. Wells, chief, Surface Water Branch, and B. J. Peterson, chief, Annual Reports Section.

The data were computed and prepared under supervision of district engineers, Surface Water Branch, as follows:

N. M. Phillips----------Portland, Oreg.
F. M. Veatch----------Tacoma, Wash.

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ILLUSTRATIONS

SURFACE WATER SUPPLY OF PACIFIC SLOPE BASINS IN OREGON AND LOWER COLUMBIA RIVER BASIN, 1954

SCOPE OF WORK

This volume is one of a series of 18 reports presenting measurements of stage, discharge, and content of streams, lakes, and reservoirs in the United States during the water year ending September 30, 1954. Since 1888, when the United States Geological Survey first studied streamflow in relation to problems of irrigation, similar measurements have been made at more than 13,050 gaging stations in the 48 States and at many others in the Territories of Alaska and Hawaii. On September 30, 1954, the Geological Survey and cooperating organizations were maintaining 6,750 gaging stations, including those in Alaska and Hawaii. Discharge measurements only were made at many other points in the 1954 water year, most of which are published at the end of this report.

COOPERATION

Many State, municipal, and private organizations have cooperated with the Geological Survey in this work by either furnishing or helping to collect data. Organizations that supplied data are acknowledged in station descriptions, and organizations that assisted in the collection of data through cooperative agreements with the Survey are:

Oregon: State of Oregon, C. E. Stricklin, State engineer, and B. R. Chandler, chairman, Oregon State Highway Commission; Fish Commission of Oregon, M. T. Hoy, State Fisheries Director; and the cities of Eugene, McMinnville, Portland, and Coos Bay-North Bend.

Washington: State Department of Conservation and Development, W. A. Galbraith, director, and C. J. Bartholet, Supervisor of Hydraulics succeeded by M. G. Walker; State Department of Fisheries, R. J. Schoettler, director; city of Tacoma; and Lewis and Skamania County Public Utility Districts.

Assistance in the form of funds or services was given by the Corps of Engineers, Department of the Army, in collecting records published herein for 42 gaging stations in Oregon and 9 in Washington.

Assistance was also furnished by the Forest Service, United States Department of Agriculture and the Bureau of Reclamation and Bonneville Power Administration, United States Department of the Interior.

The following organizations aided in collecting records:

Oregon: Counties of Crook, Deschutes, Jackson, Jefferson, Josephine, Klamath, and Umatilla; city of Grants Pass; The California Oregon Power Co., Pacific Power & Light Co., and Portland General Electric Co.

Washington: Pacific Power & Light Co.

DIVISION OF WORK

The stream-gaging work was done by the Water Resources Division of the Geological Survey, under the direction of personnel shown in the preface. The data for stations in the several States were collected and prepared for publication in the district offices listed below:

State	District office	Address
Oregon a/	Portland	1001 NE. Lloyd Boulevard.
Washington	Tacoma	207 Federal Building.

a/ The work was done in collaboration with C. E. Stricklin, State engineer.

Information of a more detailed nature than that published for most of the gaging stations given in this report is on file in the district offices listed above. Provisional records of discharge prior to publication, and other unpublished data concerning the gaging-station records may usually be obtained from the district office.

DEFINITION OF TERMS AND ABBREVIATIONS

The terms of streamflow and other hydrologic data, as used in this report, are defined as follows:

Cubic foot per second (cfs) is the rate of discharge of a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.

Cubic feet per second per square mile (cfsm) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Runoff in inches is the depth to which an area would be covered if all the water draining from it in a given period were uniformly distributed on its surface. The term is used for comparing runoff with rainfall, which is also usually expressed in inches.

Acre-foot is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet. The term is commonly used in relation to storage for irrigation.

Cfs-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, 1.983471 acre-feet, or 646,317 gallons, and represents a runoff of 0.0372 inch from 1 square mile.

Stage-discharge relation is the relation between gage height and the amount of water flowing in a channel, expressed as volume per unit of time.

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, a long reach of the channel, or an artificial structure.

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

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

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

DOWNSTREAM ORDER OF LISTING GAGING STATIONS

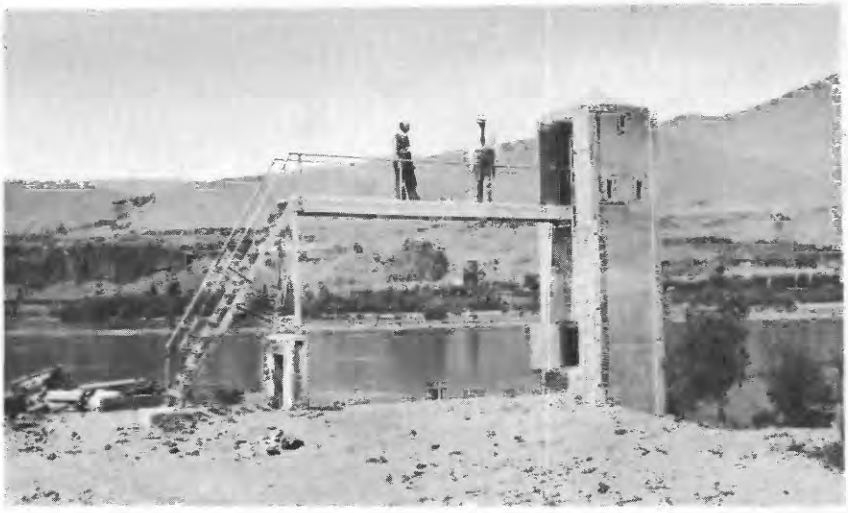
Beginning with the series of reports for the water year ending September 30, 1951, the order of listing gaging-station records was changed. In this report, in a downstream direction along the main stem all stations on a tributary entering above a main-stem station are listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indention in the listing of gaging stations in the table of contents of this report represents one rank. This downstream order and system of indention show which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

The order of listing used before the publication of the 1951 report listed first all stations on the main stem from headwaters toward mouth, then all stations on the uppermost tributary to the main stem from the tributary's source to mouth, and then all stations from source to mouth of the uppermost tributary to the tributary.

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of fluctuations. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard textbooks on the measurement of stream discharge. Typical structures in use at gaging stations are shown in figure 1.

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 determinations of peak discharge (such as slope-area or contracted-opening determinations, computation of flow over dams or weirs, and by other methods), velocity-area studies, and logarithmic plotting. The application of the daily mean gage height to those rating tables 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



A, COLUMBIA RIVER NEAR THE DALLES, OREG.
Gage shelter and stilling well.

B, WILLAMETTE RIVER AT ALBANY, OREG.

FIGURE 1.—GAGING-STATION STRUCTURES.

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 essentially the shifting-control method.

At some gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources. 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 requisite 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. If so, the rate of change of stage is used as a factor in the determination of discharge.

At most gaging stations in the northern part of the United States and at some in the mountainous regions of other parts the stage-discharge relation is affected by ice during 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 engineers, and comparable records of discharge for other stations in the same or nearby basins. If the stage-discharge relation is affected by ice, this information is given in a note to the table. No mention is made of occasional days of ice effect if the degree of accuracy of daily records is not changed.

The data herein presented generally comprise a description of the station, a skeleton rating table, and a table showing the daily discharge and monthly and yearly discharge and runoff of the stream. Records are published for the water year which begins on October 1 and ends on September 30. A calendar for the water year 1954 is shown on page IV for the purpose of finding the day of the week for any date.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, general remarks, and notations of revisions of the previously published record. 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 unless otherwise noted. Under "Records available" are given the periods for which there are published records generally equivalent to those at present site. Under "Gage" are given the type of gage currently in use and the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of records available. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having fewer than five complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given the maximum discharge and gage height, the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height (unless it is of no importance). In the

first paragraph, the data given are for the complete current water year unless otherwise specified. In the second paragraph, the data given are for the periods of record within the calendar year dates in the heading (not necessarily those for the complete years indicated by the heading dates). Reliable information concerning major floods that have occurred outside the period of record are given in the third or last paragraph under "Extremes." Unless otherwise qualified, the maximum discharge corresponds to the crest stage obtained by use of a water-stage recorder, a crest-stage indicator, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge, it is given separately. Information pertaining to the accuracy of the records and conditions which affect the natural flow at the gaging station is given under "Remarks."

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 reports. In order to make it easier to find such revised records, a paragraph headed "Revisions (water years)" 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 concerned in 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 peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

Skeleton rating tables are published for all stations except those at which the daily discharge for the greater part of the open-water period was determined by the shifting-control method, the slope method, or other special methods involving an equivalent adjustment to the gage height of more than one-tenth foot. Skeleton rating tables are generally not published for stations on canals.

For stations equipped with water-stage recorders, except those on streams subject to sudden or rapid fluctuation, the daily table gives the discharge corresponding to the daily mean gage height. For stations subject to such fluctuation the daily mean gage height may not indicate the true daily mean discharge, which must be obtained by averaging the discharge for parts of the day or by using the discharge integrator, an instrument for obtaining the daily mean discharge from a continuous gage-height graph and containing, as an essential element, a curve representing the stage-discharge relation at the station. For stations equipped with nonrecording gages, the table

of daily discharge gives the discharge corresponding to once-daily readings of the gage, or to the mean of twice-daily readings, or to the mean gage height determined from gage-height graphs based on gage readings. For periods of rapidly changing stage, the daily mean discharge is determined from gage-height graphs based on gage readings, the frequency of which is stated in the station description.

In the table of daily discharge, the figures for the maximum day and the minimum day for each month are underlined. If the figure is repeated, it is underlined only on the first day of its occurrence.

In the monthly summary below the daily table, the line headed "Total" gives the sum of the daily figures; it is the total cfs-days for the month. The line headed "Mean" gives the average flow in cubic feet per second during the month. Runoff for the month 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 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 of maximum are the maximum daily discharges, not the momentary discharges when the water was at crest stage. Likewise, the minimums in this summary are the minimum daily discharges.

Peak discharges and the times of their occurrence and corresponding gage heights of most stations are listed below the table of daily and monthly discharge. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man.

Footnotes to the table of daily discharge indicate periods when discharge was computed or estimated by unusual or special methods during periods of no gage-height record and ice effect, or by other effects that reduce the degree of accuracy of the records. Days on which discharge measurements were made are indicated by asterisk and footnote unless they were made at frequent regular intervals, in which instance the general frequency of discharge measurements is given under "Remarks" in the station description.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is usually given in the first report in which data for the reservoir are published, but it is omitted from succeeding reports.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

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The station description states the degree of accuracy of the records. "Excellent" indicates that, in general, the error in the daily records is believed to be less than 5 percent; "good," less than 10 percent; "fair," less than 15 percent; and "poor," probably more than 15 percent. The records of monthly and yearly mean discharge and runoff are, in general, more nearly accurate than the daily records.

Runoff at some stations, as indicated by the monthly mean, may vary widely from natural runoff, owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and runoff in inches are not published unless storage or diversion records are included to indicate the extent of the regulation or diversion, or unless satisfactory adjustments can be made for changes in contents of reservoirs or for other changes incident to use and control. 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 when relatively large negative adjustments are made or when evaporation is large in comparison with the observed discharge.

Many gaging stations on streams in the irrigated areas of the United States are situated above most of the diversions from those streams, and therefore the discharge recorded does not actually show the water supply available at the stations for further development, because water must first be supplied to existing irrigation systems.

PUBLICATIONS

To facilitate publication of the annual series of reports, the area of the United States is divided into 14 parts whose boundaries coincide with certain natural drainage lines. Formerly, the results of streamflow measurements were published in 14 volumes, one for each of the 14 parts. Beginning with the reports for 1951, the records are published in 18 volumes, there being 2 volumes each for Parts 1, 2, 3, and 6. The boundaries of the various parts are indicated by the following list and map in figure 2.

Part 1. North Atlantic slope basins, in two volumes:
- A, North Atlantic slope basins, Maine to Connecticut.
- B, North Atlantic slope basins, New York to York River.

2. South Atlantic slope and eastern Gulf of Mexico basins, in two volumes:
- A, South Atlantic slope basins, James River to Savannah River.
- B, South Atlantic slope and eastern Gulf of Mexico basins, Ogeechee River to Pearl River.

3. Ohio River basin, in two volumes:
- A, Ohio River basin except Cumberland and Tennessee River basins.
- B, Cumberland and Tennessee River basins.

4. St. Lawrence River basin.
5. Hudson Bay and upper Mississippi River basins.
6. Missouri River basin, in two volumes:
- A, Missouri River basin above Sioux City, Iowa.
- B, Missouri River basin below Sioux City, Iowa.

7. Lower Mississippi River basin.
8. Western Gulf of Mexico basins.
9. Colorado River basin.
10. The Great Basin.
11. Pacific slope basins in California.

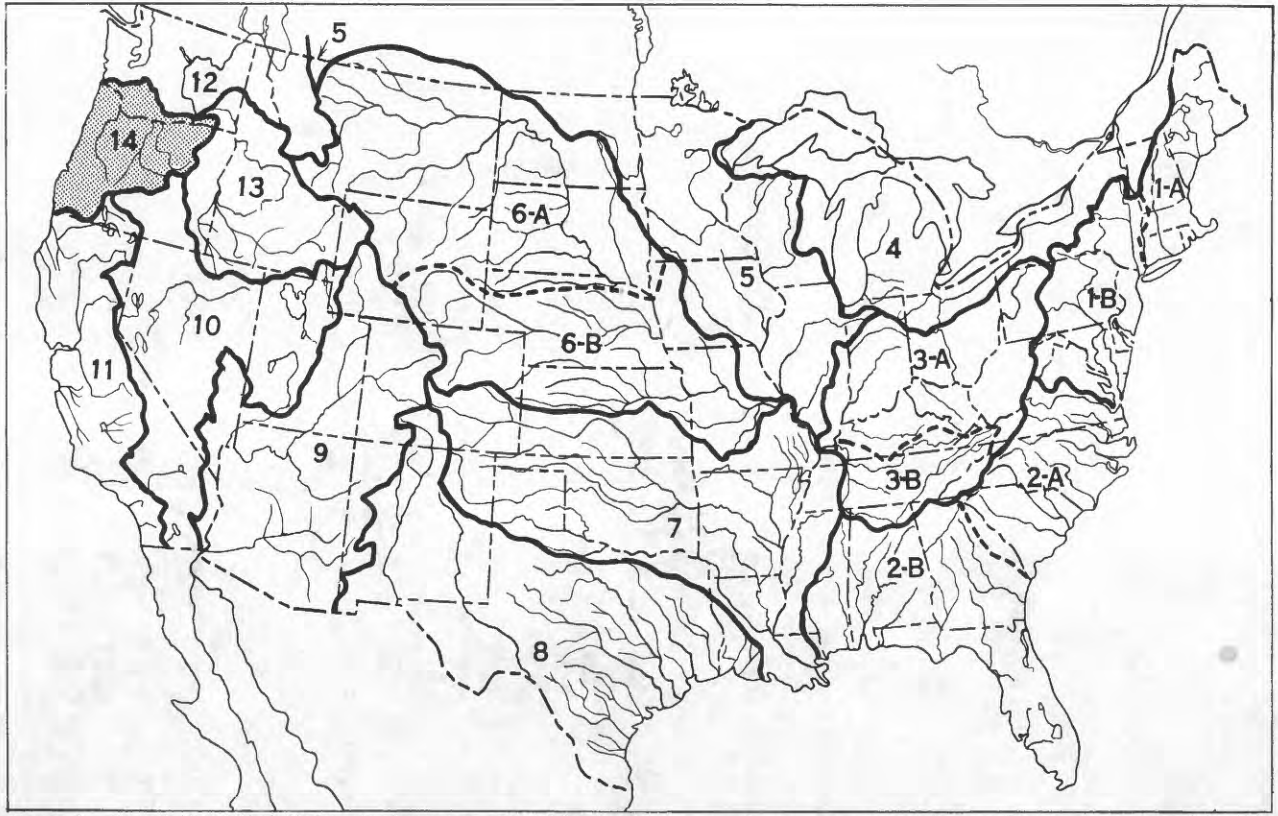

Figure 2.--Map of the United States showing areas covered by the 18 annual volumes on surface-water supply. The area covered by this report is shaded.

Part 12. Pacific slope basins in Washington and upper Columbia River basin.
13. Snake River basin.
14. Pacific slope basins in Oregon and lower Columbia River basin.

Water-supply papers and other publications of the Geological Survey containing data on the water resources of the United States may be purchased or consulted as follows:

1. Copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., who will, on application, furnish lists giving prices. A list of Geological Survey publications may also be obtained by applying to the Director, Geological Survey, Washington, D. C.

2. Sets of the reports may be consulted in the libraries of the principal cities in the United States.

3. Sets are available for consultation in the offices of the Water Resources Division of the Geological Survey. Addresses of the offices in the area covered by this report are given on page 2.

Early records of the flow of streams in the United States are published in the reports listed below. In many of these reports records for years earlier than those indicated have been included for some streams.

Streamflow data for the years 1884-1901, in reports of the Geological Survey

(A = Annual Report; B = Bulletin)

Report	Character of data	Year
10th A, pt. 2	Descriptive information only.	
11th A, pt. 2	Monthly discharge and descriptive information.....	1884 to September 1890.
12th A, pt. 2	....do.....	1884 to June 30, 1891.
13th A, pt. 3	....do.....	1884-92.
14th A, pt. 2	Monthly discharge.....	1888-93.
B 131.....	Descriptions, measurements, gage heights, and ratings.....	1893-94.
16th A, pt. 2	Descriptive information only.	
B 140.....	Descriptions, measurements, gage heights, ratings, and monthly discharge.	1895.
WSP 11.....	Gage heights.....	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge	1895-96.
WSP 15.....	Descriptions, measurements, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries above Kansas River.	1897.
WSP 16.....	Descriptions, measurements, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries above Kansas River.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge.	1897.
WSP 27.....	Measurements, ratings, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries.	1898.
WSP 28.....	Measurements, ratings, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries.	1898.
20th A, pt. 4	Monthly discharge.....	1898.
WSP 35 to 39.	Descriptions, measurements, gage heights, and ratings.....	1899.
21st A, pt. 4	Monthly discharge.....	1899.
WSP 47 to 52.	Descriptions, measurements, gage heights, and ratings.....	1900.
22d A, pt. 4.	Monthly discharge.....	1900.
WSP 65, 66...	Descriptions, measurements, gage heights, and ratings.....	1901.
WSP 75.....	Monthly discharge.....	1901.

Note.--Records for all stations in Oregon are contained in WSP 370, superseding all reports in this table for these stations.

Reports on surface-water supply containing records from 1899 to date for drainage basins in this report are listed on the following page. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained.

Numbers of water-supply papers containing results of stream measurements in Pacific slope basins in Oregon and lower Columbia River basin, 1899-1954

Year	WSP	Year	WSP	Year	WSP	Year	WSP	Year	WSP
1899	38	1911	312	1923	574	1934	769	1945	1044
1900	51	1912	332-C	1924	594	1935	794	1946	1064
1901	66, 75	1913	362-C	1925	614	1936	814	1947	1094
1902	85	1914	394	1926	634	1937	834	1948	1124
1903	100	1915	414	1927	654	1938	864	1949	1154
1904	135	1916	444	1928	674	1939	884	1950	1184
1905	a177, 178	1917	464	1929	694	1940	904	1951	1218
1906	214	1918	484	1930	709	1941	934	1952	1248
1907-8	252	1919-20	514	1931	724	1942	964	1953	1288
1909	272	1921	534	1932	739	1943	984	1954	1348
1910	292	1922	554	1933	754	1944	1014		

a Rogue, Umpqua, and Siletz Rivers only.

Note.--Records for all stations in Oregon through September 1910 are contained in WSP 370, superseding all earlier reports for these stations.

The records at most of the stations discussed in these reports extend over many years. Discharge measurements at many points other than regular gaging stations have been made each year and are published under "Miscellaneous discharge measurements" at the end of each report. The streams and points of measurement are listed in the same order as the streams and gaging stations in the body of the report. An index of the records obtained before 1904 has been published in Water-Supply Paper 119.

Each of the reports on the surface-water supply for the year 1939 (Water-Supply Paper 884 for the Pacific slope basins in Oregon and lower Columbia River basin) contains, for the area included in that report, a summary of yearly discharge at gaging stations at which 10 or more complete years of record had been collected. These summaries were reprinted separately.

Reports also have been published that are compilations of records for various areas, usually a single State or drainage basin. These reports contain records previously published (some of which may have been revised), as well as some records not contained in the annual series of water-supply papers. The following table lists reports of this type for the Pacific slope basins in Oregon and lower Columbia River basin.

Reports containing compilations of records of discharge by States and drainage basins

WSP	Period	Report
370.....	1878-1910	Surface water supply of Oregon.
492.....	1878-1919	Summary of hydrometric data in Washington.
870.....	1919-35	Summary of records of surface waters of Washington.

Records of discharge have been published also in State reports. Some of these are not contained in the publications of the Geological Survey or are revisions of records previously published in its water-supply papers. The following table contains a list of these reports for the area covered by this report.

State reports containing compilations of records of discharge

State	Period	Report	Issued by
Oregon.....	1878-1914	Bull. 4, Water resources of the State of Oregon.	Office of the State Engineer.
Do.....	1914-24	Bull. 7, Water resources of the State of Oregon.	Do.
Do.....	1924-30	Bull. 8, Water resources of the State of Oregon.	Do.
Do.....	1930-36	Bull. 9, Water resources of the State of Oregon.	Do.
Do.....	1936-41	Bull. 10, Water resources of the State of Oregon.	Do.
Washington....	1878-1953	Bull. 6, Monthly and yearly summaries of hydrometric data.	Department of Conservation and Development.

Note.--In addition to the records contained in the reports listed above, the States of Oregon and Washington have issued annual or biennial reports in which are contained records of discharge.

The reports listed in the foregoing tables contain the customary records of discharge collected during the systematic operation of gaging stations. Detailed information on the stage and discharge of many streams during major floods has been included in special reports on these floods published by the Geological Survey. The more recent of these special reports also contain other pertinent hydrologic information and analyses and compilations of data relating to earlier notable floods. The following list give the numbers and titles of these reports:

Report

WSP 96: Destructive floods in the United States in 1903.
WSP 771: Floods in the United States, magnitude and frequency.
WSP 1080: Floods of May-June 1948 in Columbia River basin.
WSP 1137-E: Floods of 1950 in Southwestern Oregon and Northwestern California.
WSP 1137-I: Summary of floods in the United States during 1950.
Cir. 191: Floods in western Washington, frequency and magnitude in relation to drainage-area characteristics.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The table below contains a list of gaging stations for the area covered by this report, at which records of discharge were collected during the water year October 1953 to September 1954 by agencies other than the Geological Survey. The records of these stations are not contained in publications of the Geological Survey, nor have they been published elsewhere.

Records of discharge collected by agencies other than the Geological Survey

Stream	Location	Period	Collected by
Big Butte Creek, North Fork.	SE¼ sec. 2, T. 35 S., R. 2 E., 1 mile northeast of Butte Falls, Oreg.	1928-54	Oregon State engineer.
Big Butte Springs.....	Sec. 20 or 21 (revised), T. 35 S., R. 3 E., 4 miles east of Butte Falls, Oreg.	1930-54	Do.
Big Marsh Creek.....	SW¼ sec. 20, T. 24 S., R. 7 E., at Hoey Ranch, near Crescent, Oreg.	1924, 1928-54*	Do.
Deschutes River.....	SW¼ sec. 23, T. 21 S., R. 9 E., ½ mile upstream from bridge at Pringle Falls, 7 miles northwest of Lapine, Oreg.	1915-17, 1922-54*	Do.
Fish Lake Dam, tunnel at.	SE¼SE¼ sec. 4 (revised), T. 37 S., R. 4 E., 14 miles east of Lake Creek, Oreg.	1929-54	Do.
Fivemile Creek.....	SW¼ sec. 27, T. 4 S., R. 29 E., 12 miles northwest of Ukiah, Oreg.	1928-30, 1932-33, 1935-44, 1946-47, 1949-54	Do.
Fourbit Creek.....	SE¼SE¼ sec. 22 (revised), T. 35 S., R. 3 E., 7 miles southeast of Butte Falls, Oreg.	1949-54	Do.
Grave Creek.....	NW¼SW¼ sec. 7, T. 34 S., R. 5 W., 1½ miles west of Placer, Oreg.	1929-30 1932-54*	Do.
Jumpoff Joe Creek....	SW¼ sec. 32, T. 34 S., R. 5 W., 7 miles northeast of Merlin, Oreg.	1929-54*	Do.
Little Butte Creek...	SE¼ sec. 19, T. 36 S., R. 2 E., at Lake Creek, Oreg.	1922-24, 1927-47, 1949-54	Do.
Little Butte Creek, North Fork.	SE¼NE¼ sec. 20 (revised), T. 36 S., R. 2 E., above Rogue River Valley Canal intake, near Lake Creek, Oreg.	1932-54*	Do.
Little Butte Creek, South Fork.	NE¼ sec. 21, T. 37 S., R. 4 E., 1 mile south of Big Elk ranger station, near Lake Creek, Oreg.	1932-54*	Do.
Little Walla Walla River.	NE¼NW¼ sec. 12, T. 5 N., R. 35 E., near George St., in Milton, Oreg.	1932-54	Do.

* Records for some earlier years contained in water-supply papers published by the Geological Survey.

Records of discharge collected by agencies other than the Geological Survey--Continued

Stream	Location	Period	Collected by
Ochoco Creek.....	NE¼ sec. 6, T. 15 S., R. 17 E., below Ochoco Reservoir, 6 miles east of Prineville, Oreg.	1919-54	Oregon State engineer.
Ochoco Reservoir.....	NW¼ sec. 5, T. 15 S., R. 17 E., 6 miles east of Prineville, Oreg.	1918-54	Do.
Rancheria Creek.....	NE¼ sec. 20 (revised), T. 35 S., R. 3 E., 4 miles east of Butte Falls, Oreg.	1935-50, 1951-54	Do.
Willow Creek.....	Sec. 34 (revised), T. 35 S., R. 3 E., 6 miles southeast of Butte Falls, Oreg.	1949-54	Do.

Note.--Records through 1941 collected by the Oregon State engineer (some in cooperation with the Bureau of Reclamation of the U. S. Department of the Interior) are contained in bulletins published by that officer. (See page 11, "State reports containing compilations of records of discharge.") The other records listed in this table have not been published. Records on many canals and drainage ditches, not listed above, have been collected by the Oregon State engineer and the Bureau of Reclamation in connection with the water supply for irrigation projects.

HYDROLOGIC CONDITIONS

The water year 1954 was characterized by excessive runoff over most of the area covered by this report. Damaging floods occurred in western Oregon during the last week in November which produced peak discharges that were the highest in 10 to 15 years; the maximum daily discharge of Umpqua River near Elkton was the highest recorded in 49 years of record. For two key gaging stations in the area covered by this report, a comparison of the monthly discharges during the 1954 water year with the median discharge for the 25-year period 1921-45 is shown on the following page.

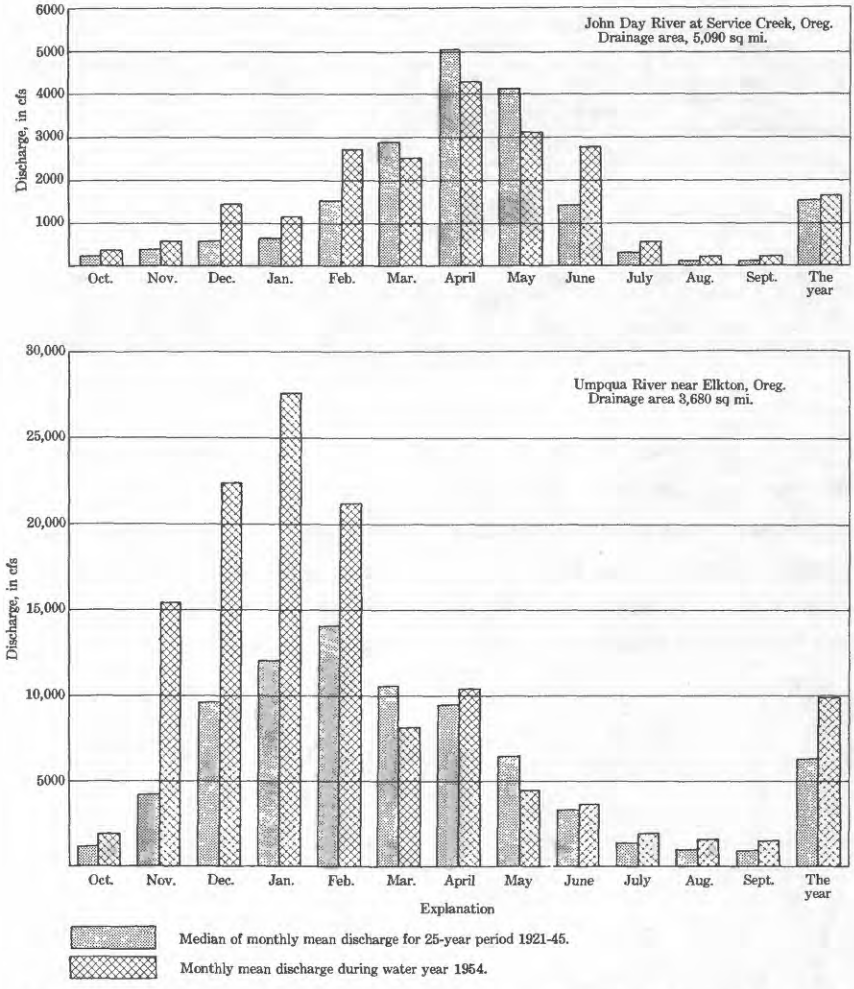

Figure 3. Comparison of discharge at two key gaging stations during 1954 water year with median discharge for 25-year period.

South Fork Walla Walla River near Milton, Oreg.

Location.—Lat 45°50', long 118°10', in NE¼NE¼ sec. 15, T. 4 N., R. 37 E., on right bank 1 mile upstream from Pacific Power & Light Co.'s penstock intake, 1 mile downstream from Elbow Creek, and 13 miles southeast of Milton.
Drainage area.—63 sq mi, approximately.
Records available.—February to October 1903 (gage heights only), August 1906 to November 1917 (incomplete), May 1931 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 2,050 ft (from river-profile map). Prior to Mar. 23, 1934, water-stage recorder or staff gages at several sites within 1¼ miles of present site at various datums.
Average discharge.—30 years (1908-15, 1931-54), 175 cfs (126,700 acre-ft per year).
Extremes.—Maximum discharge during year, 636 cfs Apr. 13 (gage height, 2.72 ft); minimum, 111 cfs Oct. 17, 18 (gage height, 1.50 ft).
1906-17, 1931-54: Maximum discharge recorded, 2,430 cfs Dec. 12, 1946 (gage height, 4.20 ft), from rating curve extended above 240 cfs; minimum, 72 cfs Feb. 14, 1932.
Maximum stage known, about 6 ft Mar. 31, 1931, present site and datum.
Remarks.—Records good. No regulation or diversion above station.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 13				Apr. 14 to Sept. 30			
1.5	111	2.3	380	1.5	113	2.0	262
1.7	157	2.5	490	1.7	162	2.4	430
2.0	247						

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	122	124	142	157	237	170	147	212	230	165	117	117
2	122	126	144	152	227	165	147	212	216	157	117	115
3	122	126	152	150	216	162	154	223	212	154	117	115
4	122	126	160	162	204	157	176	244	212	151	117	115
5	122	126	165	181	198	157	258	266	202	146	117	115
6	122	128	176	198	190	157	294	270	226	143	117	113
7	122	126	162	227	190	154	258	285	410	143	115	113
8	122	124	*152	237	198	176	266	308	364	146	115	113
9	122	122	165	213	201	266	294	320	328	148	115	113
10	122	119	187	193	*196	290	262	324	324	143	*113	113
11	122	117	170	181	190	247	237	308	304	140	113	113
12	122	117	193	168	233	220	233	281	296	138	113	113
13	117	117	196	162	270	204	482	266	277	135	113	115
14	117	117	179	165	240	198	430	262	258	135	113	113
15	117	117	179	160	210	196	*336	270	285	133	115	115
16	113	122	181	154	196	190	316	281	258	131	115	*117
17	111	124	176	154	201	187	360	285	244	128	115	120
18	119	122	179	152	196	179	368	296	226	128	115	120
19	119	119	244	147	187	176	332	300	216	128	117	115
20	115	119	410	140	184	176	289	281	209	126	133	115
21	115	122	294	144	201	170	281	262	199	126	135	115
22	113	165	237	154	210	168	289	237	192	126	122	115
23	113	160	207	157	207	165	296	226	186	124	120	115
24	115	140	190	157	204	165	285	226	180	124	126	115
25	115	140	179	152	207	160	281	230	174	122	120	115
26	115	157	179	150	201	157	273	223	174	122	120	115
27	*115	176	176	168	190	154	270	206	174	120	120	115
28	119	157	173	223	181	152	251	*199	171	120	117	115
29	122	144	168	240	-------	150	233	199	165	117	115	115
30	122	142	165	230	-------	150	226	226	165	117	115	*115
31	124	-------	160	240	-------	147	-------	233	-------	117	120	-------
Total	3,680	3,941	5,840	5,468	5,765	5,565	8,324	7,961	7,077	4,153	3,652	3,448
Mean	119	131	188	176	206	180	277	257	236	134	118	115
Cfsm	1.89	2.08	2.98	2.79	3.27	2.86	4.40	4.08	3.75	2.13	1.87	1.83
In.	2.17	2.33	3.45	3.23	3.41	3.29	4.91	4.70	4.18	2.45	2.16	2.04
Ac-ft	7,300	7,820	11,580	10,850	11,430	11,040	16,510	15,790	14,040	8,240	7,240	6,840

Calendar year 1953: Max 768 Min 111 Mean 201 Cfsm 3.19 In. 43.29 Ac-ft 145,400
Water year 1953-54: Max 482 Min 111 Mean 178 Cfsm 2.83 In. 38.32 Ac-ft 128,700

Peak discharge (base, 600 cfs).—Apr. 13 (1 p. m.) 636 cfs (2.72 ft).
* Discharge measurement made on this day.

North Fork Walla Walla River near Milton, Oreg.

Location.—Lat 45°54', long 118°16', in NW¼ sec. 23, T. 5 N., R. 36 E., on right bank 1¼ miles upstream from confluence with South Fork and 5 miles southeast of Milton.

Drainage area.—46 sq mi, approximately.

Records available.—October 1940 to September 1954 in reports of Geological Survey. December 1929 to September 1941 in reports of State engineer.

Gage.—Water-stage recorder. Altitude of gage is 1,470 ft (from river-profile map). Prior to Oct. 15, 1948, water-stage recorders at several sites about three-quarters of a mile downstream at various datums.

Average discharge.—24 years (1930-54), 48.5 cfs (35,110 acre-ft per year).

Extremes.—Maximum discharge during year, 387 cfs Apr. 13 (gage height, 4.89 ft); minimum, 2.6 cfs Aug. 10, 11.

1929-54: Maximum discharge observed, 1,980 cfs Dec. 12, 1946 (gage height, 6.97 ft, site and datum then in use), from rating curve extended above 230 cfs; minimum, 1 cfs Aug. 8-17, 1936, Aug. 7-11, 1940.

Remarks.—Records good except those for June 8-20, which are fair, and those for period of ice effect, which are poor. Diversions above station for irrigation of about 220 acres; no regulation.

Rating tables, water year 1953-54, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to June 7				June 8 to Sept. 30			
2.7	3.5	3.5	79	2.1	1.3	3.0	50
2.8	7.0	4.0	170	2.2	3.1	3.5	121
3.0	19	4.6	310	2.3	5.6	4.1	250
3.2	40			2.5	13		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.6	8.5	16	42	104	55	31	64	47	22	3.4	8.3
2	6.6	8.5	18	39	92	48	30	61	40	21	5.1	7.0
3	6.6	9.0	28	36	84	45	30	61	36	19	5.6	6.6
4	6.0	9.0	45	41	76	42	34	61	41	17	5.4	6.6
5	6.0	9.0	44	53	69	40	58	65	40	15	5.6	6.3
6	6.0	9.0	60	68	62	39	86	68	60	13	5.9	5.6
7	5.2	9.0	52	79	61	37	80	73	295	12	5.9	4.8
8	5.2	9.0	*41	90	64	44	84	80	241	12	5.4	4.8
9	5.6	9.0	52	85	68	66	104	86	195	14	3.8	6.3
10	6.3	9.0	80	75	*65	96	105	88	173	12	*2.7	7.0
11	6.6	9.5	61	65	61	91	86	85	150	12	3.1	5.9
12	6.0	9.5	73	58	66	79	85	75	136	9.4	4.8	5.4
13	5.6	10	85	51	76	79	227	68	116	8.7	5.4	5.6
14	5.6	10	68	51	76	73	302	61	94	8.0	4.6	5.6
15	6.0	10	66	47	69	71	*230	57	94	7.0	4.8	5.9
16	6.0	10	66	45	62	68	196	56	88	6.6	4.6	*6.6
17	6.3	14	60	39	62	66	188	56	75	7.0	4.1	7.6
18	7.0	12	56	36	66	60	184	53	65	6.3	4.4	8.7
19	9.5	11	66	32	61	61	162	52	57	6.3	6.3	8.7
20	10	10	166	30	58	61	130	50	49	5.9	12	8.0
21	9.5	10	128	b32	66	60	114	42	42	5.4	18	7.6
22	9.0	18	92	b34	75	58	107	34	36	5.6	12	7.6
23	8.5	26	76	b35	73	55	105	29	30	5.1	9.7	8.0
24	8.0	17	64	b35	72	53	99	29	27	5.4	9.7	7.3
25	8.0	15	56	b36	73	48	97	31	26	5.1	9.0	6.6
26	7.5	17	56	b37	71	45	91	33	24	5.1	8.3	6.3
27	*7.5	25	56	39	64	42	91	31	24	4.8	8.7	6.3
28	7.5	30	55	78	60	40	84	*27	24	4.8	7.6	6.3
29	8.0	21	52	126	-------	36	76	26	20	5.1	6.6	8.0
30	8.0	17	47	114	-------	36	71	42	20	4.4	7.6	7.6
31	8.0	-------	44	107	-------	33	-------	41	-------	3.4	9.0	------
Total	218.2	391.0	1,929	1,735	1,956	1,727	3,367	1,685	2,365	288.4	209.1	202.9
Mean	7.04	13.0	62.2	56.0	69.9	55.7	112	54.4	78.8	9.30	6.75	6.76
Ac-ft	433	776	3,830	3,440	3,880	3,430	6,680	3,340	4,690	572	415	402

Calendar year 1953: Max 500 Min 3 Mean 59.7 Ac-ft 43,240
Water year 1953-54: Max 302 Min 2.7 Mean 44.0 Ac-ft 31,890

14c 22

Peak discharge (base, 300 cfs).—Apr. 13 (8 p. m.) 387 cfs (4.89 ft); June 7 (11 a. m.) 378 cfs (4.86 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Mill Creek near Walla Walla, Wash.

Location.—Lat 46°00'30", long 118°07'00", in SE¼SE¼ sec. 12, T. 6 N., R. 37 E., on left bank 4 miles downstream from city of Walla Walla diversion dam, 4½ miles upstream from Blue Creek, and 11½ miles southeast of Walla Walla.

Drainage area.—60 sq mi, approximately.

Records available.—August 1913 to September 1917, April to September 1938, October 1939 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 2,000 ft above mean sea level, unadjusted. Prior to Oct. 1, 1938, staff gages on left bank at about same site at different datums.

Average discharge.—19 years (1913-17, 1939-54), 98.8 cfs (71,530 acre-ft per year).

Extremes.—Maximum discharge during year, 678 cfs Dec. 20 (gage height, 16.31 ft); minimum, 33 cfs Oct. 26, Aug. 9-12, 18.

1913-17, 1938, 1939-54: Maximum discharge, 1,920 cfs Feb. 24, 1950 (gage height, 17.10 ft), from rating curve extended above 620 cfs by logarithmic plotting; minimum observed, 16 cfs Oct. 11-15, 1939.

Remarks.—Records good except those for period of ice effect, which are fair. City of Walla Walla diverts about 22 cfs 4 miles above station for municipal use.

Revisions.—WSP 1288: Drainage area.

Rating table, water year 1953-54, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

14.6	25	15.6	265
14.9	64	16.1	530
15.2	128		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	35	68	86	*225	106	64	86	90	55	36	37
2	*37	36	80	82	197	95	62	84	80	52	36	36
3	37	36	106	80	177	88	66	88	77	50	35	*36
4	36	36	120	101	154	84	77	92	82	50	36	36
5	36	*36	137	151	140	82	140	108	77	48	36	36
6	36	40	157	183	128	82	208	113	118	46	36	36
7	36	41	125	197	123	78	180	108	370	46	36	36
8	36	39	125	222	131	88	183	120	288	45	36	36
9	36	39	163	*180	137	137	211	123	225	46	35	36
10	36	39	*218	151	134	170	187	118	204	46	34	36
11	37	40	145	134	123	148	160	113	*187	44	34	36
12	37	41	190	118	134	128	145	99	173	42	34	36
13	37	49	190	110	164	116	385	92	154	41	34	36
14	36	39	148	108	157	108	452	86	134	41	34	36
15	36	40	157	b96	137	106	288	86	142	40	35	39
16	36	49	157	b88	123	101	225	88	142	*39	35	39
17	36	49	137	b84	128	101	218	88	137	37	35	39
18	42	44	120	b80	137	90	204	88	118	37	34	39
19	44	54	197	b72	126	*88	180	88	108	39	37	37
20	42	44	494	b65	123	88	148	82	99	37	62	36
21	40	40	315	b65	167	86	131	75	86	39	50	36
22	39	101	211	b78	197	82	128	71	80	39	41	36
23	39	92	164	99	180	82	131	68	75	37	39	37
24	37	66	134	99	164	80	123	68	68	37	42	36
25	37	58	116	90	154	77	120	71	64	37	40	36
26	37	50	110	86	142	73	116	78	64	37	39	36
27	48	88	106	108	123	75	116	68	64	36	39	36
28	34	80	101	296	113	71	*106	64	62	36	37	37
29	34	68	95	385	-------	68	97	66	56	36	36	37
30	35	62	90	278	-------	66	92	77	52	36	37	37
31	35	-------	88	245	-------	64	-------	82	-------	36	41	------
Total	1,161	1,531	4,764	4,217	4,138	2,908	4,943	2,738	3,679	1,287	1,171	1,098
Mean	37.5	51.0	154	136	148	93.8	165	88.3	123	41.5	37.8	36.6
Ac-ft	2,300	3,040	9,450	8,360	8,210	5,770	9,800	5,430	7,300	2,550	2,320	2,180

Calendar year 1953: Max 992 Min 34 Mean 114 Ac-ft 82,490
Water year 1953-54: Max 494 Min 34 Mean 92.2 Ac-ft 66,710

Peak discharge (base, 700 cfs).--No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice

Blue Creek near Walla Walla, Wash.

Location.—Lat 46°03'30", long 118°08'10", in SW¼NW¼ sec. 25, T. 7 N., R. 37 E., on right bank 1 mile upstream from mouth and 10 miles east of Walla Walla.

Drainage area.—17.0 sq mi.

Records available.—October 1939 to September 1954.

Gage.—Water-stage recorder and concrete control. Datum of gage is 1,700 ft above mean sea level, unadjusted. Prior to Oct. 1, 1950, at datum 1,700 ft lower.

Average discharge.—15 years, 15.7 cfs (11,370 acre-ft per year).

Extremes.—Maximum discharge during year, 215 cfs Jan. 28 (gage height, 41.99 ft); maximum gage height, 42.47 ft Jan. 21 (backwater from ice); minimum discharge, 0.5 cfs Aug. 10-12; minimum gage height, 40.31 ft Oct. 7-10.

1939-54: Maximum discharge, 725 cfs Dec. 28, 1945 (gage height, 43.35 ft, present datum), from rating curve extended above 400 cfs; minimum observed, 0.1 cfs Oct. 14, 1939, but may have been less during periods of no gage-height record Oct. 1-11, 15, 1939.

Revisions.—Figures of maximum discharge for the water years 1941 and 1942 have been revised to 235 cfs June 7, 1941 (gage height, 42.30 ft, present datum) and 600 cfs June 26, 1942 (gage height, 43.65 ft, present datum, from high-water mark in gage well), superseding those published in WSP 934 and 964, respectively.

Remarks.—Records good except those below 10 cfs, which are fair, and those for period of ice effect, which are poor. No known diversion or regulation.

Revisions (water years).—WSP 984: 1942. Revised figures of discharge, in cubic feet per second, for periods in water years 1941 and 1945, superseding those published in WSP 934 and 1044, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1940		1945		1945-Con.	
Dec. 13	b6.2	Mar. 21	d54	Mar. 27	d18
14	b4.7	22	d56	28	d16
15	b4.5	23	d50	29	d14
16	b4.3	24	d40	30	d13
17	b4.7	25	d26	31	d15
		26	d21		

b Stage-discharge relation affected by ice.
d Doubtful gage-height record; discharge computed from records for stations on nearby streams.

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
December 1940.....	512.4	60	4.3	16.5	0.971	1.12	1,020
Calendar year 1940.	4,876.6	152	.6	13.3	.782	10.66	9,670
Water year 1940-41.	3,280.9	133	.8	8.99	.529	7.18	6,510
March 1945.....	710.3	56	2.9	22.9	1.35	1.55	1,410
Water year 1944-45.	3,817.7	140	.3	10.5	.618	8.35	7,570
Calendar year 1945.	5,228.2	424	.3	14.3	.841	11.44	10,370

Blue Creek near Walla Walla, Wash. —Continued

Rating table, water year 1953-54, except period of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

40.3	0.7	41.0	31
40.4	1.9	41.2	53
40.5	4.2	41.4	83
40.6	7.4	41.7	143
40.8	16.6		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	1.2	7.0	9.6	67	14	7.0	7.0	4.8	3.4	0.8	1.3
2	*1.0	1.2	10	8.8	56	11.5	6.6	6.6	4.5	3.1	.8	1.2
3	1.0	1.3	20	8.8	45	10.5	6.6	6.6	3.9	2.8	1.0	*1.2
4	1.0	1.3	25	10.5	37	9.2	7.4	6.3	6.0	2.4	1.0	1.2
5	.8	*1.3	26	20	30	8.4	16	6.0	5.4	2.4	1.0	1.2
6	.8	1.4	39	27	26	8.0	40	5.7	14	2.2	1.0	1.2
7	.8	1.4	28	31	23	7.4	35	5.4	54	1.9	1.0	1.2
8	.8	1.4	22	41	22	7.7	35	5.4	42	1.6	.8	1.2
9	.8	1.3	45	*37	22	11	40	5.4	29	1.8	.8	1.0
10	.8	1.3	*47	33	21	16	36	5.1	26	1.8	.7	1.0
11	1.0	1.4	33	27	19.5	15	31	4.8	*27	1.8	.7	1.0
12	1.0	1.6	41	23	21	14.5	27	4.5	27	1.4	.7	1.0
13	1.0	1.6	40	19.5	25	13.5	43	4.2	25	1.3	.7	1.0
14	1.0	1.6	31	19.5	24	13	64	3.6	22	1.2	.7	1.0
15	1.0	1.8	28	18.5	22	13	47	3.6	20	1.2	.8	1.3
16	1.0	3.1	25	16.5	19	13	37	3.1	19.5	*1.0	1.0	1.4
17	1.0	3.4	20	14.5	20	13	32	3.1	18.5	1.2	.8	1.4
18	2.7	2.2	18.5	13.5	22	12	27	2.8	16	1.2	.8	1.4
19	1.9	2.0	29	b12.5	20	*13	22	2.7	13	1.2	1.2	1.3
20	1.8	1.9	69	b14	19.5	*14.5	19	2.7	10.5	1.2	5.1	1.2
21	1.4	1.9	47	b20	27	14	16.5	2.2	8.0	1.2	4.5	1.0
22	1.3	11.5	38	b24	34	13.5	15	2.0	6.6	1.2	1.9	1.0
23	1.3	13	29	25	30	13.5	13.5	2.0	5.7	1.2	1.6	1.0
24	1.3	7.7	22	24	27	13	12.5	1.9	5.1	1.2	1.8	1.0
25	1.2	5.7	18	20	25	12	11	2.4	4.5	1.0	1.6	1.0
26	1.0	5.7	16	18.5	22	11	10	3.1	4.2	1.0	1.3	1.0
27	1.0	9.2	14.5	22	19	10.5	10.5	2.8	4.2	1.0	1.3	1.0
28	1.0	9.2	13.5	123	16	9.2	*8.8	2.4	3.9	1.0	1.2	1.0
29	1.0	8.0	11	132	-------	8.4	8.0	2.4	3.4	1.0	1.0	1.0
30	1.2	7.0	9.6	92	-------	8.4	7.7	4.2	3.1	1.0	1.0	1.0
31	1.2	-------	9.2	*77	-------	7.7	-------	4.5	-------	1.0	1.9	-------
Total	35.0	112.6	831.3	982.7	761.0	359.4	692.1	124.5	436.8	47.9	40.5	33.7
Mean	1.13	3.75	26.8	31.7	27.2	11.6	23.1	4.02	14.6	1.55	1.31	1.12
Cfsm	0.066	0.221	1.58	1.86	1.60	0.68	1.36	0.236	0.859	0.091	0.077	0.066
In.	0.08	0.25	1.82	2.15	1.66	0.79	1.51	0.27	0.96	0.10	0.09	0.07
Ac-ft	69	223	1,650	1,950	1,510	713	1,370	247	866	95	80	67

Calendar year 1953: Max 167 Min 0.7 Mean 17.8 Cfsm 1.05 In. 14.22 Ac-ft 12,880
Water year 1953-54: Max 132 Min 0.7 Mean 12.2 Cfsm .178 In. 9.75 Ac-ft 8,840

Peak discharge (base, 200 cfs).--Jan. 28 (4:30 p. m.) 215 cfs (41.99 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Mill Creek at Walla Walla, Wash.

Location.—Lat 46°04'40", long 118°17'00", in NE¼ sec. 22, T. 7 N., R. 36 E., on left bank at bridge 0.9 mile downstream from diversion dam and 1.0 mile east of Walla Walla.

Drainage area.—96 sq mi, approximately.

Records available.—April 1941 to September 1954.

Gage.—Water-stage recorder with artificial control. Altitude of gage is 1,120 ft (from topographic map). Prior to June 11, 1941, staff gage, and June 11, 1941, to Nov. 6, 1947, water-stage recorder, at approximately same site at different datum.

Extremes.—Maximum discharge during year, 594 cfs Dec. 20, Jan. 29 (gage height, 3.72 ft); minimum, 2.2 cfs July 16, 27 (gage height, 1.93 ft).

1941-54: Maximum discharge, 2,760 cfs Dec. 28, 1945; maximum gage height, 5.04 ft Jan. 22, 1950, from high-water mark on outside gage; minimum discharge, 0.5 cfs May 10, 1947, July 23, 24, 1949, Aug. 12, 13, 1952.

Revision.—The maximum discharge for the water year 1945 has been revised to 864 cfs Feb. 8, 1945 (gage height, 2.77 ft), superseding figure published in WSP 1044.

Remarks.—Records good except those below 10 cfs or those for period of ice effect, which are poor. Some regulation at diversion dam 0.9 mile above station where water is diverted into Yellowhawk and Garrison Creeks for stock and irrigation. Possible diversions at high stages into flood-control reservoir. City of Walla Walla diverts water for municipal supply several miles upstream. Other small diversions above station for irrigation.

Revisions.—WSP 1288: Drainage area. Revised figures of discharge, in cubic feet per second, for periods in the water years 1943, 1945, and 1946, superseding those published in WSP 984, 1044, and 1064, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1943		1945-Con.		1946-Con.		1946-Con.	
Jan. 16	167	Feb. 13	590	Feb. 21	105	Mar. 22	164
17	143	14	484	22	101	23	229
18	115	15	317	23	105	24	240
19	103	Dec. 29	890	24	147	25	229
20	95			26	317	26	161
21	89	1946		27	430	27	202
22	82	Feb. 1	232	Mar. 2	369	28	234
23	75	2	237	3	331	29	240
24	70	3	232	4	248	30	229
25	65	4	207	5	154	31	207
26	62	5	207	6	163	Apr. 1	129
27	58	6	217	7	168	13	112
28	56	7	207	8	150	14	129
29	54	8	202	9	150	15	151
30	52	9	192	10	163	16	166
31	51	10	182	11	177	17	185
Feb. 1	50	11	115	12	434	18	175
2	60	12	75	13	570	19	202
3	70	13	69	14	385	20	180
		14	66	15	289	21	142
1945		15	72	16	258	22	112
Feb. 8	622	16	84	17	234	26	171
9	692	17	91	18	234	27	129
10	394	18	94	19	224	28	103
11	353	19	97	20	185	29	108
12	275	20	105	21	129		

Note.—Stage-discharge relation affected by ice Jan. 17 to Feb. 3, 1943 (no gage-height record Jan. 18-23, 25-30, Feb. 1-3).

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet	Yellowhawk and Garrison Creeks diversion (acre-feet)	Adjusted	
							Runoff in acre-feet	Mean
January 1943	3,597	550	22	116	7,130	3,580	10,710	174
February	5,856	668	50	209	11,620	2,100	13,720	247
Water year 1942-43	33,564.2	679	1.7	92.0	66,580	33,750	100,300	139
Calendar year 1943	27,844.8	679	1.7	76.3	55,240	31,580	86,830	120
February 1945	5,268.5	692	9.0	188	10,450	2,310	12,760	230
Water year 1944-45	22,927.0	692	1.1	62.8	45,480	25,840	71,310	98.5
December 1945	4,870	1,300	21	157	9,660	2,390	12,050	196
Calendar year 1945	28,754.4	1,300	1.1	78.8	57,030	26,690	83,720	116
February 1946	5,124	551	66	183	10,160	3,720	13,880	250
March	7,571	570	129	244	15,020	4,760	19,780	322
April	3,256	202	54	109	6,460	7,730	14,190	238
Water year 1945-46	34,669.6	1,300	1.8	95.0	68,780	39,710	108,500	150
Calendar year 1946	35,247.2	984	4.0	96.6	69,920	45,510	115,900	160

Mill Creek at Walla Walla, Wash. --Continued

Rating table, water year 1953-54, except period of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

1.9	1.6	2.6	69
2.0	4.0	2.8	128
2.2	13	3.1	240
2.4	32	3.6	510

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.8	3.4	40	48	315	65	54	37	20	8.7	5.2	3.2
2	*7.8	3.2	45	48	272	65	45	35	14.5	8.2	4.9	*3.7
3	7.8	5.6	74	45	228	45	50	37	14	6.6	4.9	3.4
4	8.2	3.7	131	69	199	34	52	38	14.5	7.0	4.9	3.4
5	8.2	3.7	109	77	177	31	77	43	15.5	6.3	4.9	3.4
6	7.8	*3.7	142	91	155	31	135	46	46	5.2	5.2	3.4
7	8.2	*4.0	112	106	152	48	122	43	456	4.9	3.7	3.4
8	7.0	4.0	67	96	152	45	125	45	414	4.3	4.6	3.7
9	5.9	4.0	74	135	155	42	162	48	310	4.3	3.4	3.7
10	5.9	4.0	180	*138	155	46	159	58	267	3.7	4.0	3.2
11	6.3	4.0	173	125	142	37	131	99	232	4.6	3.2	3.4
12	6.3	4.0	*203	109	148	48	166	61	*215	4.3	3.4	3.4
13	5.9	4.3	240	99	169	46	295	31	188	3.7	3.4	3.4
14	6.6	3.7	188	91	169	46	384	29	152	3.7	3.2	3.4
15	7.4	4.9	177	91	152	46	358	52	152	*3.4	2.6	4.0
16	7.4	5.6	169	77	135	48	211	50	169	3.2	2.6	4.3
17	7.4	5.6	159	72	135	99	192	45	152	3.4	2.9	4.6
18	7.8	4.3	145	63	142	93	203	25	125	4.0	3.2	4.6
19	8.7	4.3	162	61	131	*96	220	18.5	88	4.0	4.9	4.3
20	5.9	4.0	438	b55	122	93	169	18	82	3.7	10	4.3
21	4.9	3.4	335	b50	135	91	138	17	72	4.0	9.7	4.3
22	5.2	11.5	254	b54	135	88	135	14.5	63	4.0	6.6	5.6
23	4.3	42	159	b85	131	65	131	17	61	4.0	5.6	4.3
24	3.7	10	112	91	109	50	118	15.5	28	3.7	3.4	4.0
25	4.0	7.4	88	72	102	72	115	13	10	3.7	3.7	3.7
26	3.7	18	80	63	93	72	106	14	9.2	3.4	4.0	3.7
27	3.7	35	77	63	85	72	109	13	9.7	2.7	3.4	3.7
28	3.4	46	88	335	77	72	*52	11	9.2	3.4	2.9	3.4
29	3.2	45	69	504	-------	65	31	10	8.2	4.3	2.9	3.4
30	3.2	40	56	402	-------	63	37	14	8.2	4.3	2.9	3.7
31	3.4	-------	46	*352	-------	58	-------	17	-------	4.3	2.9	-------
Total	187.0	342.3	4,392	3,767	4,272	1,872	4,282	1,014.5	3,405.0	139.0	133.1	114.0
Mean	6.03	11.4	142	122	153	60.4	143	32.7	114	4.48	4.29	3.80
Ac-ft	371	679	8,710	7,470	8,470	3,710	8,490	2,010	6,750	276	264	226

Calendar year 1953: Max 1,320 Min 3.2 Mean 101 Ac-ft 73,410
Water year 1953-54: Max 504 Min 2.6 Mean 65.5 Ac-ft 47,430

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Dry Creek near Walla Walla, Wash.

Location.—Lat 46°07'20", long 118°14'10", on south line SW¼ sec. 31, T. 8 N., R. 37 E., on right bank 1 mile downstream from Spring Creek and 6 miles northeast of Walla Walla.
Drainage area.—48.4 sq mi.
Records available.—January 1949 to September 1954.
Gage.—Water-stage recorder and concrete control. Altitude of gage is 1,200 ft (from topographic map).
Average discharge.—5 years, 25.2 cfs (18,240 acre-ft per year).
Extremes.—Maximum discharge during year not determined, occurred Jan. 28; minimum, 0.6 cfs Aug. 2.
1949-54: Maximum discharge, 3,340 cfs Feb. 22, 1949 (gage height, 11.6 ft, from high-water mark in well), by contracted-opening method at bridge 100 ft downstream from gage; minimum, 0.2 cfs Aug. 4, 1949.
Remarks.—Records good except those for periods of ice effect or no gage-height record, which are poor. Several small diversions above station for irrigation. No regulation.

Rating table, water year 1953-54, except period of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

3.1	1.4	3.6	21
3.2	3.4	4.0	60
3.3	6.3	4.5	142
3.4	10	5.0	257

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	2.7	12	18	82	24	14.5	14	9.4	7.0	1.0	2.5
2	1.7	2.7	14	17.5	68	21	14	13.5	8.2	6.6	.8	*2.1
3	1.7	2.7	30	17	59	20	14.5	13.5	7.0	5.6	1.0	1.9
4	1.7	2.9	35	17.5	49	18	15.5	13	11	4.7	1.1	1.9
5	1.7	*3.2	40	29	44	18	24	13	9.4	4.4	1.4	1.9
6	1.4	3.5	50	36	40	17	44	13	21	4.2	1.2	1.9
7	1.4	3.5	35	46	38	16	38	13	85	3.9	1.1	1.9
8	1.4	3.5	30	61	38	17.5	41	12.5	64	4.2	1.0	2.1
9	1.4	3.2	45	*47	39	28	46	12	46	5.0	1.0	1.9
10	1.4	3.2	*60	40	37	37	42	11.5	*40	5.3	1.0	1.6
11	1.7	3.5	37	35	34	32	36	11.5	36	5.0	1.1	1.6
12	1.7	3.5	50	29	39	28	32	10.5	33	4.2	1.2	1.4
13	1.7	3.5	46	26	41	26	59	9.4	30	3.6	1.2	1.7
14	1.9	4.0	36	27	41	24	65	9.0	26	3.2	1.1	1.6
15	1.9	4.5	35	25	37	24	52	8.6	31	*2.7	1.6	2.1
16	1.9	5.0	32	21	33	24	43	8.2	26	2.3	1.7	2.7
17	1.9	6.0	28	20	37	24	40	7.4	23	1.9	1.7	1.9
18	3.2	5.0	25	19	37	23	37	7.0	19	1.9	1.7	1.9
19	6.6	4.5	44	14	35	22	32	6.3	17.5	2.1	1.9	2.5
20	3.9	4.0	102	b13	33	23	28	6.0	15.5	1.9	7.4	2.5
21	3.6	4.0	65	b20	42	*23	24	6.3	13	2.3	7.0	2.5
22	2.9	20	46	b30	43	22	23	6.0	11	2.5	4.4	2.3
23	2.7	22	36	b34	40	21	21	5.6	9.8	2.5	3.2	2.3
24	2.7	18	30	34	38	21	21	5.3	8.6	2.3	3.9	2.1
25	2.5	14	25	31	37	20	20	6.6	8.2	2.1	3.6	2.3
26	2.5	12	24	28	34	19	19	7.4	7.8	1.9	2.5	2.1
27	2.5	15	23	42	30	18.5	21	7.4	7.8	1.4	2.3	2.1
28	2.5	15	21	194	27	17.5	*18	6.3	7.8	1.4	2.3	2.1
29	2.5	14	20	167	-------	14.5	17	6.0	6.3	1.4	2.1	2.3
30	2.5	12	18	105	-------	15.5	15.5	8.6	6.6	1.1	1.9	2.3
31	2.5	-------	17	*91	-------	15.5	-------	8.6	-------	1.2	3.6	-------
Total	71.5	220.6	1,111	1,334.0	1,152	674.0	917.0	287.0	644.9	99.8	68.0	62.0
Mean	2.31	7.35	35.8	43.0	41.1	21.7	30.6	9.26	21.5	3.22	2.19	2.07
Ac-ft	142	438	2,200	2,650	2,280	1,340	1,820	569	1,280	198	135	123

Calendar year 1953: Max 232 Min 0.8 Mean 23.7 Ac-ft 17,120
Water year 1953-54: Max 194 Min 0.8 Mean 18.2 Ac-ft 13,180

Peak discharge (base, 400 cfs).—No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.—No gage-height record Nov. 6 to Dec. 9; estimated on basis of weather records and records for nearby stations.

Touchet River at Bolles, Wash.

Location.—Lat 46°16'30", long 118°13'15", on line between secs. 7 and 8, T. 9 N., R. 37 E., on right bank just downstream from bridge on State Highway 3E, a quarter of a mile southeast of Bolles and 3 miles west of Waitsburg.

Drainage area.—362 sq mi.

Records available.—February 1924 to October 1929, April 1951 to September 1954.

Average discharge.—7 years (1924-28, 1951-54), 236 cfs, (170,900 acre-ft per year).

Gage.—Water-stage recorder. Altitude of gage is 1,150 ft (from topographic map). Prior to Oct. 5, 1929, water-stage recorder at site half a mile upstream at different datum. Apr. 1 to May 6, 1951, staff gage at present site and datum.

Extremes.—Maximum discharge during year, 1,810 cfs Jan. 28 (gage height, 7.95 ft); minimum not determined, occurred during period of ice effect; minimum daily, 20 cfs Jan. 20.

1924-29, 1951-54: Maximum discharge, 4,470 cfs Jan. 13, 1928 (gage height, 7.04 ft, site and datum then in use); minimum, 1.4 cfs July 30, 1926 (gage height, 0.42 ft, site and datum then in use).

Remarks.—Records fair except those for period of ice effect, which are poor. Diurnal fluctuation and some regulation at low flow caused by operation of flour mill at Waitsburg. Numerous small diversions for municipal and domestic use and for irrigation.

Rating table, water year 1953-54, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 25 to May 9)

4.7	28	5.5	410
4.8	57	6.0	695
5.0	138	6.5	985
5.2	240	7.3	1,440

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*51	57	138	90	*794	251	168	214	163	90	40	54
2	51	61	143	87	707	214	168	204	134	94	37	*51
3	48	61	246	79	*616	188	188	204	120	83	37	48
4	48	*61	290	79	536	173	230	209	158	72	42	48
5	42	64	246	268	477	153	386	209	138	68	42	51
6	40	72	380	426	432	138	616	214	188	68	42	51
7	37	72	312	530	416	134	547	224	454	61	40	51
8	37	68	256	640	410	138	574	240	410	64	37	51
9	34	64	536	501	421	262	616	262	339	68	31	51
10	34	68	684	*421	404	477	542	278	*328	72	31	48
11	45	72	438	374	368	416	477	273	306	72	31	45
12	45	72	477	306	547	362	432	256	295	68	34	45
13	42	79	443	262	569	328	574	230	284	61	34	48
14	42	76	350	251	564	306	707	209	251	61	34	45
15	42	76	328	b230	471	295	598	198	262	*57	40	51
16	42	90	295	b180	416	290	519	198	273	54	42	68
17	42	116	262	b130	460	284	495	204	240	54	40	68
18	48	98	235	b100	471	262	525	204	219	54	37	68
19	68	87	333	b80	416	246	477	204	198	54	37	68
20	61	90	1,070	b20	404	*240	421	188	178	48	42	61
21	64	87	731	b30	519	235	362	178	153	51	94	57
22	57	268	530	b200	525	224	334	158	134	51	76	57
23	57	317	374	483	471	224	322	138	116	48	54	57
24	57	163	268	334	448	219	312	129	112	45	68	57
25	54	129	209	284	426	204	306	143	103	42	61	51
26	54	125	173	256	392	193	284	143	94	42	57	51
27	57	168	158	356	334	209	295	153	103	42	57	48
28	54	168	138	1,380	300	193	278	125	103	42	54	48
29	57	138	125	1,420	-------	153	*251	112	94	40	54	54
30	57	129	103	1,030	-------	163	235	129	87	40	51	57
31	54	-------	90	*870	-------	178	-------	129	-------	40	61	-------
Total	1,521	3,196	10,361	11,697	13,314	7,352	12,239	5,959	6,037	1,806	1,437	1,608
Mean	49.1	107	334	377	476	237	408	192	201	58.3	46.4	53.6
Ac-ft	3,020	6,340	20,550	23,200	26,410	14,580	24,280	11,820	11,970	3,580	2,850	3,190

Calendar year 1953: Max 1,500 Min 26 Mean 242 Ac-ft 174,800
Water year 1953-54: Max 1,420 Min 20 Mean 210 Ac-ft 151,800

Peak discharge (base, 2,500 cfs).—No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

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Touchet River near Touchet, Wash.

Location.—Lat 46°07'25", long 118°39'00", in SE¼SW¼ sec. 35, T. 8 N., R. 33 E., at Johnson Bridge, 6 miles north of Touchet and 7 miles upstream from mouth. Prior to June 24, 1954, at site 2½ miles downstream.

Drainage area.—733 sq mi.

Records available.—April 1941 to September 1954.

Gage.—Wire-weight gage read once daily. Altitude of gage is 530 ft (from topographic map). Prior to July 3, 1941, staff gage, and July 3, 1941, to June 23, 1954, water-stage recorder, at site 2½ miles downstream at different datum.

Average discharge.—13 years, 249 cfs (180,300 acre-ft per year).

Extremes.—Maximum discharge during year not determined; maximum gage height, 9.62 ft Jan. 23 (ice jam), site and datum then in use; minimum discharge observed, 23 cfs Aug. 11, 12; minimum gage height, 1.11 ft Oct. 10.

1941-54: Maximum discharge, 13,300 cfs Feb. 10, 1949 (gage height, 14.7 ft, site and datum then in use, from high-water mark in gage house), by contracted-opening method at present site; minimum, 6.0 cfs Sept. 11, 1951.

Remarks.—Records fair except those for periods of no gage-height record, which are poor. Many large diversions above station for irrigation of an estimated 3,500 acres. Occasional regulation from unknown source.

Revisions (water years).—WSP 1124: Drainage area at former site. WSP 1154: 1946(M).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to June 23				June 24 to Sept. 30	
1.1	41	3.0	351	1.1	19
1.5	68	4.0	680	1.3	32
2.0	133	5.0	1,140	1.6	61
2.5	228	6.0	1,770	2.0	120

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*44	50	113	172	900	314	168	250	148	90	28	49
2	43	51	128	179	*736	278	164	226	145	84	31	46
3	43	52	143	168	650	259	164	224	128	73	30	45
4	43	53	290	170	560	241	191	222	127	73	30	*38
5	43	53	228	230	500	228	255	213	155	60	33	42
6	43	*55	311	431	450	220	486	215	140	58	30	41
7	42	56	351	540	420	207	546	222	310	54	30	40
8	42	58	266	600	390	209	485	228	443	51	28	39
9	42	56	282	670	370	239	629	246	374	52	26	38
10	42	55	692	560	360	429	563	266	343	57	24	36
11	43	57	*504	*450	350	398	497	268	316	58	23	35
12	46	58	410	380	330	351	440	262	296	54	23	39
13	46	59	500	330	580	319	470	239	293	49	26	38
14	44	60	410	290	560	301	716	222	263	46	27	39
15	44	58	357	260	500	283	656	205	235	44	28	43
16	44	60	340	230	440	276	549	199	262	42	36	58
17	44	76	311	200	404	278	494	197	243	*42	34	59
18	45	86	280	160	510	271	510	197	232	40	33	62
19	52	70	271	110	440	252	500	193	211	38	31	59
20	60	65	1,170	90	413	243	452	193	187	38	36	56
21	56	63	865	80	434	*237	392	187	164	38	44	54
22	56	70	598	200	566	232	357	178	143	38	49	52
23	52	338	461	500	500	218	335	168	130	38	51	52
24	51	207	374	400	467	213	324	155	*117	34	53	50
25	51	140	311	300	455	205	308	148	113	34	61	48
26	50	117	268	270	428	193	293	157	100	33	68	48
27	51	123	255	340	392	193	*296	166	94	35	50	43
28	52	174	228	1,000	346	195	298	157	91	33	44	41
29	52	143	213	1,600	-------	174	271	143	97	31	44	40
30	51	123	193	1,500	-------	164	259	140	84	28	43	45
31	50	-------	178	1,100	-------	170	-------	142	-------	26	38	-------
Total	1,467	2,686	11,301	13,510	13,451	7,790	12,068	6,228	5,984	1,471	1,132	1,375
Mean	47.3	89.5	365	436	480	251	402	201	199	47.5	36.5	45.8
Ac-ft	2,910	5,330	22,420	26,800	26,680	15,450	23,940	12,350	11,870	2,920	2,250	2,730

Calendar year 1953: Max 2,240 Min 21 Mean 254 Ac-ft 183,600
Water year 1953-54: Max 1,600 Min 23 Mean 215 Ac-ft 155,600

Peak discharge (base, 2,000 cfs).—No peak above base.

* Discharge measurement made on this day.

Note.—No gage-height record Jan. 7 to Feb. 1, Feb. 3-12, Aug. 24-27; discharge estimated on basis of 1 discharge measurement, weather records, and records for nearby stations.

Walla Walla River near Touchet, Wash.

Location.—Lat 46°01'45", long 118°43'40", in NW¼SE¼ sec. 6, T. 6 N., R. 33 E., on left bank 2⅝ miles southwest of Touchet and 3 miles downstream from Touchet River.
Drainage area.—1,660 sq mi, approximately.
Records available.—October 1951 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 405 ft (from topographic map). Prior to Nov. 27, 1951, staff gage at same site and datum.
Extremes.—Maximum discharge during year, 3,680 cfs Jan. 29 or 30 (gage height, 7.53 ft, from recorded range in stage); minimum, 15.5 cfs Aug. 19, 20 (gage height, 1.91 ft).
1951-54: Maximum discharge, 16,300 cfs Feb. 2, 1952 (gage height, 12.10 ft), from rating curve extended above 6,000 cfs on basis of contracted-opening determination at gage height 13.81 ft; minimum, 11.5 cfs Aug. 23, 1953 (gage height, 1.88 ft).
Maximum stage known, 13.81 ft in February 1949, from floodmarks (discharge, 23,800 cfs).
Remarks.—Records good except those for periods of no gage-height record, which are poor. Some diversions above station for irrigation.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 16				Jan. 17 to Sept. 30			
2.3	51	4.0	560	1.9	15	3.7	460
2.7	115	5.0	1,100	2.1	31	4.5	890
3.2	245	6.6	2,460	2.4	67	5.5	1,600
				2.8	141	7.0	3,040
				3.2	265		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*66	91	262	730	*2,070	880	448	408	214	88	21	46
2	68	89	301	725	1,920	800	420	368	220	81	20	57
3	56	94	346	715	1,700	750	412	356	220	78	19	*49
4	55	100	680	705	1,510	700	432	348	214	67	18.5	46
5	51	100	625	740	1,370	660	595	332	220	66	18.5	48
6	52	100	740	932	1,230	620	1,140	336	220	57	18.5	50
7	52	*102	845	1,060	1,180	600	1,220	336	625	53	21	49
8	54	104	680	1,360	1,160	650	1,120	344	1,680	44	22	47
9	55	100	650	1,340	1,180	800	1,420	380	1,210	49	25	47
10	56	102	1,290	1,100	1,180	1,100	1,350	452	1,080	50	28	47
11	55	107	*1,190	*950	1,070	1,500	1,170	465	998	52	29	42
12	61	111	908	878	1,180	1,100	1,020	460	878	52	30	38
13	64	113	1,150	790	1,520	1,000	1,200	376	806	49	34	38
14	63	117	1,060	770	1,480	938	2,390	304	700	47	42	47
15	59	111	884	760	1,310	878	1,900	276	630	41	44	49
16	63	113	860	770	1,160	830	1,490	282	700	*35	52	73
17	64	134	815	700	1,090	872	1,290	279	615	32	49	100
18	73	167	760	600	1,320	830	1,320	275	545	29	53	110
19	94	141	750	400	1,150	770	1,280	272	456	31	32	106
20	109	136	1,740	350	1,000	*752	1,120	279	400	29	17	106
21	102	132	2,420	350	1,200	746	926	258	328	27	29	104
22	104	136	1,680	400	1,500	716	806	230	262	23	66	106
23	104	500	1,300	900	1,400	700	728	214	192	23	50	104
24	109	402	1,090	800	1,300	655	700	198	*146	22	34	95
25	107	266	926	650	1,200	695	650	211	108	21	36	91
26	102	227	830	600	1,100	685	625	195	98	21	43	88
27	107	276	805	700	1,050	625	*605	224	84	21	41	84
28	106	374	785	1,200	950	565	555	217	95	20	42	81
29	104	336	770	2,500	-------	515	452	195	96	21	46	84
30	96	294	770	3,000	-------	475	428	186	95	21	43	90
31	94	-------	745	2,400	-------	465	-------	189	-------	21	42	-------
Total	2,405	5,175	28,657	29,875	36,480	23,872	29,212	9,245	14,135	1,271	1,065.5	2,122
Mean	77.6	172	924	964	1,300	770	974	298	471	41.0	34.4	70.7
Ac-ft	4,770	10,260	56,840	59,260	72,360	47,350	57,940	18,340	28,040	2,520	2,110	4,210

Calendar year 1953: Max 6,040 Min 12 Mean 638 Ac-ft 462,100
Water year 1953-54: Max 3,000 Min 18.5 Mean 503 Ac-ft 364,000

Peak discharge (base, 3,000 cfs).--Jan. 29 or 30 (time unknown) 3,680 cfs (7.53 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Jan. 17-31, Feb. 19 to Mar. 13; discharge estimated on basis of recorded range in stage, weather records, and records for stations on nearby streams.

Umatilla River above Meacham Creek, near Gibbon, Oreg.

Location.—Lat 45°43', long 118°20', in SW¼ sec. 21, T. 3 N., R. 36 E., on right bank 0.8 mile downstream from Ryan Creek, 2½ miles upstream from Meacham Creek, and 2½ miles northeast of Gibbon.

Drainage area.—125 sq mi.

Records available.—April 1933 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 1,854.81 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to June 27, 1939, at site 1 mile downstream at datum 43.94 ft lower.

Average discharge.—21 years, 223 cfs (161,400 acre-ft per year).

Extremes.—Maximum discharge during year, 1,380 cfs Dec. 20 (gage height, 5.10 ft); minimum, 46 cfs Aug. 10, 11, Sept. 9, 10, 14, 27.

1933-54: Maximum discharge, 6,660 cfs Dec. 12, 1946 (gage height, 8.84 ft), from rating curve extended above 2,000 cfs by logarithmic plotting; minimum, 28 cfs Sept. 27, 1935, Jan. 9, 1937.

Remarks.—Records good.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 20				Dec. 21 to Sept. 30			
2.0	47	3.5	395	2.0	41	3.5	395
2.5	99	4.0	645	2.2	57	4.0	645
3.0	200	5.0	1,310	2.5	90	4.7	1,100
				3.0	200		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	49	53	115	152	382	214	137	249	188	113	49	51
2	50	53	141	141	346	191	133	232	168	100	48	50
3	51	52	218	137	318	176	137	235	162	93	48	49
4	51	52	260	155	294	165	180	260	162	87	49	49
5	51	52	249	221	274	160	505	298	150	84	48	48
6	52	52	298	282	249	160	700	306	206	78	48	48
7	52	52	242	364	256	155	575	318	884	75	48	48
8	52	50	185	382	278	179	520	338	672	74	47	47
9	52	49	224	318	282	*386	530	364	535	77	47	47
10	52	*49	298	263	263	525	480	377	634	74	47	47
11	53	49	*228	228	242	431	431	359	565	72	47	47
12	53	49	286	200	260	359	431	318	505	68	47	47
13	53	50	326	182	330	314	*964	282	465	67	48	47
14	53	50	263	179	322	306	1,070	*263	408	64	49	47
15	53	50	242	170	278	266	760	266	400	*63	51	47
16	53	57	232	162	246	252	667	274	350	62	50	49
17	53	64	214	152	235	242	718	278	310	60	49	52
18	58	55	235	145	238	221	730	286	274	59	48	53
19	69	53	629	137	221	214	623	294	246	58	51	50
20	*59	53	1,080	133	224	214	530	263	221	57	64	48
21	56	53	628	120	270	207	455	238	197	56	64	47
22	55	128	436	*125	314	194	450	210	179	55	55	48
23	55	179	326	143	314	191	455	194	162	55	52	48
24	55	125	260	145	306	188	426	191	150	54	55	47
25	54	109	221	143	310	176	404	191	*139	53	53	47
26	53	108	204	141	298	168	377	194	135	52	53	47
27	53	146	194	143	263	168	354	168	129	51	54	47
28	52	158	188	263	242	162	334	152	125	51	51	47
29	52	126	182	342	-------	148	302	150	111	51	51	49
30	52	111	173	364	-------	143	278	194	109	50	51	48
31	53	-------	160	413	-------	139	-------	191	-------	49	55	-------
Total	1,659	2,287	8,937	6,445	7,855	7,014	14,656	7,933	8,941	2,062	1,577	1,446
Mean	53.5	76.2	288	208	281	226	489	256	298	66.5	50.9	48.2
Cfsm	0.428	0.610	2.30	1.66	2.25	1.81	3.91	2.05	2.38	0.532	0.407	0.386
In.	0.49	0.68	2.66	1.92	2.34	2.09	4.36	2.36	2.66	0.61	0.47	0.43
Ac-ft	3,290	4,540	17,730	12,780	15,580	13,910	29,070	15,730	17,730	4,090	3,130	2,870

Calendar year 1953: Max 2,090 Min 45 Mean 273 Cfsm 2.18 In. 29.67 Ac-ft 197,900
Water year 1953-54: Max 1,080 Min 47 Mean 194 Cfsm 1.55 In. 21.07 Ac-ft 140,400

Peak discharge (base, 1,400 cfs).—No peak above base.
* Discharge measurement made on this day.

Umatilla River at Pendleton, Oreg.

Location.—Lat 45°40'20", long 118°47'40", in NE¼ sec. 10, T. 2 N., R. 32 E., on left bank a quarter of a mile upstream from Main Street Bridge at Pendleton and 2½ miles upstream from McKay Creek.

Drainage area.—637 sq mi.

Records available.—February 1891 to July 1892, May 1903 to June 1905, May 1921 to September 1954. Published as "above McKay Creek near Pendleton" May 1921 to September 1934.

Gage.—Water-stage recorder. Datum of gage is 1,062.54 ft above mean sea level, datum of 1929. February 1891 to July 1892, type of gage and location not known. May 22, 1903, to June 11, 1905, staff gage at Main Street Bridge at different datum. May 1 to Oct. 12, 1921, staff gage, and Oct. 13, 1921, to Sept. 30, 1934, water-stage recorders, at two sites 200 ft apart 2½ miles downstream at various datums. Supplementary water-stage recorder at site 600 ft upstream at different datum used during low-water periods since Aug. 1, 1942.

Average discharge.—31 years (1923-54), 478 cfs (346,100 acre-ft per year).

Extremes.—Maximum discharge during year, 2,900 cfs Dec. 20 (gage height, 3.94 ft); minimum, 32 cfs Aug. 2.

1891-92, 1903-5, 1921-54: Maximum discharge, 15,400 cfs Feb. 22, 1949 (gage height, 9.01 ft); minimum, 7 cfs Aug. 14, 1924.

Maximum flood known, 17,000 cfs 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, present site and datum, but before channel was improved (discharge, 15,500 cfs, estimated by Corps of Engineers).

Remarks.—Records good. Diversions for irrigation of about 1,100 acres above station; no regulation.

Revisions (water years).—WSP 934: 1931 (maximum gage height only).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 14 to Nov. 14)

Oct. 1 to Dec. 20				Dec. 21 to Sept. 30			
1.1	28	2.5	710	1.0	24	2.0	400
1.4	88	3.0	1,260	1.2	57	3.0	1,370
1.7	190	3.8	2,620	1.4	107	3.8	2,640
2.0	340			1.7	222		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	58	202	365	977	572	344	421	262	182	37	59
2	42	56	230	330	911	512	337	379	242	167	34	55
3	42	56	352	318	820	470	324	365	222	148	37	51
4	42	58	674	324	755	435	344	344	232	133	38	49
5	42	58	564	421	719	393	640	428	222	120	40	49
6	44	*58	665	498	674	372	1,300	463	227	110	42	49
7	42	60	638	564	674	372	1,300	463	728	104	38	48
8	41	58	498	683	683	379	1,160	484	890	102	37	48
9	41	58	512	656	710	597	1,170	519	764	104	37	48
10	41	58	800	572	701	1,120	1,060	526	840	102	*37	42
11	44	58	638	505	683	1,030	966	519	870	96	40	44
12	46	60	580	*463	638	850	944	470	773	85	42	46
13	44	60	683	421	701	737	*1,520	414	746	80	44	49
14	43	62	612	400	773	665	2,640	*372	683	75	46	48
15	44	64	556	400	701	612	1,970	358	620	73	48	51
16	44	68	519	386	612	580	1,540	351	596	71	53	57
17	46	81	491	358	564	564	1,470	351	533	66	51	62
18	52	84	484	337	588	526	1,510	344	484	62	48	66
19	77	*77	816	318	556	512	1,290	358	421	59	49	62
20	75	77	2,600	267	526	505	1,040	344	372	59	62	57
21	66	75	1,730	260	612	505	880	313	330	64	73	55
22	62	93	1,200	330	791	484	800	289	301	62	64	55
23	62	226	880	386	840	470	800	262	272	57	57	55
24	60	230	710	372	810	463	737	247	252	55	57	57
25	60	194	572	351	820	442	692	247	*227	51	64	55
26	58	178	526	324	800	414	647	252	209	49	64	55
27	56	186	512	365	728	414	604	242	204	*46	64	55
28	56	265	*484	719	674	407	556	213	196	46	62	55
29	56	245	456	782	-------	372	512	204	170	44	57	62
30	60	214	421	830	-------	365	470	232	163	42	53	64
31	58	-------	386	966	-------	351	-------	247	-------	40	57	-------
Total	1,585	3,175	20,991	14,271	20,041	16,490	29,567	11,021	13,051	2,554	1,532	1,608
Mean	51.1	106	677	460	716	532	986	356	435	82.4	49.4	53.6
Ac-ft	3,140	6,300	41,640	28,310	39,750	32,710	58,650	21,860	25,890	5,070	3,040	3,190

Calendar year 1953: Max 4,730 Min 25 Mean 635 Ac-ft 459,500
Water year 1953-54: Max 2,640 Min 34 Mean 372 Ac-ft 269,600

Peak discharge (base, 3,200 cfs).—No peak above base.

* Discharge measurement made on this day.

McKay Creek near Pilot Rock, Oreg.

Location.—Lat 45°33'10", long 118°46'20", in NE¼ sec. 23, T. 1 N., R. 32 E., on left bank 400 ft downstream from highway bridge, three-quarters of a mile upstream from maximum flow line (altitude, 1,322 ft) of McKay Reservoir, and 6 miles northeast of Pilot Rock.

Drainage area.—178 sq mi.

Records available.—May to August 1921, October 1926 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 1,335.68 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. May 7 to Aug. 14, 1921, staff gage near present site at different datum. Nov. 19, 1926, to Sept. 15, 1932, and Sept. 16, 1932, to Apr. 8, 1941, water-stage recorder at site 400 ft upstream at datums 1.4 and 4.4 ft higher, respectively.

Average discharge.—26 years (1926-27, 1929-54), 96.2 cfs (69,650 acre-ft per year).

Extremes.—Maximum discharge during year, 628 cfs Apr. 13 (gage height, 3.53 ft); minimum, 0.3 cfs Oct. 1-23.

1921, 1926-54: Maximum discharge, 6,000 cfs Apr. 1, 1931 (gage height, 10.4 ft, site and datum then in use), from rating curve extended above 220 cfs by logarithmic plotting; no flow at times.

Remarks.—Records good except those below 75 cfs and those for periods of no gage-height record, which are poor. Diversions for irrigation above station; no diversions between station and McKay Reservoir.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.0	0.2	1.3	6.5	2.0	78	3.0	360
1.1	.9	1.5	18	2.2	116	3.5	610
1.2	2.8	1.7	36	2.5	190		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	2.8	36	104	179	106	80	52	13	21		
2	.3	3.2	51	92	168	92	75	47	13	19		
3	.3	3.2	118	87	156	*85	70	46	13	17		
4	.3	4.3	217	82	143	76	75	35	13	20		
5	.3	5.0	174	85	134	72	116	32	13	17		
6	.3	4.6	202	89	120	67	187	*29	14	14		
7	.3	5.0	179	94	114	61	202	27	134	12		
8	.3	5.4	150	98	112	64	217	25	125	*11		0.5
9	.3	5.8	320	91	110	78	233	22	166	10		
10	.3	6.1	369	87	106	125	214	21	211	7.6		
11	.3	6.1	236	*82	96	125	199	20	202	6.1	1	
12	.3	7.0	214	76	100	112	*187	20	187	5.0		
13	.3	6.1	214	72	116	106	422	20	246	3.9		
14	.3	4.6	182	72	114	104	530	19	205	3.5		
15	.3	4.6	176	73	106	102	387	16	168	3.2		
16	.3	5.0	170	72	98	104	299	15	143	2.6		
17	.3	5.0	160	68	92	112	259	14	120	2.6		
18	.3	5.0	150	67	94	104	233	14	102	2.6		
19	.3	5.0	150	64	89	118	199	14	85	2.3		
20	.3	5.4	200	60	85	138	166	12	70	2.3		1
21	.3	6.1	300	65	112	158	136	11	59	2.6		
22	.3	13	250	70	131	158	116	11	48	2.6		
23	.5	27	185	91	136	153	108	9.8	33	2.3		
24	.8	34	150	110	138	150	96	*9.8	20	2.1		
25	1.2	29	131	100	140	134	83	10	15	2.1		
26	1.7	27	140	91	134	123	75	12	11	1.9	.5	
27	1.7	*32	140	83	125	114	70	13	11	1.7		
28	1.9	48	*156	89	116	108	62	12	12	1.7		1.5
29	2.1	44	143	125	---	96	59	12	13	1.5		
30	2.6	38	127	158	---	92	58	13	14	1.2		
31	2.8	---	114	182	---	87	---	13	---	1		---
Total	21.9	397.3	5,504	2,779	3,364	3,324	5,213	626.6	2,479	203.4	25.5	25.0
Mean	0.71	13.2	178	89.6	120	107	174	20.2	82.6	6.56	0.82	0.83
Ac-ft	43	788	10,920	5,510	6,670	6,590	10,340	1,240	4,920	403	51	50

Calendar year 1953: Max 1,690 Min 0.3 Mean 152 Ac-ft 110,200
Water year 1953-54: Max 530 Min 0.3 Mean 65.7 Ac-ft 47,520

Peak discharge (base, 700 cfs).—No peak above base.

* Discharge measurement made on this day.

Note.—No gage-height record Dec. 16-22, 26, 27, May 5-8, July 31 to Sept. 30; discharge estimated on basis of 1 discharge measurement, recorded range in stage when available, and records for Birch Creek at Rieth and Umatilla River above Meacham Creek, near Gibbon.

McKay Reservoir near Pendleton, Oreg.

Location.—Lat 45°36', long 118°48', in SE¼ sec. 34, T. 2 N., R. 32 E., near right end of McKay Dam, 4 miles south of Pendleton.
Drainage area.—186 sq mi.
Records available.—October 1930 to September 1954 in reports of Geological Survey. December 1927 to September 1941 in reports of State engineer.
Gage.—Staff gage read to tenths 1 to 4 times a week, throughout the year, except no reading reported Oct. 16. Datum of gage is at mean sea level, adjustment of 1924 (Bureau of Reclamation benchmark). For datum of 1929, supplementary adjustment of 1947, add 0.16 ft.
Extremes.—Maximum contents observed during year, 54,860 acre-ft June 23 (elevation, 1,305.2 ft); minimum observed, 5,500 acre-ft Sept. 24, 30 (elevation, 1,225.5 ft).
1930-54: Maximum contents, 73,840 acre ft June 9, 1950 (elevation, 1,322.0 ft); minimum observed, 3,050 acre-ft Oct. 1, Nov. 1, Dec. 1, 1935 (elevation, 1,217.6 ft).
Remarks.—Reservoir is formed by gravel-fill dam with concrete facing completed in 1926; storage began in 1927. Usable capacity, 73,830 acre-ft, between elevations 1,182 ft (floor of trash-rack structure) and 1,322 ft (top of spillway gates). Dead storage about 6 acre-ft, included in contents given herein. Water is used for irrigation of lands along Umatilla River near Echo, Stanfield, and Hermiston.
Cooperation.—Gage readings and capacity table furnished by Bureau of Reclamation.
Revisions.—WSP 1154: Drainage area.

Monthly elevation and contents, water year October 1953 to September 1954

Date	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	1,246.2	13,780	-
Oct. 31	-	a13,740	-40
Nov. 30	1,247.7	14,490	+750
Dec. 31	1,268.7	26,020	+11,530
Calendar year 1953	-	-	+16,160
Jan. 31	-	a31,140	+5,120
Feb. 28	1,285.6	37,650	+6,510
Mar. 31	1,293.3	43,860	+6,210
Apr. 30	1,303.8	53,460	+9,600
May 31	1,301.2	50,950	-2,510
June 30	1,302.8	52,480	+1,530
July 31	-	a32,240	-20,240
Aug. 31	1,246.2	13,780	-18,460
Sept. 30	1,225.5	5,500	-8,280
Water year 1953-54	-	-	-8,280

a No gage-height record; contents interpolated.

McKay Creek near Pendleton, Oreg.

Location. -- Lat 45°36'40", long 118°48'00", in SE¼NW¼ sec. 34, T. 2 N., R. 32 E., on right bank at irrigation diversion dam, a quarter of a mile downstream from McKay Dam and 4 miles south of Pendleton.

Drainage area. -- 186 sq mi.

Records available. --November 1918 to September 1923, October 1924 to September 1954 (diversions by irrigation canal at gage not included since 1932).

Gage. -- Water-stage recorder and concrete control. Datum of gage is 1,163.71 ft above mean sea level (Bureau of Reclamation benchmark). Prior to Apr. 15, 1919, staff gage at site 2 miles upstream at different datum. Apr. 3, 1919, to Sept. 30, 1923, staff gage at site about a quarter of a mile upstream at different datum. Oct. 1, 1924, to Jan. 14, 1927, staff gage, and Mar. 23, 1928, to Nov. 15, 1948, water-stage recorder, at site 30 ft downstream at same datum. Jan. 15, 1927, to Mar. 22, 1928, water-stage recorder at site 250 ft upstream at different datum.

Average discharge. -- 28 years (1919-23, 1924-27, 1928-43, 1948-54), 93.4 cfs (67,620 acre-ft per year), unadjusted.

Extremes. --Maximum discharge during year, 400 cfs Aug. 13, 14 (gage height, 1.54 ft); no flow Oct. 2 to Dec. 18, Sept. 16-30, but about 2 cfs diverted during these periods.
1918-54: Maximum discharge observed, 3,250 cfs Feb. 10, 1921 (gage height, 4.4 ft, site and datum then in use), from rating curve extended above 1,200 cfs; no flow at times.

Remarks. -- Records fair except those below 10 cfs, which are poor. Diversions above station for irrigation. Also one diversion around station during irrigation season which may amount to about 10 cfs. At times during winter, entire flow, seepage only, is diverted as stock water, not included in records presented. Flow completely regulated since 1927 by McKay Reservoir (see preceding page).

Revisions. -- WSP 1154: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.0	0	.7	91
.1	3	1.0	175
.3	25	1.6	430
.5	52		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3		0	3		1	1	7	42	192	345	282
2	0		0	2		1	2	7	8	192	345	290
3	0		0	2		*1	2	7	7	192	326	290
4	0		0	3		1	2	*8	7	192	318	286
5	0		0	2		1	2	8	27	222	190	282
6	0		0	2		1	2	8	63	270	121	274
7	0		0	2		1	1	8	26	302	214	274
8	0		0	3		1	1	7	7	*322	322	274
9	0		0	3	a1	1	1	7	6	345	322	266
10	0		0	3		1	1	7	4	355	335	262
11	0		0	3		1	1	8	2	350	360	258
12	0		0	3		1	1	10	3	350	*365	258
13	0		0			1	1	12	3	350	385	250
14	0		0			1	1	9	3	350	400	246
15	0		0			1	2	7	2	350	316	132
16	0		0			1	2	7	2	350	250	0
17	0		0		1	2	2	7	2	345	230	0
18	0		0		1	2	2	7	2	340	226	0
19	0		1		1	2	1	7	2	340	234	0
20	0		1		1	2	1	7	2	*340	279	0
21	0		0	a2	1	2	1	6	2	340	310	0
22	0		2		1	2	1	61	2	326	278	0
23	0		2		1	1	1	132	42	322	274	0
24	0		2		1	2	1	*126	114	322	282	0
25	0		2		1	1	1	123	164	322	302	0
26	0		3		1	1	4	149	182	340	286	0
27	0		3		1	1	7	165	186	350	270	0
28	0		3		1	1	7	175	192	350	262	0
29	0		3		-------	1	7	178	192	350	262	0
30	0		3		-------	1	7	166	192	345	258	0
31	0	-------	3		-------	1	-------	96	-------	345	*258	-------
Total	3	0	29	69	28	38	66	1,532	1,488	9,761	8,925	3,924
Mean	0.1	0	0.9	2.2	1.0	1.2	2.2	49.4	49.6	315	288	131
Ac-ft	6.0	0	58	137	56	75	131	3,040	2,950	19,360	17,700	7,780

Calendar year 1953: Max 623 Min 0 Mean 122 Ac-ft 88,030
Water year 1953-54: Max 400 Min 0 Mean 70.9 Ac-ft 51,290

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated.

Birch Creek at Rieth, Oreg.

Location.—Lat 45°39'10", long 118°52'40", in SE¼ sec. 13, T. 2 N., R. 31 E., on right bank 300 ft downstream from road bridge, a quarter of a mile upstream from mouth, and half a mile southwest of Rieth.

Drainage area. — 291 sq mi.

Records available.—May 1921 to September 1923, April 1927 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 951.82 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. May 1, 1921, to Sept. 30, 1923, staff gages near present site at different datums. Apr. 4, 1927, to Jan. 29, 1928, water-stage recorder, and Feb. 3, 1928, to Dec. 16, 1931, staff gage, at bridge 300 ft upstream at different datum. Dec. 17, 1931, to Dec. 29, 1939, water-stage recorder at present site at datum 0.86 ft higher.

Average discharge.—25 years (1929-54), 44.9 cfs (32,510 acre-ft per year).

Extremes.—Maximum discharge during year, 262 cfs Apr. 14 (gage height, 2.51 ft); minimum, 0.1 cfs at times during October, and July to September.
1921-23, 1927-54: Maximum discharge, 1,860 cfs June 17, 1950 (gage height, 7.2 ft), from rating curve extended above 400 cfs; no flow at times.

Remarks.—Records poor. Diversions for irrigation of about 4,000 acres above station.

Revisions (water years).—WSP 984: 1939.

Rating table, water year 1953-54, except period of ice effect
(gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-28)

0.2	0.1	0.5	2.2	0.8	11	1.5	75
.3	.4	.6	4.2	1.0	24	2.0	154
.4	1.0	.7	7.0	1.2	40	2.5	250

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	7.4	20	42	76	56	49	39	1.3	9.8	0.5	0.2
2	.1	9.0	23	37	76	47	45	40	2.9	8.6	.3	.1
3	.1	11	25	35	74	47	38	36	4.2	4.6	.3	.1
4	.1	10	30	35	71	46	36	27	4.4	13	.4	.1
5	.1	8.2	28	34	70	46	74	14	3.5	9.8	.2	.1
6	.1	9.0	30	31	67	43	139	*5.8	4.4	9.0	.1	.1
7	.1	11	31	32	66	42	156	6.1	7.4	7.0	.1	.1
8	.1	11	31	32	67	42	146	11	22	4.9	.1	.1
9	.1	8.6	37	32	70	63	149	20	57	3.1	.1	.1
10	.1	9.4	54	31	72	107	165	13	166	1.2	.2	.1
11	.3	9.8	49	*31	70	106	134	2.1	200	.7	.1	.1
12	.3	8.6	45	32	72	90	137	1.3	178	.8	.1	.1
13	.3	7.8	45	30	82	79	*174	2.2	199	.9	.1	.2
14	.2	6.7	46	31	86	76	242	3.3	206	.7	.1	.2
15	.1	7.4	44	32	82	68	214	1.4	197	.5	.1	.2
16	.1	4.9	42	30	75	62	185	3.5	185	.6	.1	.2
17	.1	4.2	41	27	71	66	182	6.7	167	1.7	.1	.3
18	.1	4.6	40	b25	70	61	182	6.7	142	1.1	.2	.3
19	.1	26	42	b20	65	63	161	1.6	123	.3	.2	.3
20	.1	19	90	b15	61	65	139	.6	101	.2	.3	.3
21	.1	16	102	b20	60	60	115	.8	74	.1	.6	.2
22	.1	16	85	b45	60	58	95	1.8	49	.1	.6	.3
23	.6	19	81	44	60	*61	89	.7	31	.1	.6	.2
24	.4	*19	84	40	57	62	75	.7	24	.1	.7	.2
25	.5	19	57	38	61	63	65	.6	18	.1	.4	.2
26	.6	18	58	39	61	63	47	.9	11	.1	.2	.2
27	.3	18	55	38	61	63	43	.9	10	.1	.2	.2
28	.5	18	47	41	58	61	44	.7	8.2	.1	.2	.2
29	2.1	18	54	55	-------	49	40	.8	6.1	.1	.1	.2
30	5.5	19	48	67	-------	49	39	.8	5.5	.1	.2	.2
31	7.8	-------	45	74	-------	50	-------	.9	-------	.2	.2	-------
Total	21.2	373.6	1,509	1,115	1,921	1,914	3,399	250.9	2,207.9	79.7	7.7	5.4
Mean	0.68	12.5	48.7	36.0	68.6	61.7	113	8.09	73.6	2.57	0.25	0.18
Ac-ft	42	741	2,990	2,210	3,810	3,800	6,740	498	4,380	158	15	11

Calendar year 1953: Max 672 Min 0 Mean 74.0 Ac-ft 53,580
Water year 1953-54: Max 242 Min 0.1 Mean 35.1 Ac-ft 25,400

Peak discharge (base, 300 cfs).—No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Umatilla River at Yoakum, Oreg.

Location. — Lat 45°40'40", long 119°02'00", in SW¼ sec. 2, T. 2 N., R. 30 E., at left bank on downstream side of highway bridge, half a mile northeast of Yoakum station and 2½ miles downstream from abandoned Furnish Reservoir.

Drainage area. — 1,280 sq mi, approximately.

Records available. — May 1903 to September 1954. Published as "above Furnish Reservoir" August 1916 to September 1934.

Gage. — Water-stage recorder. Datum of gage is 768.21 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. May 5, 1903, to Aug. 15, 1916, staff gage at site 500 ft upstream at different datum. June 18 to Aug. 28, 1915, staff gage, and July 5, 1916, to Sept. 30, 1934, water-stage recorder, at site 5 miles upstream at different datum. Oct. 1, 1934, to Oct. 20, 1948, water-stage recorder at present site at datum 2.0 ft higher.

Average discharge. — 51 years, 673 cfs (487,200 acre-ft per year).

Extremes. — Maximum discharge during year, 3,260 cfs Apr. 14 (gage height, 6.45 ft); minimum, 44 cfs Oct. 8 (gage height, 1.44 ft).

1903-54: Maximum discharge, 20,000 cfs May 30, 1906 (gage height, about 15.0 ft, datum then in use, from floodmarks), from rating curve extended above 6,600 cfs on basis of records for station near Umatilla; minimum, 12 cfs Aug. 10-12, 1908, Aug. 4, 1910.

Remarks. — Records good except those for periods of no gage-height record, which are poor. Diversions for irrigation above station. Slight regulation by Furnish Reservoir, 1910-16. Flow regulated to some extent since 1927 by McKay Reservoir (see p. 29).

Revisions (water years). — WSP 794: 1906(M).

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.4	39	2.0	140	3.0	470	5.0	1,760
1.6	66	2.2	190	3.5	710	7.0	3,930
1.8	100	2.5	280	4.0	1,00		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	80	250	422	1,040	650	402	490	343	382	402	315
2	71	79	271	398	976	585	382	458	277	382	398	336
3	68	77	362	378	904	525	366	430	*247	350	386	332
4	62	80	680	366	832	494	362	422	241	350	370	326
5	58	80	640	442	778	458	596	450	241	354	310	318
6	53	84	690	502	730	434	1,350	486	274	382	168	318
7	*52	87	700	585	685	418	1,530	490	652	418	188	315
8	48	86	570	690	705	*410	1,350	506	1,030	434	354	308
9	47	84	555	685	740	550	1,340	550	892	450	362	301
10	47	84	832	620	745	1,150	1,280	570	994	478	362	294
11	51	84	750	555	705	1,210	1,130	545	1,190	474	390	290
12	52	84	645	502	685	994	*1,060	502	1,020	462	386	290
13	53	84	720	462	808	862	1,420	454	1,010	462	406	290
14	53	a85	680	446	868	772	3,020	414	952	454	438	284
15	55	a85	625	438	814	705	2,370	382	847	446	406	265
16	56	a90	585	422	720	670	1,870	378	814	438	304	93
17	55	a90	545	382	650	665	1,730	386	730	438	284	79
18	60	a95	525	366	655	625	1,780	378	645	438	271	74
19	74	112	630	350	635	590	*1,570	378	570	434	277	72
20	82	a110	2,610	a320	605	580	1,270	370	494	430	294	63
21	77	a110	1,970	a300	640	565	1,060	346	438	426	386	59
22	72	a200	1,350	a330	820	545	940	326	370	410	340	58
23	71	a240	1,010	a370	886	530	922	374	332	402	326	56
24	72	*274	820	394	868	520	862	378	354	398	322	55
25	71	232	660	390	880	502	784	358	398	398	350	53
26	69	214	585	366	874	478	720	390	402	402	340	53
27	68	211	580	366	814	474	675	410	390	414	315	52
28	68	277	530	730	720	462	645	390	394	418	312	51
29	69	294	506	862	-------	438	595	374	378	414	312	51
30	76	265	478	874	-------	406	535	402	358	414	308	52
31	79	-------	438	952	-------	402	-------	370	-------	410	301	-------
Total	1,961	4,057	22,792	15,265	21,782	18,669	33,916	13,157	17,277	12,962	10,368	5,503
Mean	63.3	135	735	492	778	602	1,131	424	576	418	334	183
Ac-ft	3,890	8,050	45,210	30,280	43,200	37,030	67,270	26,100	34,270	25,710	20,560	10,920

Calendar year 1953: Max 5,510 Min 47 Mean 855 Ac-ft 619,300
Water year 1953-54: Max 3,020 Min 47 Mean 487 Ac-ft 352,500

Peak discharge (base, 3,600 cfs). — No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for stations at Pendleton and above Meacham Creek near Gibbon.

Butter Creek near Pine City, Oreg.
(Called North Fork Butter Creek on some maps)

Location.—Lat 45°32'40", long 119°18'40", in SW¼ sec. 22, T. 1 N., R. 28 E., on right bank half a mile below Mattlock Canyon, 6 miles southeast of settlement of Pine City, and 20 miles south of Hermiston.

Drainage area.—291 sq mi.

Records available.—October 1945 to September 1954 in reports of Geological Survey. April 1928 to September 1941 in reports of State engineer and October 1941 to September 1945 in files of State engineer.

Gage.—Water-stage recorder. Altitude of gage is 1,400 ft (by barometer). Apr. 10, 1928, to Sept. 30, 1944, at datum 1.1 ft higher. Oct. 1, 1944, to Sept. 6, 1949, at datum 1.0 ft higher.

Average discharge.—22 years (1929-30, 1931-32, 1933-41, 1942-54), 22.4 cfs (16,220 acre-ft per year).

Extremes.—Maximum discharge during year, 138 cfs Dec. 20 (gage height, 2.61 ft); minimum, 0.5 cfs July 31, Aug. 1, Sept. 3.

1928-54: Maximum gage height, 12.4 ft Feb. 21, 1949, present datum (discharge not determined); no flow at times.

Remarks.—Records good except those for periods of ice effect, which are fair. No regulation. A few 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 of 345 acres below station; at times almost 40 cfs is diverted.

Revisions (water years).—WSP 1218: 1950(M).

Rating table, water year 1953-54, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

0.8	0.4	1.3	8.5
.9	.9	1.5	19
1.0	1.9	2.0	54
1.1	3.3	2.6	136

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	3.3	7.3	14	53	31	37	30	7.6	7.6	0.7	0.7
2	1.1	3.3	7.6	13	48	*26	34	29	*7.6	7.9	.6	.6
3	1.2	3.5	8.5	13	44	24	33	28	7.0	7.3	.6	.5
4	1.2	4.0	9.0	13	42	24	41	27	7.3	6.4	.6	.6
5	1.4	4.2	8.5	12	39	26	75	20	8.2	5.5	.6	.6
6	1.4	4.2	9.5	12	36	24	107	18	10	4.8	.6	.8
7	1.4	4.2	10	12	36	23	92	19	15	4.4	.7	.9
8	1.4	4.2	9.0	12	37	23	76	18	26	4.2	.7	.9
9	1.4	4.2	9.0	12	37	40	77	17	34	3.5	.6	1.0
10	1.3	4.2	15	10	37	64	66	19	46	2.2	.6	.9
11	1.3	4.2	16	12	32	49	60	20	42	1.5	.8	.8
12	1.4	4.6	14	12	50	39	59	18	37	1.6	.8	.9
13	1.4	4.4	14	10	95	36	71	15	37	1.8	.8	1.1
14	1.5	4.4	14	b10	59	37	*122	14	36	1.4	.9	1.3
15	1.6	4.4	14	b10	45	33	94	12	36	1.3	2.8	1.2
16	1.6	4.6	14	b9	40	32	79	9.0	34	1.4	5.7	1.8
17	1.6	4.8	14	b9	37	33	74	8.2	30	1.1	1.3	2.3
18	2.3	5.1	14	b9	41	27	70	10	28	1.0	.9	3.0
19	2.7	5.3	15	b8	35	33	63	7.6	26	1.0	.8	2.9
20	2.7	5.5	81	b8	34	33	57	6.7	24	1.0	.8	2.7
21	2.7	5.5	48	b8	37	32	50	9.0	*20	1.2	.8	2.5
22	2.7	6.1	35	b9	43	33	47	7.9	17	1.1	1.0	2.2
23	*2.7	*7.9	28	b11	39	38	43	6.4	15	1.1	.9	2.2
24	2.9	9.5	24	13	40	44	42	7.3	13	.9	.8	2.2
25	2.9	7.9	21	10	42	44	39	6.1	12	.8	.8	2.0
26	2.9	7.6	18	12	39	43	35	7.0	10	.7	1.0	1.9
27	3.0	7.6	19	14	36	40	34	7.3	9.5	.6	.9	1.8
28	3.0	7.6	17	14	34	41	35	7.0	8.5	.6	1.0	1.6
29	3.0	8.2	*16	18	-------	34	31	7.0	8.2	.6	1.0	*1.6
30	3.0	7.6	15	36	-------	35	30	7.6	7.0	.6	.8	2.0
31	3.2	-------	13	57	-------	39	-------	9.0	-------	.6	.8	-------
Total	62.9	162.1	557.4	422	1,187	1,080	1,773	427.1	618.9	75.7	31.7	45.5
Mean	2.03	5.40	18.0	13.6	42.4	34.8	59.1	13.8	20.6	2.44	1.02	1.52
Ac-ft	125	322	1,110	837	2,350	2,140	3,520	847	1,230	150	63	90

Calendar year 1953: Max 574 Min 0.5 Mean 33.4 Ac-ft 24,210
Water year 1953-54: Max 122 Min 0.5 Mean 17.7 Ac-ft 12,780

Peak discharge (base, 200 cfs).—No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Principal diversions from Umatilla River between Yoakum and Umatilla gaging stations, Oreg.

The following canals divert water from Umatilla River between Yoakum and Umatilla gaging stations: Furnish Canal, from right bank of Umatilla River in sec. 36, T. 3 N., R. 29 E. Umatilla project feed canal, from right bank of Umatilla River in SW¼ sec. 22, T. 3 N., R. 29 E., to feed Cold Springs Reservoir of Bureau of Reclamation. Western Land Canal, from left bank of Umatilla River in NE¼ sec. 21, T. 3 N., R. 29 E.; gage is 1 mile downstream from intake. Allen Canal, from right bank of Western Land Canal, half a mile downstream from headgate of that canal. Maxwell Canal, from right bank of Umatilla River in SW¼ sec. 28, T. 4 N., R. 28 E.; at times it receives water from Cold Springs Reservoir. West Division main canal, from left bank of Umatilla River in SW¼ sec. 28, T. 5 N., R. 28 E.

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 smaller canals also divert water between Pendleton and Umatilla, but no records for them were obtained.

Records of monthly discharge of the canals, published as a group, are available from March 1926 to September 1954; records for some of the canals published separately prior to 1926.

Diversions, in acre-feet, water year October 1953 to September 1954

Month	Furnish Canal	Umatilla project feed canal	Western Land Canal	Allen Canal	Maxwell Canal	West Division main canal
October	0	369	2,150	562	428	6,830
November	0	6,030	-	-	0	0
December	0	12,400	-	-	0	0
January	0	8,950	-	-	0	0
February	0	11,400	-	-	0	0
March	615	12,130	-	-	1,230	3,530
April	6,140	10,380	13,270	1,130	4,600	9,220
May	8,540	1,480	13,690	719	3,870	10,930
June	6,580	4,690	11,190	420	3,430	12,810
July	9,100	0	14,270	1,010	2,620	12,010
August	6,980	0	11,670	712	2,630	12,470
September	4,110	0	5,980	561	2,520	9,410
Water year 1953-54	42,060	67,830	-	-	21,330	77,210

Note.—No gage-height record for months of little or no flow and for a few days and short periods at other times. Discharge for some periods interpolated or computed on basis of information furnished by watermaster.

Umatilla River near Umatilla, Oreg.

Location.—Lat 45°54'20", long 119°19'40", in NW¼ sec. 21, T. 5 N., R. 28 E., on left bank 1½ miles downstream from West Division main canal of Umatilla project and 2 miles upstream from Umatilla and mouth of river.
Drainage area.—2,290 sq mi, approximately.
Records available.—October 1903 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 330.57 ft above mean sea level, datum of 1929. Prior to Jan. 26, 1931, staff gage at same site and datum.
Average discharge.—51 years, 502 cfs (363,000 acre-ft per year).
Extremes.—Maximum discharge during year, 2,660 cfs Dec. 20 (gage height, 4.83 ft); minimum, 1.4 cfs Apr. 5.
1903-54: Maximum discharge, 19,600 cfs May 31, 1906 (gage height, 11.0 ft), from rating curve extended above 11,000 cfs by logarithmic plotting; no flow at times.
Remarks.—Records good. Many diversions above station for irrigation; Brownell Canal diverts below station. Flow regulated by McKay and Cold Springs Reservoirs (Cold Springs Reservoir is an off-channel reservoir).
Revisions.—WSP 794: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.6	1.0	2.1	14	2.7	135
1.7	2.3	2.2	21	3.0	270
1.8	4.2	2.3	32	3.5	620
1.9	6.5	2.4	48	4.0	1,170
2.0	9.7	2.5	70	5.0	3,010

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*76	171	175	369	g980	604	193	3.8	52	20	50	32
2	61	167	171	343	g980	540	100	3.6	37	21	55	28
3	57	167	245	318	g865	488	13	*3.6	48	28	46	27
4	61	167	367	300	g865	444	8.0	2.7	57	77	43	24
5	50	167	525	312	g760	402	25	2.2	38	151	35	27
6	61	167	488	395	g760	382	275	1.7	38	9.0	21	30
7	79	159	572	458	g665	362	864	1.9	43	10	18	27
8	116	155	502	540	*665	356	710	3.4	415	12	19	28
9	230	155	451	604	710	376	701	8.8	444	12	22	25
10	220	151	548	556	730	760	750	53	423	14	*18	26
11	220	151	674	502	701	1,100	620	14	665	14	18	21
12	155	151	548	465	647	932	540	10	638	13	14	23
13	76	*147	564	416	710	780	564	9.0	580	13	12	22
14	63	147	604	388	821	683	2,080	8.3	540	12	13	*24
15	61	143	540	369	790	620	2,040	10	502	12	18	18
16	55	147	502	376	701	525	1,490	9.0	604	11	53	24
17	55	147	472	369	629	502	1,170	9.0	532	10	30	50
18	59	139	437	356	604	451	1,180	9.3	369	10	30	50
19	70	139	465	336	596	362	1,090	9.0	206	10	50	43
20	94	143	1,640	g416	556	350	790	7.4	132	11	42	38
21	104	143	2,040	g416	556	350	518	7.1	*68	11	55	35
22	94	139	1,320	g416	683	350	324	5.0	35	47	57	37
23	94	143	968	g572	800	*330	230	7.0	24	32	48	32
24	100	193	770	g572	800	294	188	11	16	22	43	32
25	94	193	612	g572	790	288	139	30	16	23	40	48
26	94	163	525	g572	800	230	104	17	19	24	42	193
27	97	151	518	g495	770	250	68	28	18	21	40	193
28	97	151	480	g572	665	282	16	18	26	24	45	184
29	102	184	451	g968	--------	270	7.4	17	26	34	42	180
30	184	193	*430	g854	--------	245	2.9	43	28	37	32	180
31	180	--------	402	g854	--------	220	--------	34	--------	35	27	--------
Total	3,159	4,733	19,006	15,051	20,599	14,128	16,801.3	396.8	6,639	780.0	1,078	1,701
Mean	102	158	613	486	736	456	560	12.8	221	25.2	34.8	56.7
Ac-ft	6,270	9,390	37,700	29,850	40,860	28,020	33,320	787	13,170	1,550	2,140	3,370

Calendar year 1953: Max 4,930 Min 8.2 Mean 604 Ac-ft 436,900
Water year 1953-54: Max 2,080 Min 1.7 Mean 285 Ac-ft 206,400

Peak discharge (base, 2,800 cfs).—No peak above base.
* Discharge measurement made on this day.
g Computed from once-daily Telemark gage readings.

Willow Creek at Heppner, Oreg.

Location.—Lat 45°21', long 119°32', in SE¼ sec. 35, T. 2 S., R. 26 E., on right bank 100 ft upstream from Court Street Bridge, 800 ft southeast of Morrow County courthouse, and a thrid of a mile downstream from Balm Fork.

Drainage area.—87 sq mi, approximately.

Records available.—May 1951 to September 1954.

Gage.—Water-stage recorder and concrete control. Datum of gage is 1,952.73 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Extremes.—Maximum discharge during year, 163 cfs June 9 (gage height, 3.04 ft); no flow for part of each day Oct. 7, 8.

1951-54: Maximum discharge, 359 cfs Mar. 25, 1953 (gage height, 4.17 ft), from rating curve extended above 100 cfs by logarithmic plotting; no flow at times.

Maximum discharge known, about 36,000 cfs June 14, 1903, by slope-area method.

Remarks.—Records good except those below 1 cfs, which are fair. Many diversions above station for irrigation of about 500 acres. Part of flow of Ditch Creek, in John Day River basin, is diverted to Willow Creek above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.7	0	1.3	14
.8	.2	1.7	36
.9	1.7	2.5	102
1.0	3.7	3.0	158
1.1	6.5		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	3.7	7.1	14	34	14	22	14	9.3	10	0.4	0.5
2	.2	3.9	8.4	14	34	11	21	14	8.0	8.0	.4	.5
3	.2	3.9	12	13	33	12	21	*14	8.0	6.8	.7	.5
4	.1	3.9	10	12	31	12	27	14	8.7	3.5	.7	.7
5	.1	3.9	9.3	13	29	12	43	14	6.8	3.1	.5	.5
6	.1	3.9	11	13	27	12	56	13	16	3.1	.4	.4
7	*.1	4.2	10	13	26	11	50	12	59	2.9	.3	.4
8	.1	4.2	10	14	*26	12	47	13	77	2.5	.3	.3
9	.1	4.2	28	12	25	14	48	13	148	2.1	*.3	.2
10	.1	3.7	35	13	25	18	42	14	141	1.7	.3	.2
11	.4	3.3	30	13	23	16	37	12	111	1.7	.2	.2
12	.4	*3.3	34	12	26	14	36	11	90	1.3	.2	.4
13	.4	3.5	37	11	28	13	44	9.0	75	1.3	.3	.5
14	.4	3.5	32	12	28	16	*56	8.4	65	1.3	.2	*.3
15	.4	3.5	30	12	25	14	52	7.4	58	1.2	.4	.2
16	.5	3.5	28	11	22	13	45	7.7	50	.8	.5	.3
17	.5	4.4	24	12	21	13	42	7.7	44	1.2	.4	.7
18	1.2	4.7	22	12	20	14	42	5.0	39	1.0	.5	2.1
19	1.7	4.4	31	12	17	14	40	1.9	33	1.0	.8	1.3
20	1.7	4.7	45	10	16	14	36	1.2	28	.8	1.0	1.0
21	1.5	4.7	42	16	17	15	33	1.5	*23	.8	.5	.8
22	1.3	5.6	35	20	17	*18	29	2.1	18	1.0	.4	1.0
23	1.5	12	31	14	16	21	25	2.1	17	1.0	.8	1.0
24	2.3	9.6	27	12	15	24	23	2.3	17	.8	.8	1.0
25	3.7	7.7	22	12	15	26	21	1.7	14	.7	.7	1.0
26	3.9	7.7	21	13	17	28	20	2.1	13	1.0	1.2	1.0
27	3.7	8.7	21	12	16	28	20	2.1	14	1.0	1.0	1.2
28	3.7	8.7	18	14	16	29	19	2.3	14	.7	.7	1.2
29	3.9	7.7	*18	17	-------	25	18	3.7	11	.5	.5	1.0
30	3.7	7.1	14	23	-------	26	18	11	10	.5	.4	1.2
31	3.5	-------	16	30	-------	26	-------	12	-------	.5	.5	-------
Total	41.7	157.8	718.8	431	645	535	1,033	249.2	1,225.8	63.8	16.3	21.6
Mean	1.35	5.26	23.2	13.9	23.0	17.3	34.4	8.04	40.9	2.06	0.53	0.72
Ac-ft	83	313	1,430	855	1,280	1,060	2,050	494	2,430	127	32	43

Calendar year 1953: Max 307 Min 0.1 Mean 26.1 Ac-ft 18,870
Water year 1953-54: Max 148 Min 0.1 Mean 14.1 Ac-ft 10,200

Peak discharge (base, 75 cfs).—June 9 (11:30 p. m.) 163 cfs (3.04 ft).
* Discharge measurement made on this day.

Strawberry Creek above Slide Creek, near Prairie City, Oreg.

Location.—Lat 44°20', long 118°39', in SW¼ sec. 20, T. 14 S., R. 34 E., on left bank 100 ft upstream from Slide Creek and 8½ miles south of Prairie City.
Drainage area.—7.2 sq mi, approximately.
Records available.—October 1930 to September 1954.
Gage.—Water-stage recorder and log control. Datum of gage is 4,909.57 ft above mean sea level, datum of 1929.
Average discharge.—24 years, 12.5 cfs (9,050 acre-ft per year).
Extremes.—Maximum discharge during year, 102 cfs May 19 (gage height, 2.11 ft); minimum, 2.4 cfs during period of no gage-height record (gage height, 1.18 ft, from recorded range in stage).
1930-54: Maximum discharge, 172 cfs June 8, 1948; maximum gage height, 2.44 ft June 9, 1933; minimum discharge, 1.4 cfs for several days in 1931, 1934-35, 1937, Nov. 19, 1939, Dec. 2-7, 1952.
Remarks.—Records good except those for period of no gage-height record, which are fair. No diversion above station; some natural regulation by Strawberry Lake.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Jan. 19-21, 25, Mar. 2, 3, 30)

1.1	0.6	1.5	18
1.2	3.0	1.7	35
1.3	6.6	1.9	62
1.4	12	2.1	100

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.6	3.0	3.6	3.0	3.0	2.7	3.0	22	37	45	12	5.4
2	4.6	3.0	3.6	3.0	2.7	2.7	3.0	21	36	43	12	5.4
3	4.6	3.0	3.6	3.0	2.7	2.7	3.0	20	35	43	12	5.4
4	4.6	3.0	3.6	3.0	2.7	2.7	3.7	20	34	39	11	5.4
5	4.6	3.0	3.6	3.0	2.7	2.7	4.0	22	33	37	10	5.1
6	4.4	3.0	3.4	3.0	2.7	2.7	4.4	25	31	36	9.9	5.1
7	4.2	3.0	3.4	3.0	2.7	2.7	4.8	28	30	34	9.9	5.1
8	4.0	3.2	3.6	3.0	2.7	3.0	4.8	33	30	33	9.4	5.1
9	4.0	3.4	*4.0	3.0	3.0	4.8	4.8	40	32	32	8.9	*5.1
10	4.2	3.4	4.0	3.0	3.0	*5.4	4.4	43	39	30	8.9	4.8
11	4.2	3.4	4.0	3.0	3.4	5.4	4.4	48	*41	28	8.4	4.8
12	4.0	3.4	4.0	3.0	3.4	5.1	4.4	62	45	27	8.4	4.4
13	4.0	3.4	3.7	3.0	3.4	4.8	7.4	67	56	25	8.4	4.4
14	3.8	3.2	3.7	3.0	3.4	4.8	11	67	66	24	7.9	4.4
15	3.8	3.0	3.7	3.0	3.0	4.4	12	69	73	23	8.4	5.1
16	3.6	2.8	3.7	3.0	3.0	4.4	12	76	80	22	7.9	4.4
17	3.6	2.8	3.7	3.0	3.0	4.0	14	80	78	22	7.4	4.4
18	3.6	2.6	3.7	3.0	3.0	4.0	18	86	73	21	7.4	4.4
19	3.8	2.6	4.0	3.0	3.0	3.7	18	96	60	20	7.4	4.0
20	3.8	2.6	4.0	3.0	3.0	3.7	17	100	53	*19	7.9	4.0
21	3.6	2.6	3.7	3.0	3.0	3.4	16	96	53	18	7.9	4.0
22	3.6	2.8	3.7	3.0	2.7	3.4	16	90	62	18	7.0	4.0
23	3.4	3.0	3.7	3.0	2.7	3.0	16	84	73	17	7.0	3.7
24	3.4	3.2	3.4	3.0	2.7	3.0	17	80	76	16	7.0	3.7
25	3.4	3.2	3.4	3.0	2.7	3.0	18	76	78	15	6.6	3.7
26	3.2	3.2	3.4	3.0	2.7	3.0	*20	71	76	14	6.6	3.7
27	3.2	3.2	3.4	3.0	2.7	3.0	22	59	75	14	6.2	3.7
28	3.2	3.2	3.0	*3.0	2.7	3.0	23	48	67	14	6.2	3.7
29	3.2	3.4	3.0	3.0	-------	3.0	23	46	54	13	6.2	3.7
30	3.2	3.4	3.0	3.0	-------	3.0	22	41	52	13	5.8	3.7
31	3.2	-------	3.0	3.0	-------	3.0	-------	40	-------	13	5.8	-------
Total	118.6	92.0	111.3	93.0	81.4	110.2	351.1	1,756	1,628	768	255.8	133.8
Mean	3.83	3.07	3.59	3.00	2.91	3.55	11.7	56.6	54.3	24.8	8.25	4.46
Cfsm	0.532	0.426	0.499	0.417	0.404	0.493	1.62	7.86	7.54	3.44	1.15	0.619
In.	0.61	0.48	0.57	0.48	0.42	0.57	1.81	9.07	8.41	3.97	1.32	0.69
Ac-ft	235	182	221	184	161	219	696	3,480	3,230	1,520	507	265

Calendar year 1953: Max 94 Min 1.7 Mean 17.0 Cfsm 2.36 In. 32.00 Ac-ft 12,280
Water year 1953-54: Max 100 Min 2.6 Mean 15.1 Cfsm 2.10 In. 28.40 Ac-ft 10,900

* Discharge measurement made on this day.
Note.—No gage-height record Oct. 1 to Dec. 8; discharge estimated on basis of recorded range in stage, weather records, and records for John Day River at Prairie City.

John Day River at Prairie City, Oreg.

Location.—Lat 44°27', long 118°43', in NE¼ sec. 10, T. 13 S., R. 33 E., on right bank 600 ft upstream from outlet of Prairie power canal, a third of a mile below Dixie Creek, and three-quarters of a mile southwest of Prairie City.

Drainage area.—231 sq mi.

Records available.—October 1916 to September 1917 (gage heights only), March 1925 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 3,496.99 ft above mean sea level, datum of 1929. Prior to Mar. 30, 1926, staff gage 600 ft downstream just below outlet of Prairie power canal at different datum. Mar. 30, 1926, to Aug. 23, 1943, staff gages at various sites and datums about 600 ft below present site, but just above the outlet of Prairie power canal.

Average discharge.—29 years (1925-54), 113 cfs, including flow of Prairie power canal (81,810 acre-ft per year).

Extremes.—Maximum discharge during year, 730 cfs Dec. 20 (gage height, 3.10 ft); minimum, 19 cfs Aug. 12.

1925-54: Maximum discharge, 2,100 cfs Mar. 25, 1952 (gage height, 6.27 ft, from floodmark), from rating curve extended above 450 cfs; minimum, 2 cfs Dec. 8, 21, 22, 1932, Aug. 10, 1934.

Remarks.—Records good. Diversions above station for irrigation. Prairie power canal (not used for power since February 1952) diverts water above station in SE¼ sec. 7, T. 13 S., R. 34 E.; water is used for irrigation. Discharge measurements of canal flow, in cubic feet per second, during the 1954 water year are listed below:

Apr. 26	11.2
June 11	10.7
July 20	3.07

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 19				Dec. 20 to Sept. 30			
0.8	44	2.0	310	0.6	19	1.5	161
1.0	72	2.5	490	.8	36	2.0	311
1.5	170			1.0	59	2.5	490

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	75	93	105	158	111	90	156	204	133	47	42
2	60	75	96	98	148	105	90	148	169	107	45	44
3	62	74	100	98	145	109	90	130	145	87	42	49
4	57	74	100	100	145	107	100	121	148	80	43	46
5	57	74	96	111	143	105	125	118	145	70	39	35
6	54	74	96	116	151	103	133	121	164	53	33	32
7	50	70	94	140	156	100	133	128	153	53	32	34
8	*52	69	91	116	158	116	140	138	128	63	31	31
9	53	69	*100	100	158	156	145	151	178	67	32	*33
10	58	68	109	105	153	*183	138	178	328	66	31	38
11	69	70	100	103	151	161	138	161	*342	59	30	36
12	63	70	107	96	212	145	140	169	362	54	30	25
13	57	70	105	92	206	138	186	172	345	53	31	28
14	54	70	103	98	183	135	*236	169	328	54	31	33
15	56	69	105	100	161	125	233	161	345	53	32	40
16	69	72	105	140	151	125	227	164	314	54	34	38
17	70	75	111	233	148	123	251	183	292	54	33	51
18	82	74	126	143	143	113	282	204	248	58	32	53
19	94	74	401	123	133	113	282	248	224	54	31	54
20	84	75	404	78	130	111	257	264	198	*51	37	51
21	82	74	221	111	130	103	230	264	169	51	37	49
22	82	100	164	138	123	100	218	239	140	49	34	51
23	82	134	140	125	121	98	215	201	113	49	32	48
24	80	100	135	103	123	100	209	167	96	53	39	46
25	80	94	118	85	123	96	204	189	107	55	46	44
26	79	93	123	103	125	96	*204	206	118	55	51	46
27	75	105	118	107	118	96	206	181	121	59	49	55
28	75	96	113	*125	118	96	206	153	116	62	51	58
29	74	93	109	224	-------	92	189	227	103	52	52	60
30	74	89	94	224	-------	90	178	236	118	54	51	60
31	74	-------	107	183	-------	90	-------	221	-------	48	49	-------
Total	2,110	2,419	4,084	3,823	4,114	3,541	5,475	5,568	5,961	1,910	1,187	1,310
Mean	68.1	80.6	132	123	147	114	182	180	199	61.6	38.3	43.7
Ac-ft	4,190	4,800	8,100	7,580	8,160	7,020	10,860	11,040	11,820	3,790	2,350	2,600

Calendar year 1953: Max 474 Min 18 Mean 130 Ac-ft 94,170
Water year 1953-54: Max 404 Min 25 Mean 114 Ac-ft 82,310

Peak discharge (base, 240 cfs).—Dec. 20 (1 a. m.) 730 cfs (3.10 ft); Jan 17 (9 a. m.) 308 cfs (1.99 ft); Jan. 29 (6:30 p. m.) 331 cfs (2.06 ft); May 29 (8 p. m.) 373 cfs (2.18 ft); June 12 (8:30 p. m.) 387 cfs (2.22 ft).

* Discharge measurement made on this day.

South Fork John Day River near Dayville, Oreg.

Location.—Lat 44°25'40", long 119°32'20", in NE¼ sec. 24, T. 13 S., R. 26 E., on left bank 0.7 mile downstream from Smoky Creek and 3 miles south of Dayville.
Drainage area.—590 sq mi, approximately.
Records available.—October 1951 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 2,420 ft (by barometer).
Extremes.—Maximum discharge during year, 1,050 cfs Dec. 19 (gage height, 4.17 ft); minimum, 23 cfs Aug. 14, 15, Sept 10.

1951-54: Maximum discharge, 3,230 cfs Mar. 25, 1952 (gage height, 6.98 ft), from rating curve extended above 1,900 cfs on basis of slope-area determination of peak flow; minimum, 22 cfs Dec. 24, 1952.

Flood in May 1948 reached a discharge of 3,250 cfs, by slope-area determination.
Remarks.—Records good except those for period of no gage-height record, which are fair.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.7	22	2.5	272
.9	30	3.0	430
1.3	58	4.0	930
1.8	123		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	43	77	107	246	264	222	286	133	60	27	26
2	37	43	81	100	222	227	220	269	125	58	27	26
3	37	44	a100	94	211	222	239	254	114	54	26	25
4	37	44	a110	97	218	220	280	244	118	50	27	25
5	37	44	a100	98	220	215	409	239	123	48	27	25
6	37	45	a110	100	222	224	446	232	137	45	27	25
7	36	45	a100	100	244	234	416	227	135	43	26	25
8	36	44	a100	97	259	422	409	222	125	43	26	25
9	35	43	a95	82	272	*685	402	229	128	43	26	*24
10	35	43	a140	94	269	705	378	234	*135	42	25	24
11	39	44	*116	94	259	550	367	220	132	41	25	24
12	39	45	104	89	600	438	378	202	126	39	25	24
13	38	46	111	70	542	374	462	190	126	39	24	24
14	37	46	108	95	409	360	*570	179	125	39	23	24
15	37	44	108	98	342	339	550	167	126	37	24	25
16	39	44	110	107	300	321	514	157	128	36	24	27
17	39	46	114	146	306	318	530	150	118	34	25	31
18	47	46	126	125	309	272	565	140	110	34	24	33
19	49	46	558	108	264	280	538	130	102	33	24	30
20	47	48	527	67	272	278	490	125	100	*33	28	29
21	44	49	262	79	398	272	454	123	93	33	31	28
22	43	64	185	136	318	278	434	120	86	33	29	28
23	43	285	146	167	297	278	398	112	79	33	28	28
24	43	144	150	105	330	278	374	110	71	32	27	27
25	43	104	112	77	339	262	351	116	67	31	28	27
26	43	89	120	98	321	254	*333	125	61	30	28	27
27	43	134	123	135	286	249	333	123	61	29	28	27
28	43	108	118	*262	275	251	354	116	62	29	28	27
29	43	90	112	462	-------	244	321	118	58	29	28	27
30	43	81	89	378	-------	227	306	142	56	28	27	27
31	44	-------	97	294	-------	224	-------	138	-------	28	26	-------
Total	1,249	2,041	4,509	4,161	8,550	9,765	12,043	5,439	3,160	1,186	818	794
Mean	40.3	68.0	145	134	305	315	401	175	105	38.3	26.4	26.5
Ac-ft	2,480	4,050	8,940	8,250	16,960	19,370	23,890	10,790	6,270	2,350	1,620	1,570

Calendar year 1953: Max 1,000 Min 32 Mean 207 Ac-ft 149,700
Water year 1953-54: Max 705 Min 23 Mean 147 Ac-ft 106,500

Peak discharge (base, 1,000 cfs).—Dec. 19 (7:30 p. m.) 1,050 cfs (4.17 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for John Day River at Prairie City and at Picture Gorge.

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John Day River at Picture Gorge, near Dayville, Oreg.

Location.—Lat 44°31'20", long 119°37'30", in sec. 20, T. 12 S., R. 26 E., on right bank on John Day Highway, 0.7 mile upstream from Rock Creek bridge and 7 miles northwest of Dayville.
Drainage area.—1,680 sq mi, approximately (revised).
Records available.—April 1926 to September 1954.
Gage.—Water-stage recorder and concrete control. Datum of gage is 2,232.10 ft above mean sea level, datum of 1929. Apr. 5 to Oct. 10, 1926, staff gage, and Oct. 11, 1926, to July 25, 1930, water-stage recorder, at same site at datum 0.50 ft higher.
Average discharge.—28 years, 447 cfs (323,600 acre-ft per year).
Extremes.—Maximum discharge during year, 2,530 cfs Dec. 19 (gage height, 8.47 ft); minimum, 25 cfs Aug. 13.
1926-54: Maximum discharge, 6,570 cfs Mar. 26, 1952 (gage height, 13.42 ft); maximum gage height, 14.0 ft Mar. 19, 1932; minimum discharge, 1 cfs for several days in August and September 1930, Aug. 8, 9, 1936.
Remarks.—Records good except those for periods of doubtful or no gage-height record, which are fair. Many diversions above station for irrigation.
Revisions (water years).—WSP 794: 1932(M). WSP 1218: 1950.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22		Nov. 23 to Sept. 30			
2.1	96	1.1	24	3.0	275
2.5	150	1.3	37	4.0	520
3.0	240	1.6	61	5.0	840
4.0	470	2.0	104	6.0	1,230
		2.5	180	8.0	2,250

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	102	197	360	440	850	750	601	858	707	255	36	70
2	107	199	340	420	750	650	583	791	652	271	34	70
3	112	203	400	380	750	650	598	742	589	269	32	75
4	122	201	480	360	750	600	661	673	571	229	34	72
5	131	203	440	360	750	600	906	640	580	198	32	72
6	140	205	460	400	750	650	1,050	625	604	189	34	73
7	135	203	440	440	750	600	1,020	634	631	161	34	65
8	132	201	440	460	800	650	990	661	589	137	32	*63
9	129	201	400	400	850	*1,310	998	749	*604	123	34	56
10	127	201	500	360	800	1,400	938	854	756	117	31	54
11	147	201	*455	400	750	1,300	910	900	938	112	29	52
12	169	201	435	420	1,000	1,000	914	850	922	104	28	53
13	187	205	450	340	1,300	900	1,110	794	950	100	26	56
14	180	201	438	300	1,200	900	1,580	721	930	97	28	55
15	180	201	440	360	1,100	900	1,530	667	906	93	26	53
16	181	201	445	440	1,000	900	1,430	658	922	84	28	50
17	183	203	448	500	900	900	1,490	676	840	76	34	72
18	194	212	496	550	850	800	1,680	673	766	74	32	86
19	236	210	1,050	400	850	750	1,680	682	676	69	36	88
20	256	216	2,050	280	800	800	1,540	721	610	63	40	96
21	238	220	1,130	360	850	750	1,380	735	544	*55	59	105
22	224	238	900	400	900	700	1,290	714	452	51	59	107
23	218	627	600	460	850	750	1,230	640	360	50	54	116
24	218	538	650	400	850	750	1,170	583	307	53	46	118
25	214	430	550	340	900	685	1,140	562	269	46	48	116
26	207	388	460	380	850	673	1,060	610	257	48	50	107
27	205	408	500	*440	800	655	*1,020	628	245	44	56	107
28	205	460	460	586	750	661	1,070	571	249	46	62	105
29	199	440	550	882	--------	637	990	544	247	40	70	110
30	197	400	460	1,100	--------	604	926	714	227	36	80	116
31	197	--------	400	1,000	--------	601	--------	670	--------	34	70	--------
Total	5,472	8,214	17,627	14,358	24,300	24,476	33,485	21,540	17,900	3,324	1,294	2,438
Mean	177	274	569	463	868	790	1,116	695	597	107	41.7	81.3
Ac-ft	10,850	16,290	34,960	28,480	48,200	48,550	66,420	42,720	35,500	6,590	2,570	4,840

Calendar year 1953: Max 3,290 Min 53 Mean 700 Ac-ft 506,600
Water year 1953-54: Max 2,050 Min 26 Mean 478 Ac-ft 346,000

Peak discharge (base, 1,300 cfs).—Dec. 19 (12 p. m.) 2,530 cfs (8.47 ft); about Feb. 13 (time unknown) 1,640 cfs (6.93 ft); about Mar. 10 (time unknown) 1,650 cfs (6.94 ft); Apr. 18 (2:30 p. m.) 1,720 cfs (7.07 ft).
* Discharge measurement made on this day.
Note.—No gage-height record Nov. 28 to Dec. 10, Dec. 22 to Jan. 27, Jan. 30 to Mar. 8, Mar. 10-24; discharge estimated on basis of recorded range in stage, 1 discharge measurement and records for other station in John Day River basin. Doubtful gage-height record July 26 to Aug. 9, Aug. 17-19, 24-26, Aug. 30 to Sept. 2; discharge computed on basis of records for other stations in John Day River basin and weather records.

Desolation Creek near Dale, Oreg.

Location (revised).—Lat 44°59'20" long 118°55'10", in SW¼ sec. 6, T. 7 S., R. 32 E., on right bank three-quarters of a mile upstream from mouth and 1½ miles east of Dale.

Drainage area.—108 sq mi (revised).

Records available.—July 1915 to September 1917 (fragmentary, gage heights and discharge measurements only), September 1949 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 2,906.99 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. July 1915 to September 1917, at site three-quarters of a mile downstream at different datum. Sept. 14, 1949, to Oct. 12, 1951, water-stage recorder 80 ft downstream at datum 1.97 ft lower.

Average discharge.—5 years (1949-54), 94.9 cfs (68,700 acre-ft per year).

Extremes.—Maximum discharge during year, 650 cfs June 10 (gage height, 4.30 ft); minimum, 6.6 cfs Jan. 20 (gage height, 0.55 ft).

1949-54: Maximum discharge, 850 cfs May 19, 1953 (gage height, 4.80 ft); maximum gage height, 4.89 ft May 8, 1952; minimum discharge, 2.6 cfs Nov. 22, 1952 (gage height, 0.09 ft).

Remarks.—Records good except those for periods of ice effect or no gage-height record, which are fair. A right exists to divert 25 cfs from North Fork Desolation Creek for storage in Olive Lake in North Fork John Day River basin. No regulation. Records of water temperatures for the water year 1954 are given in WSP 1353.

Rating tables, water year 1953-54, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to June 9				June 10 to Sept. 30			
0.6	7.2	2.0	74	0.6	6.1	2.0	76
.9	12	2.5	141	.8	10	2.5	141
1.2	22	3.0	237	1.2	23	3.0	237
1.5	37	4.0	540	1.7	52	4.1	575

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.0	10	28	17	44	46	39	193	215	201	19	13
2	9.7	11	26	16	42	40	37	184	182	138	18	11
3	9.8	10	26	14	40	44	45	191	167	117	17	11
4	9.4	9.7	24	15	42	40	63	213	182	103	17	10
5	9.0	10	22	14	40	42	148	266	163	93	17	10
6	8.6	11	22	15	38	46	153	301	163	85	16	10
7	8.4	11	18	16	40	44	113	339	203	78	16	*9.6
8	8.2	11	17	15	44	*60	116	414	*217	73	15	9.4
9	8.0	11	25	13	48	116	113	460	321	69	14	9.2
10	8.2	11	24	16	55	125	97	470	544	65	13	8.6
11	9.4	11	20	15	65	100	97	446	446	61	13	8.2
12	10	11	*24	13	70	77	107	405	456	56	12	8.0
13	9.4	12	21	12	80	67	263	357	452	53	14	8.2
14	8.8	12	25	13	75	77	336	336	423	50	14	8.4
15	8.8	11	22	14	70	68	*259	354	480	47	17	8.6
16	9.2	13	21	15	65	66	251	375	438	44	16	12
17	9.0	16	20	14	70	63	295	384	375	41	15	16
18	14	12	24	13	65	54	330	405	330	38	14	16
19	*21	11	53	11	60	59	301	426	301	35	13	13
20	14	12	81	10	65	56	269	399	284	*33	20	11
21	12	11	56	12	70	53	254	342	274	32	27	10
22	11	31	26	16	65	53	256	282	256	34	20	9.4
23	10	66	30	15	75	51	274	256	239	30	17	9.2
24	9.7	36	26	14	80	52	266	249	215	28	16	9.4
25	10	30	22	16	75	46	266	249	195	26	17	8.8
26	10	31	21	*19	70	46	261	222	182	25	17	8.4
27	10	54	22	24	65	45	269	195	171	23	16	8.0
28	10	52	22	30	55	44	*279	172	162	22	14	7.6
29	10	38	17	40	---	32	247	169	133	21	13	8.2
30	10	32	15	50	---	35	224	186	133	20	14	9.0
31	10	---	16	48	---	38	---	201	---	20	14	---
Total	314.6	607.7	816	565	1,673	1,785	6,028	9,441	8,302	1,761	495	299.2
Mean	10.1	20.3	26.3	18.2	59.8	57.6	201	305	277	56.8	16.0	9.97
Ac-ft	624	1,210	1,620	1,120	3,320	3,540	11,960	18,730	16,470	3,490	982	593

Calendar year 1953: Max 786 Min 8.0 Mean 109 Ac-ft 78,640
Water year 1953-54: Max 544 Min 7.6 Mean 87.9 Ac-ft 63,660

Peak discharge (base, 200 cfs).—Apr. 13 (9 p.m.) 399 cfs (3.58 ft); May 9 (11:30 p.m.) 498 cfs (3.88 ft); June 10 (8:30 a.m.) 650 cfs (4.30 ft); June 30 (11:30 p.m.) 345 cfs (3.40 ft).

* Discharge measurement made on this day.

Note.—Stage-discharge relation affected by ice Dec. 23 to Jan. 27 and during part of winter period of no gage-height record. No gage-height record Jan. 28 to Mar. 8, Aug. 29 to Sept. 6; discharge estimated on basis of recorded range in stage, weather records, and records for North Fork John Day River near Dale and Middle Fork John Day River at Ritter.

North Fork John Day River near Dale, Oreg.

Location (revised). —Lat 44°59'55", long 118°56'25", in SE¼SE¼ sec. 35, T. 6 S., R. 31 E., on right bank a quarter of a mile downstream from Desolation Creek and three-quarters of a mile northeast of Dale.

Drainage area. — 525 sq mi.

Records available. — October 1929 to September 1954.

Gage. —Water-stage recorder. Datum of gage is 2,775.63 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge. — 25 years, 386 cfs (279,500 acre-ft per year).

Extremes. —Maximum discharge during year, 2,640 cfs May 10 (gage height, 6.57 ft); minimum, 50 cfs Sept. 28 (gage height, 2.19 ft).

1929-54: Maximum discharge, 8,170 cfs May 26, 1948 (gage height, 10.48 ft); minimum, 6 cfs Nov. 3, 1936 (gage height, 1.40 ft).

Remarks. — Records excellent except those for periods of ice effect, which are fair. Several small diversions for irrigation and mining above station. Since 1865, water has been diverted above station at times to North Fork Burnt River. Flow regulated by Olive Lake (capacity, about 5,500 acre-ft) and upper reservoir on Lake Creek (capacity, about 700 acre-ft). Some diurnal fluctuation at low flow caused by logging operations above station.

Rating table, water year 1953-54, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.2	51	3.0	220	4.0	620	6.0	2,060
2.5	100	3.5	390	5.0	1,230	7.0	3,110

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	67	70	140	b120	170	202	188	996	864	744	98	79
2	68	73	133	b130	170	b160	175	930	726	565	94	73
3	70	75	133	b120	178	b180	185	942	685	484	90	68
4	67	70	128	135	185	b170	226	1,070	690	434	89	65
5	64	73	117	128	168	b190	410	1,420	650	398	87	64
6	62	78	121	123	162	198	540	1,710	640	362	85	64
7	61	79	104	131	172	192	475	1,890	732	332	83	*62
8	62	76	94	119	185	*226	470	2,240	792	312	79	61
9	62	76	110	110	192	343	475	2,450	*1,060	298	78	59
10	62	76	123	133	192	488	430	2,480	1,850	280	75	57
11	68	76	113	131	195	452	426	2,300	1,750	268	73	55
12	75	78	*126	121	250	374	488	2,030	1,720	247	71	52
13	71	79	106	b110	262	315	812	1,730	1,740	232	75	51
14	68	76	126	b120	259	340	1,320	1,570	1,610	223	83	52
15	67	71	123	b130	232	308	1,150	1,600	1,670	218	96	55
16	73	76	121	b140	218	294	1,100	1,650	1,610	208	92	64
17	70	92	119	123	218	277	1,440	1,670	1,400	192	87	73
18	81	89	123	119	212	238	1,680	1,680	1,240	180	81	76
19	*113	73	168	123	190	247	1,600	1,740	1,120	170	76	70
20	104	81	247	b80	200	244	1,370	1,640	1,020	*168	98	62
21	96	79	220	b100	220	220	1,250	1,430	966	162	131	59
22	85	106	148	b120	200	218	1,290	1,160	900	165	115	57
23	75	205	b120	b110	202	215	1,440	1,010	858	155	98	55
24	68	168	b140	b100	220	223	1,430	948	786	142	90	58
25	70	140	b130	b90	235	202	1,440	948	720	135	94	57
26	70	145	b130	*b110	238	212	1,440	894	685	128	92	54
27	73	185	b140	b130	218	205	1,420	804	650	121	89	52
28	73	220	b140	b160	215	202	*1,530	744	640	115	85	52
29	73	175	b120	b190	-------	b150	1,320	705	550	110	76	59
30	71	148	b100	210	-------	b160	1,170	780	560	106	75	70
31	71	-------	b110	182	-------	b170	-------	768	-------	102	81	-------
Total	2,260	3,108	4,073	3,948	5,758	7,615	28,690	43,929	30,884	7,756	2,716	1,835
Mean	72.9	104	131	127	206	246	956	1,417	1,029	250	87.6	61.2
Ac-ft	4,480	6,160	8,080	7,830	11,420	15,100	56,910	87,130	61,260	15,380	5,390	3,640

Calendar year 1953: Max 4,100 Min 50 Mean 536 Ac-ft 388,400
Water year 1953-54: Max 2,480 Min 51 Mean 391 Ac-ft 282,800

Peak discharge (base, 1,200 cfs). — Apr. 19 (12:30 a. m.) 1,750 cfs (5.66 ft); May 10 (2 a. m.) 2,640 cfs (6.57 ft); June 10 (11:30 a. m.) 2,080 cfs (6.02 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Camas Creek near Lehman, Oreg.

Location.—Lat 45°10', long 118°44', in SW¼ sec. 33, T. 4 S., R. 33 E., on left bank 2 miles downstream from Bowman Creek and 3⅛ miles northwest of Lehman.

Drainage area.—61 sq mi, approximately.

Records available.—October 1950 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 3,969.53 ft above mean sea level (levels by Oregon State Highway Department).

Extremes.—Maximum discharge during year, 434 cfs Apr. 13 (gage height, 2.37 ft); minimum, 1.0 cfs Sept. 10, 11.

1950-54: Maximum discharge, 1,220 cfs May 8, 1952 (gage height, 3.40 ft), from rating curve extended above 400 cfs by logarithmic plotting; maximum gage height, 3.70 ft about Feb. 1, 1951 (ice jam); minimum discharge, 0.7 cfs Sept. 20, 21, 1951.

Remarks.—Records good except those for periods of ice effect or backwater from moss, which are fair. Slightly regulated at low flow by operation of irrigation ditches.

Rating tables, water year 1953-54, except periods of ice effect or backwater from moss (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 8				Dec. 9 to Sept. 30			
0.4	1.0	0.7	4.7	0.5	0.8	1.0	23
.5	1.7	.8	8.5	.6	2.1	1.2	46
.6	2.8	.9	15	.7	4.8	1.5	103
				.8	9.3	1.9	213
				.9	16	2.2	345

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	2.0	7.5	15	b40	b55	28	38	14	42	2.1	1.9
2	1.5	2.0	8.5	14	b36	b44	28	36	9.9	27	2.4	1.7
3	1.5	2.0	9.6	b13	b34	b46	37	33	8.8	22	1.7	1.4
4	1.5	2.0	10	12	b34	b42	77	32	11	19	1.7	1.5
5	1.5	2.2	11	13	b36	b40	264	32	9.9	17	1.9	1.5
6	1.5	2.2	10	12	b34	40	239	33	14	16	1.9	1.4
7	1.5	2.3	b10	14	b34	42	166	32	30	13	1.9	*1.7
8	1.4	2.3	b11	b13	b34	*116	174	32	*43	12	1.7	1.5
9	1.4	2.3	b15	b15	b36	260	180	31	101	12	1.9	1.2
10	1.5	2.3	b15	14	b40	236	146	29	183	12	1.5	1.1
11	1.8	2.4	b15	12	45	151	136	28	148	11	1.4	1.1
12	1.8	2.4	*18	b10	109	112	136	25	151	9.9	1.4	1.1
13	1.7	2.5	b19	b9	141	98	316	22	168	7.7	1.7	1.2
14	1.6	2.5	16	b12	117	88	315	20	154	7.7	2.6	1.2
15	1.7	2.5	14	12	90	82	*213	18	146	6.8	2.6	1.4
16	1.7	3.1	14	12	76	78	177	17	134	5.9	2.6	2.1
17	1.7	3.6	13	13	82	b65	171	16	108	5.5	2.1	3.6
18	2.3	3.3	16	b10	78	b55	160	14	86	4.8	1.7	3.1
19	2.5	3.3	60	b8	69	b60	141	13	71	5.5	1.7	2.6
20	2.2	3.3	163	b9	69	63	121	12	58	*3.9	3.1	2.6
21	*2.0	3.1	86	b11	90	60	103	11	48	3.9	3.6	1.9
22	2.0	5.0	b75	b15	88	b55	92	11	40	3.9	2.8	1.7
23	2.0	7.5	b90	b14	95	b50	86	8.8	33	3.9	2.4	1.9
24	1.9	5.6	b50	b13	114	51	80	8.2	29	3.6	2.6	1.9
25	1.9	5.6	b40	b10	110	43	72	11	26	3.1	2.1	1.7
26	1.9	6.6	30	*b12	90	42	65	13	23	3.6	2.6	1.7
27	1.9	11	22	13	74	40	63	11	26	2.6	2.6	1.5
28	2.0	9.6	21	19	71	b34	*58	9.3	26	2.6	2.4	1.7
29	2.0	7.5	b17	31	-------	b26	49	9.3	20	2.6	2.1	1.9
30	2.0	7.0	b11	42	-------	b28	46	12	24	2.6	1.7	1.9
31	2.0	-------	b15	42	-------	31	-------	12	-------	2.4	2.1	-------
Total	55.4	119.0	912.6	464	1,966	2,233	3,939	629.6	1,943.6	295.5	66.6	52.7
Mean	1.79	3.97	29.4	15.0	70.2	72.0	131	20.3	64.8	9.53	2.15	1.76
Ac-ft	110	236	1,810	920	3,900	4,430	7,810	1,250	3,860	586	132	105

Calendar year 1953: Max 550 Min 1.1 Mean 61.0 Ac-ft 44,170
Water year 1953-54: Max 316 Min 1.1 Mean 34.7 Ac-ft 25,150

Peak discharge (base, 250 cfs).—Dec. 20 (1:30 a. m.) 273 cfs (2.05 ft); Mar. 9 (8 p. m.) 355 cfs (2.22 ft); Apr. 5 (10:30 p. m.) 335 cfs (2.18 ft); Apr. 13 (7 p. m.) 434 cfs (2.37 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.—Backwater from moss Oct. 1 to Nov. 16, July 2 to Sept. 6.

Camas Creek near Ukiah, Oreg.

Location.—Lat 45°09', long 118°49', in SE¼ sec. 3, T. 5 S., R. 32 E., on right bank 1.2 miles upstream from Cable Creek and 6 miles east of Ukiah.

Drainage area.—121 sq mi.

Records available.—May 1914 to September 1917, November 1919 to June 1924, and October 1945 to September 1954 in reports of Geological Survey. May 1914 to September 1917, November 1919 to June 1924, and March 1932 to September 1941 (incomplete) in reports of State engineer; October 1941 to September 1945 (incomplete) in files of State engineer.

Gage.—Water-stage recorder. Datum of gage is 3,588.61 ft above mean sea level (levels by Oregon State Highway Department). May 1, 1914, to June 30, 1924, staff gage, and Mar. 1, 1932, to Nov. 7, 1940, water-stage recorder, at site 1.2 miles downstream at different datum.

Average discharge.—20 years (1914-17, 1919-23, 1940-44, 1945-54), 108 cfs (78,190 acre-ft per year).

Extremes.—Maximum discharge during year, 875 cfs Apr. 13 (gage height, 3.65 ft); minimum, 3.8 cfs Oct. 6-10, Aug. 12.

1914-17, 1919-24, 1932-54: Maximum discharge, 2,350 cfs Dec. 12, 1946 (gage height, 4.58 ft), from rating curve extended above 810 cfs by logarithmic plotting; minimum observed, 1 cfs Aug. 1-9, 1932, June 24 to July 2, 1940.

Remarks.—Records good except those for periods of ice effect or no gage-height record, which are fair. Slightly regulated at low flow by operation of irrigation ditches.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.0	6.0	19	a25	80	95	54	101	40	87	5.8	6.1
2	4.3	6.0	20	a25	75	76	51	91	34	54	5.5	5.2
3	4.3	6.0	21	a24	70	a80	61	89	32	45	5.8	5.0
4	4.3	6.3	22	a23	70	a75	109	91	36	38	5.2	5.0
5	4.0	6.6	22	a24	75	a70	400	103	33	33	5.2	4.8
6	4.0	6.9	22	a23	70	a70	395	122	43	28	5.2	4.8
7	4.0	6.9	22	a25	70	a80	293	130	74	25	5.2	*4.8
8	4.0	6.6	22	a25	75	*130	298	145	*103	23	5.0	4.8
9	3.8	6.6	24	a28	80	448	320	154	251	22	5.0	4.5
10	4.0	6.6	30	a26	85	454	259	151	482	21	5.0	4.5
11	4.8	6.6	30	a25	91	298	243	136	432	20	4.5	4.5
12	5.1	6.6	*32	a20	208	211	255	112	375	18	4.2	4.5
13	5.4	6.9	36	a18	255	172	634	97	380	16	5.0	4.5
14	4.8	6.9	36	a22	207	161	635	83	342	15	6.4	4.5
15	4.6	6.6	30	a23	160	151	*432	76	320	14	8.6	4.8
16	4.6	8.0	27	a23	133	142	360	78	284	13	7.4	6.4
17	4.8	9.7	26	a24	139	128	365	80	231	11	7.0	11
18	6.6	8.8	29	a20	130	108	360	74	192	10	6.1	9.6
19	*11	8.4	103	a16	112	112	311	72	157	10	5.8	7.4
20	8.0	8.8	298	a17	112	115	263	65	130	*9.6	8.6	6.4
21	7.2	8.4	157	a21	142	110	227	54	108	9.6	13	6.1
22	6.6	13	105	a27	139	99	207	44	93	10	8.6	5.5
23	6.3	22	120	a25	145	97	203	36	78	8.6	7.0	5.8
24	6.0	16	90	a23	174	97	192	31	65	8.2	6.7	5.8
25	6.0	15	70	a20	178	85	178	34	56	7.4	7.0	5.8
26	6.0	18	50	*24	151	85	164	37	51	7.0	7.4	5.0
27	6.0	25	40	40	128	76	157	32	53	6.7	7.0	5.2
28	6.0	25	36	65	112	71	*148	26	53	6.4	6.4	5.5
29	6.0	20	30	90	-------	48	133	26	41	6.4	5.8	6.1
30	6.0	18	a21	99	-------	50	120	34	44	5.8	6.1	6.1
31	6.0	-------	a25	95	-------	55	-------	33	-------	5.8	6.4	-------
Total	168.5	322.2	1,615	985	3,466	4,049	7,827	2,437	4,613	594.5	197.9	170.0
Mean	5.44	10.7	52.1	31.8	124	131	261	78.6	154	19.2	6.38	5.67
Ac-ft	334	639	3,200	1,950	6,870	8,030	15,520	4,830	9,150	1,180	393	337

Calendar year 1953: Max 822 Min 3.4 Mean 116 Ac-ft 83,890
Water year 1953-54: Max 635 Min 3.8 Mean 72.5 Ac-ft 52,430

Peak discharge (base, 550 cfs).—Mar. 9 (9.30 p. m.) 663 cfs (3.39 ft); Apr. 13 (7 p. m.) 875 cfs (3.65 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for station near Lehman.

Note.—Stage-discharge relation affected by ice Dec. 8-14, 23-29, Jan. 26-29, Feb. 1-10, Mar. 29-31, and during at least parts of periods of no gage-height record.

Middle Fork John Day River at Ritter, Oreg.

Location. —Lat 44°53', long 119°08', in NW¼ sec. 8, T. 8 S., R. 30 E., on left bank 35 ft downstream from bridge and half a mile south of Ritter.
Drainage area. —526 sq mi.
Records available. —October 1929 to September 1954.
Gage. —Water-stage recorder. Datum of gage is 2,544.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.
Average discharge. —25 years, 231 cfs (167,200 acre-ft per year).
Extremes. —Maximum discharge during year, 1,030 cfs Apr. 14 (gage height, 4.88 ft); minimum, 21 cfs Sept. 11, 12.
1929-54: Maximum discharge, 4,000 cfs Mar. 19, 1932 (gage height, 7.78 ft), from rating curve extended above 2,200 cfs; maximum gage height, 8.50 ft Feb. 18, 1949 (ice jam); minimum discharge, 1.0 cfs Dec. 10, 1932.
Remarks. —Records excellent except those for periods of ice effect, which are good. Several small diversions above station for irrigation.
Revisions (water years). —WSP 739: 1931. WSP 1218: 1950.

Rating table, water year 1953-54, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

1.8	21	3.5	325
2.2	52	4.0	520
2.5	91	4.5	775
3.0	185	5.0	1,140

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	48	79	b90	244	262	188	419	346	259	41	35
2	34	44	86	100	225	210	175	388	292	200	38	33
3	37	45	94	93	212	218	179	374	271	183	37	30
4	36	43	98	101	205	200	220	381	274	155	36	28
5	34	44	90	108	202	200	452	443	259	143	36	28
6	34	46	103	108	202	205	635	471	268	130	36	28
7	34	47	88	112	220	202	542	511	360	117	34	27
8	34	46	78	106	235	247	484	585	364	108	33	*27
9	34	44	68	68	244	480	529	635	451	105	29	25
10	36	44	*119	105	238	736	459	660	*720	103	28	24
11	40	44	98	106	215	*556	435	650	635	96	28	22
12	43	45	105	78	294	403	443	605	635	86	27	28
13	42	47	110	71	511	353	611	547	687	79	28	24
14	41	47	113	91	415	339	970	506	645	66	31	24
15	40	46	117	103	336	295	*823	502	630	63	35	25
16	42	48	119	96	286	286	742	502	615	62	35	30
17	43	58	121	113	268	289	787	506	529	58	35	38
18	47	58	143	108	304	250	848	502	467	54	34	40
19	78	51	285	103	262	289	793	511	419	51	33	38
20	66	52	423	b44	259	280	709	493	381	51	37	34
21	*52	51	280	b46	336	253	640	447	350	51	53	32
22	48	58	181	119	304	238	600	378	319	*54	49	30
23	47	134	122	171	289	238	605	336	292	55	41	30
24	46	136	143	113	301	247	590	313	268	50	38	30
25	46	103	100	76	342	235	565	307	244	48	40	30
26	46	91	90	94	339	230	538	301	228	47	41	30
27	46	94	b110	*105	310	228	*529	289	218	45	41	29
28	45	115	b120	128	283	230	556	259	225	44	38	28
29	46	93	b95	266	-------	b180	511	250	200	44	37	28
30	45	80	71	307	-------	b190	467	325	181	42	34	30
31	45	-------	79	285	-------	192	-------	307	-------	41	35	-------
Total	1,338	1,902	3,928	3,612	7,881	8,761	16,625	13,703	11,773	2,690	1,118	885
Mean	43.2	63.4	127	117	281	283	554	442	392	86.8	36.1	29.5
Ac-ft	2,650	3,770	7,790	7,160	15,630	17,380	32,980	27,180	23,350	5,340	2,220	1,760

Calendar year 1953: Max 1,870 Min 21 Mean 323 Ac-ft 234,000
Water year 1953-54: Max 970 Min 22 Mean 203 Ac-ft 147,200

Peak discharge (base, 760 cfs). —Mar. 10 (10 a.m.) 805 cfs (4.55 ft); Apr. 14 (9:30 a.m.) 1,030 cfs (4.88 ft); June 10 (11 a.m.) 848 cfs (4.62 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Fox Creek at gorge, near Fox, Oreg.
(The lower part of this stream is named Cottonwood Creek)

Location. —Lat 44°37'30", long 119°15'10", in SW¼ sec. 8, T. 11 S., R. 29 E., on left bank half a mile upstream from head of gorge and 6 miles southwest of Fox.
Drainage area. —90.2 sq mi. Drainage area at former site, 91.5 sq mi (revised).
Records available. —October 1930 to September 1954.
Gage. —Water-stage recorder. Altitude of gage is 4,240 ft (from topographic map). Prior to June 12, 1952, at site half a mile downstream at different datum.
Average discharge. —24 years, 23.5 cfs (17,010 acre-ft per year).
Extremes. —Maximum discharge during year, 142 cfs Dec. 20 (gage height, 2.96 ft); maximum gage height, 3.49 ft Jan. 29 (ice jam); no flow Oct. 1-9, Aug. 5 to Sept. 16, Sept. 25, 26.

1930-54: Maximum discharge, 1,860 cfs Mar. 25, 1952 (gage height, 6.14 ft, present site and datum), from rating curve extended above 200 cfs by slope-area determination of peak flow; no flow at times.

Remarks. —Records good except those for periods of ice effect, which are fair. Several diversions above station for irrigation of about 4,800 acres.
Revisions (water years). —WSP 754: 1932(M).

Rating tables, water year 1953-54, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 29				Jan. 30 to Sept. 30			
0.8	0	1.5	16	0.8	0	1.3	7.6
.9	.1	1.7	27	.9	.2	1.5	17
1.0	.6	2.0	47	1.0	.6	1.7	28
1.1	2.1	2.5	89	1.1	1.9	2.0	50
1.2	4.7	3.0	147	1.2	4.3	2.5	93
1.3	7.8						

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.9	4.1	5.3	b42	b17	20	34	11	6.9	0.2	0
2	0	.9	5.6	4.1	b38	b12	18	32	7.6	6.6	.1	0
3	0	.8	6.9	4.1	b36	b13	19	30	5.2	5.2	.1	0
4	0	.4	5.3	6.2	b34	14	24	28	5.5	3.7	.1	0
5	0	.4	5.3	8.9	b36	14	51	25	6.6	2.7	0	0
6	0	.3	4.7	9.3	b34	14	66	24	7.6	2.1	0	0
7	0	.3	b4.6	12	b36	14	52	23	13	1.7	0	0
8	0	.4	3.8	8.2	b30	18	48	22	10	1.6	0	0
9	0	.6	b3.8	4.7	b28	35	52	21	16	1.6	0	0
10	.1	.7	*3.5	5.9	b26	b46	44	24	25	1.6	0	0
11	.1	.7	4.1	5.6	30	*b44	38	22	28	1.4	0	0
12	.1	.7	4.4	3.8	66	b40	37	18	37	1.2	0	0
13	.1	.7	3.8	3.2	60	b34	53	14	41	1.0	0	0
14	.2	.8	3.5	4.1	42	37	80	12	44	.8	0	0
15	.2	1.0	3.2	4.7	31	32	*76	10	45	.7	0	0
16	.2	1.2	2.8	7.5	31	28	69	8.9	44	.6	0	0
17	.2	1.2	3.5	b15	30	b26	71	7.6	38	.6	0	.2
18	.4	1.2	8.9	b10	b25	b28	78	5.8	34	.5	0	.2
19	.7	1.3	b40	b6.0	26	b34	75	4.0	28	.6	0	.1
20	*1.5	1.7	b100	b4.0	34	40	68	3.4	26	.5	0	.1
21	1.0	1.5	b50	4.7	49	41	61	3.2	21	.6	0	.1
22	.8	3.0	b28	b6.0	39	48	56	2.3	18	*.4	0	.1
23	.7	2.9	9.6	b7.0	35	51	52	2.3	*14	.4	0	.1
24	.6	5.9	10	b5.0	32	49	48	2.1	11	.3	0	.1
25	.7	5.3	5.3	b3.4	27	41	44	2.3	8.9	.3	0	0
26	.7	4.1	5.3	b3.6	22	37	41	4.6	7.6	.3	0	0
27	.8	4.7	7.2	*b3.8	b21	31	*42	4.6	7.2	.2	0	.1
28	.7	5.6	7.2	b12	23	27	44	3.4	7.6	.2	0	.1
29	.7	5.3	6.6	b50	-------	b20	37	3.7	6.6	.2	0	.1
30	.8	4.4	3.5	b55	-------	b18	38	6.2	5.2	.2	0	.1
31	.9	-------	4.1	b46	-------	20	-------	7.6	-------	.2	0	-------
Total	12.2	61.9	358.6	329.1	963	923	1,502	411.0	579.6	44.9	0.5	1.4
Mean	0.39	2.06	11.6	10.6	34.4	29.8	50.1	13.3	19.3	1.45	0.02	0.05
Ac-ft	24	123	711	653	1,910	1,830	2,980	815	1,150	89	1.0	2.8

Calendar year 1953: Max 468 Min 0 Mean 38.1 Ac-ft 27,600
Water year 1953-54: Max 100 Min 0 Mean 14.2 Ac-ft 10,290

Peak discharge (base, 150 cfs). — No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

North Fork John Day River at Monument, Oreg.

Location. — Lat 44°49', long 119°26', in E½ sec. 1, T. 9 S., R. 27 E., on right bank just downstream from entrance to canyon, a quarter of a mile downstream from Cottonwood Creek and three-quarters of a mile west of Monument.
Drainage area. — 2,520 sq mi, approximately.
Records available. —March 1925 to September 1954.
Gage. —Water-stage recorder. Datum of gage is 1,959.64 ft above mean sea level, datum of 1929. Prior to Nov. 24, 1925, staff gage at same site at different datum.
Nov. 25, 1925, to Sept. 30, 1930, water-stage recorders at same site at various datums.
Average discharge. —28 years (1925-27, 1928-54), 1,145 cfs (828,900 acre-ft per year).
Extremes. —Maximum discharge during year, 5,190 cfs Apr. 14 (gage height, 7.34 ft); minimum, 104 cfs Sept. 14, 15.
1925-54: Maximum discharge, 22,000 cfs Mar. 18, 1932 (gage height, 14.8 ft), from rating curve extended above 12,000 cfs by logarithmic plotting; minimum, 6 cfs sometime during period Nov. 2-13, 1936.
Remarks. —Records excellent except those for period of no-gage-height record, which are good. Many small diversions above station for irrigation.
Revisions (water years). —WSP 754: 1932(M).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 13				Apr. 14 to Sept. 30			
2.9	110	4.0	710	2.8	101	4.5	1,140
3.1	171	5.0	1,680	3.1	192	6.0	3,080
3.5	360	7.0	4,650	3.7	490	8.0	6,310

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	151	344	492	1,410	1,250	879	2,020	1,380	1,200	168	152
2	116	145	360	499	1,240	1,040	854	1,920	1,240	1,130	158	149
3	118	148	433	452	1,160	987	822	1,790	1,110	951	149	143
4	121	151	485	420	1,110	978	960	1,850	1,100	830	149	128
5	121	148	426	452	1,100	942	1,980	2,100	1,100	742	149	120
6	118	154	433	472	1,070	942	3,000	2,520	1,070	662	149	120
7	116	158	452	466	1,120	933	2,620	2,760	1,260	595	149	120
8	116	164	396	478	1,210	1,050	2,370	3,100	1,530	560	146	*117
9	116	154	366	378	1,240	*2,510	2,580	3,480	2,030	525	137	114
10	121	148	*585	349	1,240	3,770	2,280	3,660	*3,470	511	128	112
11	135	154	520	452	1,110	2,900	2,090	3,480	3,870	484	125	109
12	132	154	499	396	2,010	2,120	2,160	3,160	3,320	448	125	106
13	141	164	608	305	2,870	1,800	2,940	2,780	3,720	419	123	106
14	135	168	492	322	2,280	1,740	4,920	2,440	3,420	392	123	104
15	135	154	513	446	1,810	1,540	4,200	2,330	3,220	360	137	104
16	132	161	513	426	1,560	1,450	3,660	2,350	3,380	340	149	131
17	138	179	492	452	1,470	1,430	3,880	2,350	2,930	320	152	192
18	154	202	527	472	1,570	1,230	4,250	2,340	a2,600	300	149	192
19	168	194	1,110	396	1,360	1,290	4,090	2,400	a2,400	285	149	185
20	*237	183	3,110	285	1,340	1,340	3,530	2,340	a2,100	262	152	165
21	198	187	1,810	168	1,700	1,340	3,140	2,090	a1,900	257	168	149
22	183	210	1,240	400	1,740	1,290	2,940	1,790	a1,700	*257	219	143
23	171	472	830	694	1,570	1,270	2,990	1,540	a1,500	257	207	140
24	158	555	782	534	1,640	1,240	2,960	1,400	a1,400	252	182	134
25	148	408	670	390	1,750	1,180	2,860	1,360	a1,300	234	172	131
26	145	349	555	452	1,680	1,120	2,780	1,350	a1,200	226	175	131
27	148	360	615	*492	1,490	1,100	*2,690	1,300	a1,100	215	182	128
28	151	472	615	694	1,380	1,070	2,820	1,140	a1,100	192	178	125
29	154	466	608	1,400	-------	942	2,600	1,060	a1,000	182	168	117
30	148	378	485	2,050	-------	862	2,330	1,200	960	182	155	123
31	151	-------	366	1,630	-------	906	-------	1,300	-------	178	149	-------
Total	4,449	7,091	21,240	17,314	42,230	43,562	82,175	66,700	59,410	13,748	4,821	3,990
Mean	144	236	685	559	1,508	1,405	2,739	2,152	1,980	443	156	133
Ac-ft	8,820	14,060	42,130	34,340	83,760	86,400	163,000	132,300	117,800	27,270	9,560	7,910

Calendar year 1953: Max 10,400 Min 100 Mean 1,646 Ac-ft 1,191,000
Water year 1953-54: Max 4,920 Min 104 Mean 1,005 Ac-ft 727,400

Peak discharge (base, 4,900 cfs). — Apr. 14 (8 to 9 a.m.) 5,190 cfs (7.34 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of composite hydrographs for stations upstream and downstream.

John Day River at Service Creek, Oreg.

Location.—Lat 44°47'40", long 120°00'10", in NE¼ sec. 18, T. 9 S., R. 23 E., on right bank a quarter of a mile downstream from Service Creek and three-quarters of a mile southwest of Service Creek Post Office.

Drainage area.—5,090 sq mi, approximately.

Records available.—October 1929 to September 1954 in reports of Geological Survey. March 1925 to September 1926 and October 1929 to September 1941 in reports of State engineer.

Gage.—Water-stage recorder. Datum of gage is 1,635.83 ft above mean sea level, datum of 1929. March 1925 to September 1926, staff gage at site 12 miles downstream at different datum. Nov. 6-22, 1929, staff gage and Nov. 23, 1929, to Sept. 25, 1930, water-stage recorder, at present site at datum 0.80 ft higher.

Average discharge.—26 years (1925-26, 1929-54), 1,730 cfs (1,252,000 acre-ft per year).

Extremes.—Maximum discharge during year, 7,170 cfs Apr. 14 (gage height, 8.93 ft); minimum, 156 cfs Aug. 12.

1929-54: Maximum discharge, 28,900 cfs Mar. 19, 1932 (gage height, 16.75 ft); minimum, 20 cfs Sept. 6, 1931.

Remarks.—Records good. Many diversions above station for irrigation.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.7	143	4.0	1,110
2.0	215	5.0	1,860
2.5	370	7.0	4,050
3.0	572	9.0	7,300

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	229	384	795	942	2,710	2,310	1,700	3,450	2,130	1,230	205	229
2	255	384	795	1,060	2,380	2,060	1,660	3,080	2,210	1,680	202	235
3	255	381	842	1,000	2,190	1,800	1,600	*2,920	1,930	1,330	197	235
4	258	392	960	942	2,110	1,840	1,740	2,830	1,850	1,180	192	218
5	273	392	978	942	2,110	1,760	2,580	2,870	1,860	1,030	189	210
6	279	392	930	978	2,070	1,730	4,220	3,270	1,850	912	189	199
7	282	399	966	990	2,100	1,750	4,200	3,560	1,970	820	192	197
8	279	402	906	1,020	2,250	1,780	3,790	3,820	2,270	755	187	189
9	*276	402	876	990	*2,390	2,970	3,890	4,300	2,530	690	*184	184
10	276	392	1,040	842	2,390	5,670	3,790	4,700	3,780	652	179	172
11	288	392	1,190	882	2,270	5,190	3,450	4,720	5,190	618	170	165
12	307	*395	1,070	930	2,700	3,960	3,430	4,420	4,570	586	161	165
13	326	399	1,150	820	4,740	3,340	3,840	3,960	4,820	527	161	165
14	356	406	1,110	735	4,160	3,000	6,400	3,560	4,690	488	163	*163
15	346	402	1,090	848	3,480	2,830	6,560	3,240	4,400	460	165	161
16	343	395	1,090	948	2,920	2,620	5,820	3,230	4,580	425	187	165
17	346	402	1,070	978	2,650	2,600	5,770	3,270	4,130	410	199	197
18	374	425	1,070	1,260	2,760	2,430	6,350	3,250	3,690	388	205	264
19	421	456	1,490	1,090	2,560	2,250	6,450	3,240	3,280	367	197	276
20	452	452	5,120	826	2,370	2,380	5,890	3,270	2,960	346	212	273
21	510	440	4,020	604	2,650	2,390	5,290	3,150	2,690	333	215	264
22	456	480	2,800	725	3,050	*2,310	4,860	2,860	*2,420	323	249	264
23	429	664	2,000	1,170	2,710	2,220	4,700	2,520	2,180	310	295	255
24	414	1,330	1,610	1,300	2,800	2,190	4,720	2,230	1,970	310	264	258
25	402	1,050	1,560	972	2,870	2,180	4,500	2,110	1,780	304	243	261
26	395	854	1,260	832	2,870	2,050	4,330	2,140	1,630	298	232	255
27	388	805	1,270	936	2,680	2,000	4,190	2,140	1,550	279	240	243
28	388	882	1,300	1,140	2,420	1,960	4,190	1,980	1,470	261	240	232
29	392	990	*1,250	1,860	-------	1,900	4,130	1,840	1,480	240	235	229
30	384	894	1,180	3,560	-------	1,770	3,670	1,900	1,290	218	249	235
31	384	-------	942	3,160	-------	1,680	-------	2,160	--------	223	240	-------
Total	10,763	16,433	43,730	35,282	75,360	76,920	127,710	95,990	83,150	17,993	6,438	6,558
Mean	347	548	1,411	1,138	2,691	2,481	4,257	3,096	2,772	580	208	219
Ac-ft	21,350	32,590	86,740	69,980	149,500	152,600	253,300	190,400	164,900	35,690	12,770	13,010

Calendar year 1953: Max 15,200 Min 179 Mean 2,561 Ac-ft 1,854,000
Water year 1953-54: Max 6,560 Min 161 Mean 1,634 Ac-ft 1,183,000

Peak discharge (base, 5,200 cfs).—Dec. 20 (12 m.) 6,060 cfs (8.30 ft); Mar. 10 (3:30 p.m.) 6,080 cfs (8.31 ft); Apr. 14 (5 to 6 p.m.) 7,170 cfs (8.93 ft); June 11 (5 to 6 a.m.) 5,400 cfs (7.90 ft).

* Discharge measurement made on this day.

John Day River at McDonald Ferry, Oreg.

Location.—Lat 45°35'20", long 120°24'30", in NW¼ sec. 11, T. 1 N., R. 19 E., on left bank at McDonald Ferry, half a mile downstream from Rock Creek and 10 miles east of Klondike.
Drainage area.—7,580 sq mi, approximately.
Records available.—December 1904 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 392.27 ft above mean sea level, datum of 1929. Prior to Aug. 30, 1930, staff gage at same site and datum.
Average discharge.—49 years (1905-54), 1,985 cfs (1,437,000 acre-ft per year).
Extremes.—Maximum discharge during year, 7,120 cfs Apr. 15 (gage height, 5.68 ft); minimum, 138 cfs Aug. 16 (gage height, 1.28 ft).
1904-54: Maximum discharge, 27,800 cfs Feb. 6, 1907 (gage height, 10.8 ft); maximum gage height, 13.2 ft (from floodmark) Feb. 8, 1950 (ice jam); minimum discharge, 4 cfs Aug. 31, 1931 (gage height, 0.68 ft).
Maximum discharge known, 39,100 cfs, from rating curve extended above 22,000 cfs, probably occurred in 1894 (gage height, 12.8 ft).
Remarks.—Records excellent. Diversions above station for irrigation.
Revisions (water years).—WSP 1094: 1894(M), 1907, 1932(M).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Jan. 20-23)

Oct. 1 to Apr. 15		Apr. 16 to Sept. 30	
1.4	187	1.3	145
1.9	470	1.5	230
2.5	990	2.0	540
3.0	1,540	2.5	990
4.0	3,130	Note.--Same as preceding table above 2.0 ft.	
5.0	5,300		
5.5	6,610		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	221	470	980	1,230	3,700	2,630	1,750	3,740	2,060	1,350	221	230
2	225	464	890	1,070	3,190	2,480	1,780	3,500	2,000	1,230	198	230
3	230	464	818	1,100	2,830	2,260	1,760	3,150	2,190	1,410	190	230
4	235	464	809	1,180	2,560	1,990	1,670	*2,920	1,940	1,420	185	221
5	267	464	881	1,090	2,410	1,920	1,800	2,800	1,800	1,230	181	221
6	283	470	1,010	1,050	2,380	1,900	2,310	2,780	1,890	1,100	181	221
7	288	470	1,010	1,060	2,310	1,890	4,230	3,130	1,860	980	185	226
8	311	470	980	1,090	2,320	1,870	4,430	3,480	1,870	881	185	226
9	311	470	1,000	1,080	*2,440	1,860	3,950	3,720	2,130	809	185	212
10	339	470	990	1,100	2,620	2,580	3,930	4,180	2,480	782	*185	198
11	339	477	1,030	1,030	2,630	5,630	3,890	4,610	3,560	701	181	190
12	339	470	1,190	930	2,650	5,250	3,560	4,660	5,280	656	177	185
13	339	*464	1,220	980	3,040	4,180	3,520	4,410	4,730	620	169	177
14	345	457	1,140	1,010	5,040	3,520	3,820	3,970	4,820	572	161	169
15	357	457	1,260	910	4,540	3,150	6,390	3,580	4,800	524	145	*198
16	393	464	1,160	872	3,780	3,050	6,480	3,260	4,500	484	149	173
17	405	470	1,140	1,010	3,280	2,780	5,680	3,170	4,590	446	157	198
18	412	464	1,160	1,080	2,940	2,720	5,710	3,210	4,250	411	165	185
19	412	457	1,180	1,200	2,900	2,580	6,310	3,150	3,800	397	161	190
20	424	470	1,360	1,100	2,810	2,380	6,340	3,110	3,400	384	235	198
21	464	491	4,610	1,000	2,620	2,440	5,780	3,170	3,040	360	194	265
22	491	533	4,360	800	2,760	2,460	5,130	3,130	*2,740	348	198	275
23	572	556	3,090	1,000	3,280	*2,390	4,730	2,900	2,440	336	198	270
24	548	580	2,270	1,170	2,960	2,360	4,590	2,560	2,140	330	204	275
25	519	890	1,800	1,600	2,890	2,320	4,570	2,220	1,920	310	221	275
26	505	1,240	1,660	1,360	3,000	2,270	4,360	2,060	1,760	300	275	275
27	491	1,020	1,540	1,120	3,090	2,110	4,230	2,020	1,600	295	265	270
28	477	881	1,360	1,430	2,920	2,080	4,060	2,050	1,530	280	255	265
29	470	836	1,390	1,930	--------	2,040	4,080	1,980	1,430	270	240	265
30	470	930	*1,360	2,310	--------	1,980	4,120	1,900	1,420	250	245	255
31	470	--------	1,330	3,930	--------	1,830	--------	1,780	--------	235	245	--------
Total	11,952	17,283	45,978	38,822	83,890	80,900	124,960	96,300	83,970	19,701	6,136	6,768
Mean	386	576	1,483	1,252	2,996	2,610	4,165	3,106	2,799	636	198	226
Ac-ft	23,710	34,280	91,200	77,000	166,400	160,500	247,900	191,000	166,600	39,080	12,170	13,420

Calendar year 1953: Max 14,700 Min 187 Mean 2,671 Ac-ft 1,934,000
Water year 1953-54: Max 6,480 Min 145 Mean 1,689 Ac-ft 1,223,000

Peak discharge (base, 6,300 cfs).—Dec. 21 (5:30 p.m.) 6,310 cfs (5.39 ft); Apr. 15 (4 to 6 p.m.) 7,120 cfs (5.68 ft).
* Discharge measurement made on this day.

Deschutes River below Snow Creek, near Lapine, Oreg.

Location.—Lat 43°48'50", long 121°46'40", in NW¼ sec. 28, T. 20 S., R. 8 E., on left bank at flow line of Crane Prairie Reservoir, 50 ft downstream from Snow Creek, 300 ft upstream from bridge, and 17 miles northwest of Lapine.

Drainage area.—132 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.—November 1937 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 4,445 ft (from elevation of Crane Prairie Reservoir when slack water extended to gage). Prior to Sept. 9, 1938, at site 450 ft downstream at different datum.

Average discharge.—16 years, 150 cfs (108,600 acre-ft per year).

Extremes.—Maximum discharge during year, 326 cfs Nov. 23 (gage height, 2.36 ft); minimum, 111 cfs Mar. 25, Mar. 29 to Apr. 3.

1937-54: Maximum discharge, 357 cfs Aug. 21, 1951 (gage height, 2.74 ft); maximum gage height, 4.12 ft Jan. 21, 1943 (ice jam); minimum discharge, 43 cfs Dec. 27, 1941 (gage height, 1.12 ft).

Remarks.—Records good except those for periods of backwater from Crane Prairie Reservoir, which are fair, and those for periods of ice effect or no gage-height record, which are poor. No regulation or diversion above station.

Revisions (water years).—WSP 1248: 1951.

Rating table, water year 1953-54, except periods of ice effect or backwater from Crane Prairie Reservoir (gage height, in feet, and discharge, in cubic feet per second)

1.2	100	2.0	269
1.5	169	2.3	317

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	281	224	214	183	152	124	111	168	212	214	264	299
2	278	222	*212	182	151	122	111	170	210	210	267	297
3	272	220	214	181	*150	122	113	172	210	212	269	296
4	271	*216	212	180	147	120	118	175	212	212	272	292
5	269	214	207	179	145	120	120	178	212	212	276	291
6	269	218	210	178	143	120	120	180	212	212	278	289
7	266	212	210	177	140	118	118	182	214	214	279	289
8	264	210	207	176	138	b120	118	185	220	212	281	286
9	262	210	206	175	138	b120	115	188	220	216	284	284
10	264	207	205	174	138	b122	118	190	214	218	*286	283
11	260	207	204	173	138	b122	120	192	212	218	289	283
12	*259	207	203	172	140	b122	122	194	220	218	291	283
13	257	205	202	171	140	124	125	*194	214	*218	294	279
14	255	203	201	170	140	124	128	196	214	220	296	279
15	255	203	200	169	138	122	130	196	222	222	299	278
16	254	205	199	168	138	122	132	196	216	224	299	278
17	255	203	198	167	138	122	135	199	*214	224	300	274
18	264	201	197	166	138	120	136	199	210	226	302	272
19	254	201	196	165	136	120	138	196	207	228	306	269
20	252	201	195	164	138	118	140	194	207	228	306	266
21	248	207	194	163	138	118	142	199	205	230	306	264
22	243	272	193	162	134	115	145	196	210	232	305	264
23	241	286	192	161	134	115	148	196	212	236	306	*260
24	239	239	191	160	131	115	150	196	212	239	305	257
25	238	228	190	159	129	111	152	203	212	241	310	255
26	236	226	189	158	127	113	155	214	214	245	308	252
27	232	230	188	157	127	113	158	210	214	248	306	250
28	230	220	187	156	124	113	160	207	212	250	306	248
29	228	216	186	155	-------	111	162	214	212	255	304	247
30	226	216	185	154	-------	*111	165	212	216	257	302	245
31	224	-------	184	153	-------	113	-------	214	-------	260	299	-------
Total	7,846	6,529	6,171	5,208	3,870	3,672	4,005	6,005	6,391	7,051	9,095	8,209
Mean	253	218	199	168	138	118	134	194	213	227	293	274
Ac-ft	15,560	12,950	12,240	10,330	7,680	7,280	7,940	11,910	12,680	13,990	18,040	16,280

Calendar year 1953: Max 328 Min 92 Mean 189 Ac-ft 136,800
Water year 1953-54: Max 310 Min 111 Mean 203 Ac-ft 146,900

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.—No gage-height record Dec. 9 to Feb. 2, Apr. 10 to May 12; discharge interpolated. Backwater from Crane Prairie Reservoir Mar. 13 to July 14.

Cultus River above Cultus Creek, near Lapine, Oreg.

Location.—Lat 43°49'10", long 121°47'50", in sec. 20 or 29, T. 20 S., R. 8 E., on left bank at highway crossing upstream from flow line of Crane Prairie Reservoir, 2 miles upstream from Cultus Creek and 18 miles northwest of Lapine.
Drainage area.—16.5 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.
Records available.—June 1923 to September 1925, November 1937 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 4,450 ft (by barometer). Prior to Nov. 1, 1937, staff gage at site half a mile upstream at different datum.
Average discharge.—18 years (1923-25, 1938-54), 64.4 cfs (46,620 acre-ft per year).
Extremes.—Maximum discharge during year, 96 cfs May 18-20, June 28 to July 1; maximum gage height, 1.11 ft June 28 to July 1 (backwater from moss); minimum discharge, 55 cfs Mar. 12, 13. 1923-25, 1937-54: Maximum discharge, 137 cfs May 10, July 26, 27, July 31 to Aug. 2, 1951; maximum gage height, 1.23 ft Oct. 30, 1952 (backwater from culvert installation); minimum discharge recorded, 28 cfs Mar. 22, Apr. 5-10, Nov. 18, 21, 1941.
Remarks.—Records good. No regulation or diversion above station.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	74	74	72	64	64	62	78	90	a96	87	85
2	80	74	*74	72	64	62	62	78	90	a94	87	85
3	80	74	74	72	*64	62	62	80	90	a94	87	83
4	80	*74	74	72	64	60	62	80	90	a92	87	83
5	80	74	74	72	64	60	62	83	90	a92	87	83
6	80	74	74	72	64	58	62	85	90	a92	87	83
7	80	74	74	70	64	56	62	87	90	a90	87	80
8	80	74	74	70	64	56	62	87	90	a90	87	78
9	80	74	74	70	66	56	62	90	90	a90	87	78
10	80	74	74	70	66	56	64	90	90	a88	*87	78
11	80	74	74	70	66	56	64	90	90	a88	87	78
12	*80	74	74	70	66	56	64	92	90	a87	87	78
13	78	74	74	70	68	56	64	*92	90	*87	87	78
14	78	74	74	70	68	56	64	92	90	87	87	78
15	78	74	74	70	68	56	64	92	90	87	90	78
16	76	74	74	70	68	56	66	94	90	87	90	76
17	76	74	74	70	68	56	66	94	*90	87	90	76
18	76	74	74	70	68	56	66	96	90	87	90	76
19	74	74	74	70	68	58	66	96	90	85	90	76
20	74	74	74	68	68	58	66	94	90	85	90	76
21	74	74	74	68	68	58	66	92	92	85	90	76
22	74	76	74	68	68	58	66	90	92	85	90	76
23	74	78	74	68	68	60	66	90	92	85	90	*76
24	72	76	74	68	68	60	68	90	92	85	90	76
25	72	76	74	68	68	60	74	90	92	87	90	74
26	72	76	74	66	66	62	78	90	94	87	90	74
27	72	74	74	66	66	62	78	90	94	87	87	74
28	72	74	72	66	64	62	78	90	94	87	87	74
29	72	74	72	66	-------	62	78	90	96	87	87	a74
30	72	74	72	64	-------	*62	78	90	96	87	85	a74
31	72	-------	72	64	-------	62	-------	90	-------	87	85	-------
Total	2,368	2,232	2,286	2,142	1,856	1,822	2,002	2,762	2,734	2,734	2,729	2,334
Mean	76.4	74.4	73.7	69.1	66.3	58.8	66.7	89.1	91.1	88.2	88.0	77.8
Ac-ft	4,700	4,430	4,530	4,250	3,680	3,610	3,970	5,480	5,420	5,420	5,410	4,630

Calendar year 1953: Max 101 Min 50 Mean 75.9 Ac-ft 54,930
Water year 1953-54: Max 96 Min 56 Mean 76.7 Ac-ft 55,530

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated.

Cultus Creek above Crane Prairie Reservoir, near Lapine, Oreg.

Location.—Lat 43°49'30", long 121°49'30", in SW¼ sec. 19, T. 20 S., R. 8 E., on left bank 1,000 ft upstream from highway bridge, three-quarters of a mile downstream from outlet of Cultus Lake, and 19 miles northwest of Lapine.

Drainage area.—33.2 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.—March to September 1924 and October 1949 to September 1954 in reports of Geological Survey. Prior to October 1949, published as Cultus Creek above Crane Prairie, near Lapine. May 1923 to September 1924 and November 1937 to September 1941 in reports of State engineer. October 1941 to September 1949 in files of State engineer.

Gage.—Water-stage recorder. Altitude of gage is 4,545 ft (by barometer). Prior to Mar. 11, 1924, staff gages on two branches of stream at sites 1½ miles downstream at different datums. Mar. 11 to Sept. 30, 1924, staff gage at site 100 ft upstream at different datum.

Average discharge.—16 years (1938-54), 22.6 cfs (16,360 acre-ft per year).

Extremes.—Maximum discharge during year, 103 cfs May 21 (gage height, 1.91 ft); minimum, 0.3 cfs Sept. 17-30.

1937-54: Maximum discharge, 214 cfs June 1, 1943 (gage height, 2.72 ft); maximum gage height, 2.76 ft June 15, 1950 (backwater from trees); no flow at times.

Remarks.—Records good except those for periods of no gage-height record, which are poor. No regulation or diversion above station.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 31				Jan. 1 to Sept. 30			
0.5	0.6	1.0	16	0.4	0.3	1.0	17
.6	2.2	1.2	27	.5	1.0	1.2	29
.7	5.0	1.6	62	.6	2.4	1.5	55
.8	8			.7	4.5	1.9	102
				.8	7.5		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	0.7	52	34	33	22	18	48	86	53	15	1.5
2	2.2	.8	*52	38	32	21	17	48	84	52	14	1.5
3	1.8	.7	53	39	*32	21	17	48	82	50	14	1
4	1.6	*.8	53	39	31	20	18	49	79	48	13	1
5	1.4	.8	51	37	30	20	19	50	77	47	12	1
6	1.3	1.0	52	36	29	19	20	52	73	46	12	.9
7	1.3	1.3	52	36	28	19	20	55	71	45	11	.8
8	1.3	1.3	53	35	28	19	19	59	70	44	10	.7
9	1.3	1.3	56	34	27	21	19	66	68	42	10	.6
10	1.3	1.1	57	33	26	22	19	71	67	40	*9.1	.6
11	1.3	1.3	55	32	25	22	19	76	66	38	9.1	.5
12	*1.3	1.3	53	31	25	22	19	78	66	36	8.5	.5
13	1.3	1.3	51	30	25	22	20	*78	66	*35	8	.4
14	1.3	1.1	49	30	25	22	21	80	65	34	7.5	.4
15	1.1	1.1	48	32	25	22	21	82	65	32	7	.4
16	1.0	1.3	45	35	25	22	22	84	67	30	6.5	.4
17	1.0	1.6	43	35	24	21	23	88	*68	28	6	.3
18	1.6	1.8	42	35	24	21	24	92	68	27	6.0	.3
19	1.6	2.0	46	34	24	21	25	97	67	26	6	.3
20	1.6	2.0	50	33	25	21	27	101	66	25	5.5	.3
21	1.4	2.6	52	32	25	21	28	102	66	24	5	.3
22	1.1	8.0	53	32	25	20	31	101	65	23	4.5	.3
23	1.0	25	52	33	25	19	32	100	64	22	4	*.3
24	1.0	42	50	33	25	19	34	98	63	21	4	.3
25	1.0	49	48	32	24	19	36	97	60	20	3.5	.3
26	.8	51	47	33	24	19	39	97	59	19	3	.3
27	.8	56	46	36	23	19	41	95	59	18	2.5	.3
28	.8	56	44	36	22	19	44	94	58	18	2.5	.3
29	.8	56	41	36	--------	18	46	92	56	17	2	.3
30	.8	54	40	35	--------	*18	47	89	54	16	2	.3
31	.7	--------	39	34	--------	18	--------	88	--------	15	2	------
Total	39.0	424.2	1,525	1,060	736	629	785	2,455	2,025	991	225.2	16.4
Mean	1.26	14.1	49.2	34.2	26.3	20.3	26.2	79.2	67.5	32.0	7.26	0.55
Ac-ft	77	841	3,020	2,100	1,460	1,250	1,560	4,870	4,020	1,970	447	33

Calendar year 1953: Max 116 Min 0.7 Mean 35.1 Ac-ft 25,420
Water year 1953-54: Max 102 Min 0.3 Mean 29.9 Ac-ft 21,650

* Discharge measurement made on this day.

Note.—No gage-height record July 7-12, July 14 to Aug. 9, Aug. 12-17, Aug. 19 to Sept. 22, Sept. 24-30; discharge estimated on basis of records for Odell Creek near Crescent, and Deer Creek above Crane Prairie Reservoir, near Lapine.

Deer Creek above Crane Prairie Reservoir, near Lapine, Oreg.

Location.—Lat 43°48'20", long 121°50'20", in NW¼NW¼ sec. 36, T. 20 S., R. 7 E., on right bank 150 ft downstream from road bridge, 1¼ miles downstream from outlet of Little Cultus Lake, and 19 miles northwest of Lapine.

Drainage area.—21.5 sq mi.

Records available.—October 1923 to September 1924 and October 1949 to September 1954 in reports of Geological Survey. Prior to October 1949, published as Deer Creek above Crane Prairie, near Lapine. October 1923 to July 1924 and December 1937 to September 1941 in reports of State engineer. January to September 1925 and October 1941 to September 1949 in files of State engineer.

Gage.—Water-stage recorder and log control. Altitude of gage is 4,520 ft (by barometer). Prior to Oct. 1, 1925, staff gage at site 75 ft upstream at various datums. Dec. 1, 1937, to Sept. 30, 1938, water-stage recorder at highway bridge 150 ft upstream at different datum.

Average discharge.—16 years (1938-54), 7.74 cfs (5,600 acre-ft per year).

Extremes.—Maximum discharge during year, 46 cfs May 11 (gage height, 1.47 ft); minimum, 0.2 cfs Sept. 4-30.

1923-25, 1937-54: Maximum discharge, 97 cfs Nov. 30, 1942 (gage height, 1.95 ft); maximum gage height, 2.83 ft Jan. 28, 1951 (ice jam); no flow at times.

Remarks.—Records good except those for periods of ice effect or no gage-height record, which are poor. No regulation or diversion above station.

Rating table, water year 1953-54, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

0.2	0.1	0.7	7.2
.3	.3	1.0	17
.4	1.2	1.3	33
.5	2.8	1.5	48

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a0.3	a0.3	20	11	a9	b6.2	6.2	26	24	9.4	0.8	0.3
2	a.3	a.3	*19	11	a8.5	b6.0	6.0	25	24	8.9	.6	.3
3	a.3	a.4	18	a 11	*8.6	b6.0	6.2	24	23	7.8	.6	.3
4	a.3	**.4	18	11	8.3	b6.0	6.7	24	21	7.2	.5	.2
5	a.3	.5	16	11	8.0	5.8	8.0	25	20	6.5	.5	.2
6	a.3	.6	16	10	8.0	5.8	8.3	27	18	5.8	.5	.2
7	a.3	.6	17	9.7	7.8	5.8	8.3	31	a18	5.3	.4	.2
8	a.3	.8	17	9.7	7.8	6.2	8.6	36	a17	4.8	.4	.2
9	a.3	.6	18	9.4	7.5	6.7	8.9	41	17	4.6	.4	.2
10	a.3	.8	19	8.9	7.2	7.5	8.9	42	15	4.4	**.4	.2
11	a.3	.8	18	a8	7.0	7.8	9.2	45	a14	3.8	.4	.2
12	**.3	.8	18	b7.8	7.5	b8.0	9.4	45	a14	3.4	.3	.2
13	.3	.8	17	b7.8	7.2	b8.0	11	*44	13	*3.0	.3	.2
14	.4	.8	16	b7.8	7.2	8.0	12	42	a13	3.0	.3	.2
15	.4	.6	15	9.2	7.2	8.0	13	42	a13	2.6	.3	.2
16	a.4	1.0	15	9.7	7.0	8.0	15	40	a13	2.2	.3	.2
17	a.4	1.1	13	10	6.7	8.0	18	39	*13	2.0	.3	.2
18	a.4	1.1	13	9.4	b6.9	8.0	22	39	13	1.8	.3	.2
19	a.3	1.2	15	9.2	6.7	8.0	26	39	13	1.6	.3	.2
20	a.3	1.2	18	8.6	7.0	7.8	28	39	12	1.3	.4	.2
21	a.3	1.9	20	8.3	7.2	b7.5	29	38	12	1.3	.4	.2
22	a.3	8.9	20	9.2	7.2	b7.2	31	35	12	1.3	.3	.2
23	a.3	20	20	9.2	7.2	7.2	34	32	11	1.3	.4	**.2
24	a.3	24	18	9.2	7.0	7.2	34	29	11	1.2	.4	.2
25	a.3	27	16	b9.2	6.7	7.0	36	28	11	1.2	.4	.2
26	a.3	26	15	b9.4	6.7	6.7	36	28	11	1.1	.4	.2
27	a.3	25	15	11	6.5	6.7	35	27	a 11	1.0	.4	.2
28	a.3	24	14	11	6.2	7.0	34	26	11	.8	.4	.2
29	a.3	24	13	11	-------	7.0	31	26	10	.8	.4	.2
30	a.3	22	12	10	-------	*b7.0	28	25	10	.8	.4	.2
31	a.3	-------	12	a9.5	-------	b6.5	-------	25	-------	.8	.4	-------
Total	9.8	217.5	511	297.2	205.8	218.6	567.7	1,034	438	101.0	12.6	6.3
Mean	0.32	7.25	16.5	9.59	7.35	7.05	18.9	33.4	14.6	3.26	0.41	0.21
Ac-ft	19	431	1,010	589	408	434	1,130	2,050	869	200	25	12

Calendar year 1953: Max 57 Min 0.2 Mean 11.5 Ac-ft 8,320
Water year 1953-54: Max 45 Min 0.2 Mean 9.92 Ac-ft 7,180

* Discharge measurement made on this day.
** Field estimate made on this day.
a No gage-height record; discharge estimated on basis of record for Odell Creek near Crescent.
b Stage-discharge relation affected by ice.

Quinn River near Lapine, Oreg.

Location.—Lat 43°47'10", long 121°50'10", in NW¼ sec. 1, T. 21 S., R. 7 E., on left bank just upstream from flow line of Crane Prairie Reservoir, 150 ft downstream from springs at head of river and 19 miles northwest of Lapine.

Records available.—June 1922 to September 1925, November 1937 to September 1954.

Gage.—Water-stage recorder and log control. Datum of gage is 4,442.1 ft above mean sea level, based on elevation of Crane Prairie Reservoir when slack water reached station. June 1, 1922, to Sept. 30, 1925, staff gage at site 200 ft downstream at different datum. Nov. 1, 1937, to Sept. 13, 1938, water-stage recorder at present site and datum, and natural control.

Average discharge.—19 years (1923-25, 1938-54), 23.3 cfs (16,870 acre-ft per year).

Extremes.—Maximum discharge during year, 44 cfs July 28 to Aug. 10; maximum gage height, 3.78 ft May 18 (backwater from reservoir); minimum discharge, 23 cfs Dec. 18-22.

1922-25, 1937-54: Maximum discharge, 59 cfs July 4, 1949; maximum gage height, that of May 18, 1954; practically no flow Nov. 14, 1941.

Remarks.—Records fair. No regulation or diversion above station.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	33	26	27	32	31	29	32	38	43	44	39
2	41	33	*26	27	32	31	29	32	39	43	44	39
3	41	33	26	27	*32	31	29	32	39	43	44	40
4	41	*33	26	27	32	30	29	*32	39	43	44	40
5	41	33	26	27	32	30	30	32	39	43	44	39
6	41	32	26	27	32	30	30	33	39	43	44	39
7	41	32	27	27	32	30	30	33	40	43	44	39
8	41	32	27	27	32	30	30	33	40	43	44	38
9	40	32	27	27	32	30	30	33	40	43	44	36
10	40	32	27	27	32	30	30	33	40	43	*44	34
11	40	30	27	27	32	30	30	34	41	43	42	34
12	*40	28	27	27	32	30	30	34	41	43	40	34
13	40	28	27	27	32	30	30	34	41	*43	39	34
14	40	27	26	27	31	30	30	34	41	43	39	34
15	39	27	26	27	31	30	30	35	42	43	38	34
16	39	27	26	27	31	30	30	35	42	43	36	33
17	39	27	24	28	31	30	31	35	*42	43	36	33
18	38	26	24	28	31	30	31	35	42	43	36	33
19	38	26	23	28	31	30	31	35	42	43	36	33
20	38	26	23	28	31	30	31	36	42	43	36	33
21	36	26	23	30	31	30	31	36	42	43	36	33
22	36	26	24	30	31	30	31	36	42	43	36	33
23	36	26	24	30	31	29	31	36	42	43	36	*33
24	34	26	24	30	31	29	31	37	42	43	38	33
25	34	26	24	a30	31	29	31	37	42	43	39	33
26	34	26	24	a30	31	29	31	37	42	43	39	33
27	33	26	24	a30	31	29	31	37	42	43	39	33
28	33	26	26	a30	31	29	31	37	42	44	39	32
29	33	26	26	a32	-------	29	32	38	42	44	39	32
30	33	26	26	a32	-------	*29	32	38	42	44	39	32
31	33	-------	26	a32	-------	29	-------	38	-------	44	39	-------
Total	1,174	857	788	880	881	924	912	1,079	1,229	1,337	1,237	1,045
Mean	37.9	28.6	25.4	28.4	31.5	29.8	30.4	34.8	41.0	43.1	39.9	34.8
Ac-ft	2,330	1,700	1,560	1,750	1,750	1,830	1,810	2,140	2,440	2,650	2,450	2,070

Calendar year 1953: Max 47 Min 20 Mean 33.2 Ac-ft 24,010
Water year 1953-54: Max 44 Min 23 Mean 33.8 Ac-ft 24,480

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated.
Note.--Backwater from Crane Prairie Reservoir Oct. 1-15, Feb. 1 to Aug. 9.

Charlton Creek above Crane Prairie Reservoir, near Lapine, Oreg.

Location.—Lat 43°47'00", long 121°50'00", in NE¼SW¼ sec. 1, T. 21 S., R. 7 E., on left bank 3 miles northwest of Crane Prairie Dam and 18 miles northwest of Lapine.

Drainage area.—15.6 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.—October 1949 to September 1954 in reports of Geological Survey. May 1923 to May 1924 and October 1937 to September 1941 in reports of State engineer. October 1941 to September 1949 in files of State engineer.

Gage.—Water-stage recorder. Datum of gage is 4,458.70 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. May 1, 1923, to May 23, 1924, staff gage at about same site at different datum.

Extremes.—Maximum discharge recorded during year, 24 cfs May 10 (gage height, 1.24 ft); no flow at times.

1923-24, 1937-54: Maximum discharge, 54 cfs June 12, 1950 (gage height, 1.53 ft), from rating curve extended above 17 cfs; maximum gage height, 2.17 ft about Jan. 28, 1951 (ice jam); no flow at times.

Remarks.—Records fair May to July. No regulation or diversion above station.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								11	10	2.2		
2			**1.8					10	6.9	1.6		
3					**1.2			10	6.9	.2		
4								*11	6.9	0		
5								12	6.0	0		
6								13	5.0	0		
7								16	4.3	0		
8								17	4.7	0		
9								18	6.3	0		
10								18	5.3	0		
11								19	4.5	0		
12								16	6.0	0		
13								15	5.3	0		
14								15	4.5	0		
15								16	6.9	0		
16								17	8.5	0		
17								18	*5.7	0		
18								19	4.7	0		
19								20	4.5	0		
20								20	4.3	0		
21								18	4.3	0		
22								13	3.9	0		
23								12	3.9	0		
24								12	3.6	0		
25								11	3.4	0		
26								12	3.4	0		
27								9.0	3.6	0		
28								7.6	3.4	0		
29					-------			10	2.5	0		
30					-------			7.6	2.2	0		
31		-------			-------		-------	9.0	-------	0		-------
Total								432.2	151.4	4.0	0	0
Mean								13.9	5.05	0.13	0	0
Ac-ft								857	300	7.9	0	0

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

* Discharge measurement made on this day.

** Field estimate made on this day.

Note.—No record obtained Oct. 1 to May 3 except field estimates Dec. 2 and Feb. 3. Probably some water flowing in stream after storm Nov. 23. Discharge for May 1-3 based on records for Deer Creek above Crane Prairie Reservoir, near Lapine.

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Deschutes River below Crane Prairie Reservoir, near Lapine, Oreg.

Location.—Lat 43°45'10", long 121°46'50", in NW¼ sec. 16, T. 21 S., R. 8 E., on left bank 600 ft downstream from Crane Prairie Dam and 15 miles northwest of Lapine.
Drainage area.—254 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.
Records available.—January 1914 to June 1917, February 1922 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 4,415 ft (by barometer). Prior to June 9, 1922, staff gage at site half a mile upstream at different datum. June 9, 1922, to May 9, 1932, staff gage of water-stage recorder at present site and datum.
Average discharge.—33 years (1914-15, 1922-54), 197 cfs (142,600 acre-ft per year).
Extremes.—Maximum discharge during year, 820 cfs Sept. 17 (gage height, 2.80 ft); minimum, 46 cfs Mar. 4-27 (gage height, 0.66 ft).
1914-17, 1922-54: Maximum discharge, 1,170 cfs July 28, 1947 (gage height, 3.34 ft); minimum, 2 cfs Dec. 21, 1940, Nov. 1, 1942, June 13-25, 1948.
Remarks.—Records good except those for periods of no gage-height record, which are poor. Flow regulated since Nov. 4, 1922, by Crane Prairie Reservoir (see p. 63). No diversion above station.
Revisions.—WSP 1218: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.6	37	2.0	417
1.0	104	2.5	650
1.5	236	2.8	820

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	460	196	205	208	48	49	185	298	270	363	360
2	48	460	*196	205	208	48	49	185	294	270	363	360
3	48	460	196	205	162	48	50	185	294	265	363	360
4	48	456	196	205	49	46	54	211	291	265	363	360
5	207	456	196	205	49	46	57	239	291	260	363	360
6	491	509	196	205	49	46	58	236	288	311	363	360
7	491	581	198	205	49	46	60	*233	284	382	363	360
8	486	576	200	205	49	46	62	233	288	378	363	360
9	486	576	202	205	49	46	63	233	298	378	363	360
10	486	571	204	205	49	46	63	233	305	374	*363	360
11	486	571	206	205	49	46	63	233	302	374	363	356
12	*486	566	208	205	49	46	65	233	305	374	360	356
13	486	562	211	205	49	46	68	236	302	*374	360	356
14	482	562	211	205	49	46	71	236	298	374	360	356
15	482	557	211	205	49	46	73	236	302	374	360	356
16	482	552	211	205	48	46	75	236	302	374	360	356
17	478	*428	208	205	48	46	78	236	*298	374	360	*530
18	478	190	208	205	48	46	82	267	295	371	360	814
19	478	190	208	205	48	46	87	316	295	371	360	808
20	473	190	208	205	48	46	91	316	290	371	360	808
21	473	190	208	205	48	46	94	309	290	371	360	802
22	473	193	208	205	48	46	100	302	290	371	360	796
23	473	193	205	205	48	46	*130	302	285	371	360	790
24	473	196	205	205	48	46	171	*298	285	367	360	784
25	469	196	205	205	48	46	173	302	280	367	360	778
26	469	196	205	205	48	46	176	305	280	367	360	778
27	*469	196	205	205	48	48	182	298	280	367	360	772
28	464	196	205	205	48	48	185	294	275	367	360	766
29	464	196	205	205	-------	49	185	294	275	367	360	760
30	460	196	205	205	-------	49	188	294	270	367	360	754
31	460	-------	205	208	-------	49	-------	294	-------	367	360	-------
Total	12,797	11,421	6,331	6,358	1,790	1,445	2,902	8,010	8,730	10,933	11,193	16,476
Mean	413	381	204	205	63.9	46.6	96.7	258	291	353	361	549
Ac-ft	25,380	22,650	12,560	12,610	3,550	2,870	5,760	15,890	17,320	21,690	22,200	32,680

Calendar year 1953: Max 581 Min 34 Mean 234 Ac-ft 169,100
Water year 1953-54: Max 814 Min 46 Mean 270 Ac-ft 195,200

* Discharge measurement made on this day.
Note.—No gage-height record Dec. 7-11, June 18 to July 5; discharge interpolated.

Brown Creek near Lapine, Oreg.

Location.—Lat 43°43'30", long 121°48'40", in SE¼NE¼ sec. 30, T. 21 S., R. 8 E., on left bank 1½ miles upstream from mouth and 15 miles northwest of Lapine.

Drainage area.—19.7 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.—May 1922 to September 1925 and October 1949 to September 1954 in reports of Geological Survey. May 1922 to September 1925, November 1925 to October 1927 (discharge measurements only), and June 1938 to September 1941 in reports of State engineer. October 1941 to September 1949 (discharge measurements only, October 1945 to September 1946) in files of State engineer.

Gage.—Water-stage recorder. Altitude of gage is 4,375 ft (by barometer). May 24, 1922, to Oct. 11, 1927, staff gage and June 17, 1938, to Nov. 1, 1945, water-stage recorder, at site 1¼ miles downstream at different datum.

Average discharge.—18 years (1922-25, 1938-45, 1946-54), 38.4 cfs (27,800 acre-ft per year).

Extremes.—Maximum discharge during year, 75 cfs Nov. 23 (gage height, 1.56 ft); minimum, 46 cfs Mar. 22-26, Mar. 28 to Apr. 3.

1922-25, 1938-45, 1946-54: Maximum discharge, 87 cfs Oct. 28, 1950; maximum gage height, that of Nov. 23, 1953; minimum discharge, 16 cfs July 22-25, 1941, and at times December 1941 to March 1942.

Remarks.—Records fair. No regulation or diversion above station.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	53	51	47	47	47	46	54	54	52	55	60
2	59	53	*51	47	47	47	46	54	54	52	55	60
3	59	52	52	47	*47	47	47	54	54	52	55	60
4	59	*52	52	47	47	47	49	54	54	51	56	60
5	59	52	51	47	47	47	50	54	54	51	56	60
6	59	52	51	a47	47	47	50	54	54	51	56	60
7	59	52	50	a47	47	47	49	54	54	51	56	60
8	59	52	50	a47	47	48	50	54	55	50	57	60
9	59	52	51	a47	47	49	49	54	55	50	57	60
10	59	52	51	a47	47	a49	49	54	55	50	*57	60
11	59	52	51	a47	47	a48	50	54	55	49	57	60
12	*59	52	51	a47	47	48	52	54	56	49	57	60
13	59	52	50	a47	a47	48	56	*54	56	*49	57	60
14	59	52	50	a47	a47	48	55	54	55	49	57	60
15	59	52	50	a47	a48	48	54	54	56	49	57	60
16	58	52	50	47	a48	a48	56	54	56	49	58	60
17	58	52	50	47	48	a47	56	54	*55	50	58	60
18	58	51	50	a47	a48	47	56	54	55	50	58	60
19	58	51	53	a47	a48	a47	55	54	54	50	58	60
20	58	51	53	a47	a48	47	55	54	54	51	58	59
21	56	51	52	a47	48	a47	55	54	53	51	59	59
22	56	62	51	a47	a48	47	55	54	53	51	59	59
23	56	66	50	a47	47	46	55	54	53	51	59	*58
24	56	54	49	a47	47	a46	55	54	52	52	59	58
25	56	52	48	a47	47	46	55	54	52	52	60	58
26	55	52	48	a47	47	46	55	54	53	52	60	57
27	55	52	48	47	47	47	55	54	52	53	60	57
28	55	51	48	47	47	47	55	54	52	53	60	57
29	55	51	48	47	-------	46	54	54	52	53	60	57
30	54	51	48	47	-------	*46	54	54	52	54	60	57
31	54	-------	48	47	-------	46	-------	54	-------	55	60	------
Total	1,783	1,581	1,556	1,457	1,324	1,461	1,578	1,674	1,619	1,582	1,791	1,776
Mean	57.5	52.7	50.2	47.0	47.3	47.1	52.6	54.0	54.0	51.0	57.8	59.2
Ac-ft	3,540	3,140	3,090	2,890	2,630	2,900	3,130	3,320	3,210	3,140	3,550	3,520

Calendar year 1953: Max 66 Min 46 Mean 51.9 Ac-ft 37,590
Water year 1953-54: Max 66 Min 46 Mean 52.6 Ac-ft 38,060

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated.

Odell Creek near Crescent, Oreg.

Location.—Lat 43°32'50", long 121°57'40", in SW¼ sec. 25, T. 23 S., R. 6 E., on left bank 1,000 ft below outlet of Odell Lake, 3½ miles north of Crescent Lake, and 14 miles northwest of Crescent.

Drainage area.—39.0 sq mi.

Records available.—August 1911 to August 1914 (incomplete), December 1923 to June 1924, May 1933 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 4,778.83 ft above mean sea level, datum of 1929.

Average discharge.—21 years (1933-54), 80.4 cfs (58,210 acre-ft per year).

Extremes.—Maximum discharge during year, 416 cfs Nov. 24 (gage height, 1.44 ft), from rating curve extended above 250 cfs by logarithmic plotting; maximum gage height, 1.48 ft Nov. 23; minimum discharge, about 10 cfs Feb. 26 (ice jamming at outlet of lake).

1911-14, 1923-24, 1933-54: Maximum discharge, that of Nov. 24, 1953; maximum gage height, 2.03 ft Jan. 5, 1947 (ice jam); minimum discharge recorded, about 10 cfs Mar. 4, 5, 1951, Feb. 26, 1954 (ice jamming at outlet of lake).

Remarks.—Records good. Flow regulated occasionally in winter by ice jams and at other times by debris which collects on fish racks or by boards used at outlet of Odell Lake to change levels; slightly affected at times by seiches on Odell Lake.

Revisions (water years).—WSP 794: 1933-34.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22		Nov. 23 to Sept. 30	
0.4	46	0.4	53
.7	132	.7	132
.9	197	1.0	234
		1.5	444

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	59	234	118	138	*87	*72	115	154	145	70	65
2	56	59	220	118	132	82	72	112	148	142	70	65
3	54	59	216	123	126	77	77	*109	148	138	65	60
4	54	56	216	123	*118	77	87	112	145	135	*65	60
5	54	59	202	120	112	75	103	115	145	129	58	58
6	54	70	212	115	103	75	100	115	142	129	58	58
7	54	73	216	115	100	72	98	118	132	126	58	55
8	54	70	212	112	95	82	98	123	135	*120	55	58
9	54	67	209	106	90	98	95	129	135	112	55	58
10	59	70	205	103	87	109	90	135	132	109	53	58
11	59	73	195	98	90	112	87	142	*132	106	53	55
12	59	73	178	93	112	103	85	145	138	106	53	58
13	56	70	167	90	118	100	95	145	138	103	53	60
14	*56	70	*154	98	112	98	95	145	135	106	53	63
15	54	70	145	129	109	95	95	148	148	103	53	*70
16	54	79	138	158	103	98	98	151	161	100	53	72
17	56	79	126	167	106	98	100	158	164	98	53	77
18	73	70	123	164	118	93	103	164	158	98	53	75
19	73	70	148	151	115	87	109	171	154	93	55	72
20	73	70	184	135	115	85	112	181	151	90	60	72
21	67	82	188	129	118	85	115	181	151	87	60	70
22	65	167	181	145	115	82	115	174	148	82	60	67
23	62	385	171	151	109	82	118	171	148	82	60	65
24	62	407	158	145	103	77	118	167	151	80	58	65
25	59	367	148	142	68	77	118	167	151	80	60	65
26	56	333	145	154	53	77	120	174	151	77	60	65
27	56	329	142	181	98	80	123	171	151	77	60	65
28	59	300	148	184	95	82	126	164	151	75	60	63
29	56	268	126	178	-------	82	123	161	145	72	63	58
30	56	245	118	167	-------	80	120	158	145	72	65	55
31	56	-------	*112	151	-------	77	-------	154	-------	70	63	-------
Total	1,816	4,249	5,337	4,163	2,958	2,684	3,067	4,575	4,387	3,142	1,815	1,907
Mean	58.6	142	172	134	106	86.6	102	148	146	101	58.5	63.6
Cfsm	1.50	3.64	4.41	3.44	2.72	2.22	2.62	3.79	3.74	2.59	1.50	1.63
In.	1.73	4.05	5.09	3.97	2.82	2.56	2.92	4.36	4.18	3.00	1.73	1.82
Ac-ft	3,600	8,430	10,590	8,260	5,870	5,320	6,080	9,070	8,700	6,230	3,600	3,780

Calendar year 1953: Max 407 Min 51 Mean 115 Cfsm 2.95 In. 39.94 Ac-ft 83,100
Water year 1953-54: Max 407 Min 53 Mean 110 Cfsm 2.82 In. 38.23 Ac-ft 79,530

* Discharge measurement made on this day.

Deschutes River below Wickiup Reservoir, near Lapine, Oreg.

Location.—Lat 43°41'20", long 121°41'00", in NE¼ sec. 7, T. 22 S., R. 9 E., on left bank 2,000 ft downstream from Wickiup Dam and 9 miles west of Lapine.
Drainage area.—483 sq mi.
Records available.—June 1938 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 4,257.41 ft above mean sea level (levels by Bureau of Reclamation).
Average discharge.—16 years, 730 cfs (528,500 acre-ft per year).
Extremes.—Maximum discharge during year, 1,970 cfs July 18 (gage height, 7.54 ft); minimum, 10 cfs Nov. 1-4 (gage height, 1.00 ft).
1938-54: Maximum discharge, 2,220 cfs Sept. 8, 9, 1951 (gage height, 7.79 ft); minimum, about 10 cfs Oct. 20, 1948, Jan. 17, 1952, Sept. 1, 2, 9, 18, Nov. 1-4, 1953 (when gate was closed for outlet inspection).
Remarks.—Records good. Flow regulated by Crane Prairie Reservoir, and since Dec. 24, 1942, by Wickiup Reservoir (see p. 63).
Revisions (water year).—WSP 1288: 1949(m).

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from debris May 9 to Aug. 29)

1.0	10	2.0	127	5.0	1,020
1.2	25	2.5	232	7.0	1,860
1.5	56	3.0	370	7.5	2,080

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,110	88	122	269	670	487	451	794	1,090	1,930	1,950	1,190
2	1,110	11	122	272	670	487	517	794	1,090	1,920	1,950	1,190
3	1,110	*11	124	263	670	487	574	794	1,100	1,920	1,950	1,190
4	1,110	11	124	293	664	487	655	794	1,130	1,920	1,940	1,190
5	1,110	49	124	329	664	487	844	854	1,170	1,920	*1,930	1,190
6	1,110	124	125	421	664	490	844	*973	1,170	1,920	1,830	1,190
7	1,110	125	125	451	664	490	694	1,110	1,170	*1,920	1,850	1,190
8	1,110	125	129	448	664	493	637	1,140	1,100	1,920	1,850	1,190
9	1,120	270	147	448	571	508	577	1,150	994	1,920	1,840	1,190
10	1,120	502	184	448	496	523	514	1,210	920	1,910	1,820	1,190
11	1,130	535	182	448	487	520	490	1,240	920	1,910	1,780	1,190
12	1,100	538	182	448	484	520	490	1,250	920	1,910	1,770	1,190
13	1,000	538	182	445	484	520	493	1,250	924	1,910	1,770	1,190
14	1,000	538	184	457	484	520	493	1,250	*928	1,900	1,780	1,190
15	1,010	367	184	463	484	529	496	1,250	928	1,900	1,770	1,180
16	840	142	186	529	*484	532	529	1,250	928	1,930	1,710	1,180
17	523	112	186	556	484	556	577	1,250	928	1,930	1,650	1,140
18	526	112	188	562	484	*562	592	1,330	928	1,950	1,650	1,120
19	*460	112	193	562	484	562	*592	1,470	928	1,960	1,650	1,110
20	346	113	193	562	484	448	595	1,460	928	1,960	1,570	1,110
21	364	115	227	562	484	312	595	1,460	1,130	1,950	1,500	1,110
22	364	120	255	562	484	154	601	1,460	1,370	1,950	1,510	1,110
23	288	120	255	574	484	146	670	1,460	1,550	1,950	1,510	1,110
24	263	117	255	574	484	206	794	1,460	1,620	1,960	1,470	*1,110
25	263	117	258	574	484	151	791	1,460	1,680	1,950	1,320	1,070
26	263	117	258	574	484	151	791	1,470	1,680	1,950	1,310	1,050
27	*266	117	261	631	487	151	791	1,470	1,710	1,950	1,310	1,050
28	266	118	263	670	487	151	791	1,470	1,850	1,950	1,310	1,050
29	194	120	263	670	-------	314	791	1,350	1,930	1,950	1,310	1,050
30	143	122	263	670	-------	439	794	1,090	1,930	1,950	1,230	956
31	125	-------	266	670	-------	439	-------	1,100	-------	1,950	1,190	-------
Total	21,854	5,606	6,010	15,405	15,118	12,822	19,063	37,863	36,644	59,920	50,980	34,166
Mean	705	187	194	497	540	414	635	1,221	1,221	1,933	1,645	1,139
Ac-ft	43,350	11,120	11,920	30,560	29,990	25,430	37,810	75,100	72,680	118,800	101,100	67,770

Calendar year 1953: Max 2,080 Min 11 Mean 756 Ac-ft 547,500
Water year 1953-54: Max 1,960 Min 11 Mean 864 Ac-ft 625,600

* Discharge measurement made on this day.

Fall River near Lapine, Oreg.

Location.—Lat 43°47'50", long 121°34'20", in SE¼ sec. 31, T. 20 S., R. 10 E., on left bank 50 ft downstream from spillway from ponds at State fish hatchery and 9 miles northwest of Lapine.

Drainage area.—45.1 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange.

Records available.—May to September 1912 (fragmentary) and June 1938 to September 1954 in reports of Geological Survey. October 1923 to September 1924 and July 1938 to September 1941 in reports of State engineer.

Gage.—Water-stage recorder. Altitude of gage is 4,220 ft (by barometer). May 13 to Sept. 15, 1912, and Oct. 1, 1923, to Sept. 30, 1924, staff gages at two sites within 3½ miles downstream at different datums.

Average discharge.—16 years (1938-54), 149 cfs (107,900 acre-ft per year).

Extremes.—Maximum discharge during year, 236 cfs Apr. 25 (gage height, 1.87 ft); minimum, 180 cfs Jan. 3.

1938-54: Maximum discharge, 250 cfs July 28, 1952 (gage height, 1.94 ft); minimum, 68 cfs Apr. 6, 1942.

Remarks.—Records good. Water diverted above station only to ponds at fish hatcheries, from which water returns to river above station. Momentary extremes are caused by operation of fish hatchery.

Revisions (water years).—WSP 984: 1938-42(M, m).

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.6	185
1.9	242

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	196	193	193	189	185	189	194	229	219	196	210	202
2	196	193	193	189	185	191	196	229	219	196	210	202
3	194	193	193	187	185	191	198	227	221	196	210	202
4	194	193	193	187	185	191	198	*225	221	196	210	202
5	194	*193	193	187	185	193	200	225	223	196	210	202
6	194	193	193	187	185	193	202	223	223	196	210	202
7	194	193	193	187	185	193	202	221	223	196	210	202
8	193	193	193	187	185	193	204	221	225	200	208	202
9	193	193	193	187	185	193	*204	219	225	200	208	202
10	193	193	*193	187	185	194	206	219	*225	204	*210	202
11	193	193	193	187	185	194	210	217	225	204	210	202
12	193	193	193	185	185	194	214	217	225	208	210	202
13	193	193	193	185	185	194	215	215	223	*210	210	202
14	193	193	193	185	185	194	219	214	223	210	208	204
15	193	193	191	185	185	194	221	212	221	210	208	204
16	*193	193	191	185	185	*195	221	212	219	210	208	204
17	194	193	191	185	185	194	225	212	217	210	208	204
18	196	193	191	185	*185	193	227	212	215	210	208	204
19	194	193	193	185	185	193	227	212	214	210	208	204
20	193	193	191	185	185	193	229	212	212	210	206	204
21	193	193	191	185	185	193	231	212	210	210	206	204
22	193	193	189	185	185	193	231	212	208	210	204	202
23	193	193	189	185	185	193	232	212	206	210	204	*200
24	193	193	189	185	185	193	232	214	204	210	204	200
25	193	193	189	185	187	193	234	214	200	210	204	200
26	193	193	189	185	187	193	234	215	200	210	204	200
27	193	193	189	185	187	193	234	215	200	210	202	200
28	193	193	189	185	189	193	232	215	198	210	202	200
29	193	193	189	185	--------	193	232	217	196	212	202	200
30	193	193	*189	185	--------	193	231	217	196	210	202	200
31	193	-------	189	185	--------	194	-------	217	--------	210	202	-------
Total	5,999	5,790	5,931	5,761	5,190	5,983	6,535	6,733	6,436	6,380	6,416	6,060
Mean	194	193	191	186	185	193	218	217	215	206	207	202
Ac-ft	11,900	11,480	11,760	11,430	10,290	11,870	12,960	13,350	12,770	12,650	12,730	12,020

Calendar year 1953: Max 212 Min 180 Mean 194 Ac-ft 140,800
Water year 1953-54: Max 234 Min 185 Mean 201 Ac-ft 145,200

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 13 to Dec. 9, Jan. 19 to Feb. 17; discharge interpolated.

Crescent Creek at Crescent Lake, near Crescent, Oreg.

Location.—Lat 43°30'00", long 121°58'20", in sec. 11, T. 24 S., R. 6 E., on right bank 300 ft downstream from dam at outlet of Crescent Lake and 14 miles west of Crescent.
Drainage area.—60.7 sq mi.
Records available.—January 1911 to July 1915, July 1927 to September 1954.
Gage.—Water-stage recorder and Parshall flume. Datum of gage is 4,826.72 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Jan. 11, 1911, to July 31, 1915, staff gages near present site at different datums. July 19, 1927, to June 1936, water-stage recorder near present site at different datum.
Average discharge.—29 years (1911-14, 1928-54), 51.5 cfs (37,280 acre-ft per year).
Extremes.—Maximum discharge during year, 240 cfs July 23, 24 (gage height, 2.78 ft); minimum, 80 cfs Nov. 20, 21.
1911-15, 1927-54: Maximum discharge, 313 cfs July 9, 1929, Aug. 9, 1936; no flow at times.
Remarks.—Records good. Flow regulated since 1922 by Crescent Lake (see p. 63), storage being released for diversion below station through Deschutes County Municipal Improvement District Canal at Bend. No diversion above station.
Revisions.—WSP 1218: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.4	80	2.0	142
1.7	109	2.8	243

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	97	89	89	91	95	178	154	144	142	211	210	154
2	97	89	90	91	95	177	153	144	142	210	206	165
3	97	89	90	91	95	176	152	144	142	208	203	171
4	97	89	90	91	95	176	152	144	142	208	200	161
5	97	88	91	91	95	175	152	144	141	207	196	154
6	97	88	91	91	94	175	152	144	141	207	193	149
7	96	87	91	91	94	173	151	144	141	207	190	144
8	96	87	92	91	93	172	150	144	141	207	185	140
9	96	87	92	91	93	172	150	144	141	207	182	136
10	95	87	92	91	93	172	150	144	141	206	177	149
11	94	86	93	91	93	171	149	144	*141	206	175	152
12	93	85	93	91	93	171	148	144	141	204	171	144
13	92	84	93	91	93	170	148	144	141	203	166	142
14	91	83	116	91	93	170	148	144	141	202	163	140
15	91	82	151	92	94	169	148	144	151	200	160	138
16	91	82	155	92	94	167	148	144	170	199	155	136
17	91	82	155	92	94	166	146	144	170	199	151	134
18	91	81	154	92	94	165	146	144	170	198	165	133
19	91	81	154	93	95	164	146	144	170	195	170	131
20	91	80	154	93	95	164	146	143	170	194	177	130
21	91	80	153	93	95	163	146	143	170	193	180	129
22	90	82	153	93	133	161	146	144	170	191	173	126
23	90	87	153	94	185	160	146	143	170	213	167	124
24	90	87	153	94	184	159	146	142	170	236	181	123
25	90	87	152	94	182	159	145	142	185	233	191	121
26	90	88	151	94	181	158	145	142	215	229	185	114
27	90	88	151	94	180	157	144	142	213	225	177	108
28	90	88	151	95	178	157	144	142	213	222	171	117
29	89	89	150	95	-------	155	144	142	212	220	166	111
30	89	89	150	95	-------	154	144	142	211	215	160	105
31	89	-------	124	95	-------	154	-------	142	-------	212	158	-------
Total	2,869	2,571	3,873	2,864	3,198	5,160	4,439	4,445	4,908	6,467	5,504	4,081
Mean	92.5	85.7	125	92.4	114	166	148	143	164	209	178	136
Ac-ft	5,690	5,100	7,680	5,680	6,340	10,230	8,800	8,820	9,730	12,830	10,920	8,090

Calendar year 1953: Max 225 Min 27 Mean 122 Ac-ft 88,000
Water year 1953-54: Max 236 Min 80 Mean 138 Ac-ft 99,910

* Discharge measurement made on this day.
Note.—No gage-height record Oct. 10-13, Nov. 24 to Dec. 11, Jan. 13-30, Aug. 19; discharge interpolated.

Little Deschutes River near Lapine, Oreg.

Location.—Lat 43°41'30", long 121°30'10", in SW¼ sec. 2, T. 22 S., R. 10 E., on right bank just downstream from bridge at former town of Rosland, 1¼ miles north of Lapine.
Drainage area.—859 sq mi.
Records available.—September 1910 to October 1913 (incomplete), June to November 1918, August to October 1920, May 1924 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 4,192.81 ft above mean sea level, datum of 1929. Sept. 22, 1910, to Aug. 31, 1911, staff gage at present site at different datum. Mar. 1 to Sept. 28, 1912, staff gage at site 1½ miles downstream at different datum. June 1, 1913, to Oct. 28, 1920, staff gage at present site at different datum. May 15, 1924, to Sept. 28, 1928, staff gage, and Sept. 29, 1928, to Oct. 14, 1931, water-stage recorder, at datum 1.0 ft higher.
Average discharge.—30 years (1924-54), 188 cfs (136,100 acre-ft per year).
Extremes.—Maximum discharge during year, 1,120 cfs Nov. 25 (gage height, 7.08 ft); minimum, 160 cfs Nov. 16 (gage height, 2.88 ft).
1910-13, 1918, 1920, 1924-54: Maximum discharge, 1,320 cfs June 13, 1950 (gage height, 7.25 ft); minimum, 8 cfs Sept. 2, 3, 1931 (gage height, 0.71 ft).
Remarks.—Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions for irrigation of about 13,700 acres above station. Flow regulated since August 1922 by Crescent Lake (see following page).
Revisions (water years).—WSP 1218: 1950(M).

Rating tables, water year 1953-54, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 30 to Apr. 14)

Oct. 1 to Dec. 29				Dec. 30 to Sept. 30			
2.9	162	6.0	635	3.0	172	6.5	755
3.0	173	6.5	755	5.0	439	7.0	1,040
5.0	448	7.0	1,040	6.0	630		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	176	164	522	342	450	374	365	776	516	396	241	225
2	181	165	465	317	400	365	365	755	493	389	245	221
3	181	*168	426	297	380	355	374	735	477	380	255	218
4	178	168	406	284	350	348	415	715	460	366	*258	231
5	176	166	400	280	330	349	460	692	447	362	257	224
6	175	169	385	*290	320	371	512	670	433	370	255	217
7	174	173	361	296	300	386	547	660	426	355	253	212
8	172	171	332	286	*290	421	539	660	433	344	251	207
9	171	170	*337	277	270	493	502	665	447	335	255	203
10	175	168	374	271	250	533	486	672	*460	330	250	198
11	180	170	385	270	250	559	479	680	453	327	248	198
12	177	173	378	259	300	541	465	692	441	324	244	216
13	173	174	352	262	350	503	477	702	442	330	236	207
14	*170	170	339	268	327	452	503	702	449	*338	234	206
15	170	164	316	272	302	447	*569	695	429	320	233	*207
16	169	162	330	260	288	452	668	682	415	327	242	213
17	169	169	344	240	284	447	675	662	418	314	237	216
18	182	171	337	230	286	428	712	648	431	310	230	215
19	206	168	356	220	280	420	758	635	429	300	233	206
20	201	164	392	200	281	409	805	635	420	288	250	202
21	189	163	437	200	301	398	852	638	406	276	250	198
22	180	210	556	250	309	*394	869	650	392	274	251	196
23	175	450	a520	300	310	389	*869	662	365	271	235	192
24	172	607	a480	320	364	394	869	*662	355	267	235	190
25	171	1,000	a450	300	398	388	852	652	351	284	235	187
26	170	809	a425	290	402	382	836	628	352	289	268	184
27	169	735	425	280	388	390	836	599	362	289	272	181
28	168	675	a425	300	380	406	836	587	386	285	268	172
29	169	621	a400	350	-------	401	821	589	395	272	258	175
30	166	579	384	450	-------	388	805	571	396	274	244	174
31	164	-------	371	500	-------	372	-------	541	-------	253	230	-------
Total	5,449	9,216	12,410	8,961	9,140	12,955	19,121	20,512	12,679	9,839	7,653	6,091
Mean	176	307	400	289	326	418	637	662	423	317	247	203
Ac-ft	10,810	18,280	24,610	17,770	18,130	25,700	37,930	40,680	25,150	19,520	15,180	12,080

Calendar year 1953: Max 1,000 Min 125 Mean 364 Ac-ft 263,700
Water year 1953-54: Max 1,000 Min 162 Mean 367 Ac-ft 265,800

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of unpublished records for Big Marsh Creek at Hoey Ranch near Crescent and weather records.
Note.—Stage-discharge relation affected by ice Dec. 27, Jan. 16 to Feb. 13.

Reservoirs in Deschutes River basin above Bend, Oreg.

Crane Prairie Reservoir.—Lat 43°45'20", long 121°46'50", on control structure at dam on Deschutes River in NW¼ sec. 16, T. 21 S., R. 8 E., 15 miles northwest of Lapine. Drainage area, 254 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange. Records available, November 1922 to September 1954. Staff gage read once daily Oct. 1 to Dec. 4, Apr. 30 to Sept. 30, occasional readings Feb. 3 to Apr. 26. Datum of gage is 4,400.0 ft above mean sea level (levels by Bureau of Reclamation). Gage readings have been reduced to elevation above mean sea level. Maximum contents observed during year, 59,640 acre-ft May 17, 18 (elevation, 4,445.84 ft); minimum observed, 31,150 acre-ft Nov. 17 (elevation, 4,439.63 ft). Maximum contents observed during period 1922-54, 60,500 acre-ft June 5-7, 1943 (elevation, 4,446.0 ft); no usable contents at times.

Reservoir is formed by earth dam completed by North Canal Co. in 1922; gates were first closed Nov. 22, 1922; reconstructed as rock-faced earth dam with concrete control works by Bureau of Reclamation in 1939-40. Capacity, 55,340 acre-ft between elevation 4,424 ft (lip of fish screen structure) and 4,445 ft (crest of spillway). Natural flow passing through reservoir when outlet gates are open prevents withdrawal of storage to elevation of sill of gates. Water used for irrigation near Bend and Redmond.

Revisions.—WSP 1218: Drainage area.

Wickiup Reservoir.—Lat 43°41'10", long 121°41'10", in gate chamber structure at dam on Deschutes River in NE¼ sec. 7, T. 22 S., R. 9 E., 9 miles west of Lapine. Drainage area, 482 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange. Records available, December 1942, when storage began, to September 1954. Tape gage read daily. Datum of gage is at mean sea level (levels by Bureau of Reclamation). Maximum contents observed during year, 200,400 acre-ft Apr. 5 (elevation, 4,337.70 ft); minimum observed, 67,010 acre-ft Oct. 5 (elevation, 4,317.03 ft). Maximum contents observed during period 1942-54, that of Apr. 5, 1954; minimum observed since reservoir first filled in March 1949, 523 acre-ft, Oct. 18, 1952 (elevation, 4,270.86 ft).

Reservoir is formed by rock-faced earth-fill dam completed by Bureau of Reclamation August 1949. Capacity, 182,100 acre-ft between elevations 4,265.0 ft (no storage) to 4,336.0 ft (crest of spillway, with earth soft plug to elevation 4,339.0 ft). Natural flow passing through reservoir when outlet gates are open prevents withdrawal of storage below elevation 4,265.0 ft. Sill of trash-rack structure, elevation 4,259.75 ft. Water is diverted from Deschutes River at Bend and is used for irrigation of lands near Madras. Daily elevations and capacity table furnished by Bureau of Reclamation.

Crescent Lake.—Lat 43°30'00", long 121°58'20", in sec. 11, T. 24 S., R. 6 E., at center of fish screen 250 ft south of dam and 14 miles west of Crescent. Drainage area, 60.7 sq mi, hydrologic drainage boundary uncertain owing to ground-water exchange. Records available, August 1922 to September 1954. Staff gage read about once each week; also staff gage at head of spillway of dam used occasionally. Datum of gage is 4,826.0 ft above mean sea level (levels by Deschutes County Municipal Improvement District); gage readings have been reduced to elevations above mean sea level. Maximum contents observed during year, 45,710 acre-ft Feb. 9 (elevation, 4,838.6 ft); minimum observed, 22,700 acre-ft Sept. 26, 30 (elevation, 4,832.4 ft). Maximum contents observed during period 1922-54, 72,460 acre-ft July 15, 1923 (elevation, 4,845.55 ft); minimum observed, 9,640 acre-ft Oct. 21 1931 (elevation 4,828.75 ft).

Reservoir is formed by dam of earth and logs, completed and storage begun in 1922. Capacity, 86,050 acre-ft between elevations 4,826 ft (sill of outlet gate), and 4,849 ft (crest of spillway). Dead storage is not known; records given herein represent usable contents. Water is diverted from Deschutes River at Bend and used by Deschutes County Municipal Improvement District for irrigation near Tumalo.

Revisions (water years).—WSP 739: 1923 (maximum contents). WSP 1218: Drainage area.

Monthly elevation and contents, water year October 1953 to September 1954

Date	Crane Prairie Reservoir			Wickiup Reservoir			Crescent Lake		
	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30..	4,443.58	48,480	-	4,317.73	69,080	-	-	a37,200	-
Oct. 31..	4,441.68	39,830	-8,650	4,324.82	95,660	+26,580	4,836.1	36,320	-880
Nov. 30..	4,441.00	36,870	-2,960	4,331.71	141,600	+45,940	4,837.60	41,920	+5,600
Dec. 31..	-	42,810	+5,940	4,335.17	173,600	+32,000	4,837.72	42,380	+460
Calendar year 1953.	-	-	+12,110	-	-	+48,400	-	-	-2,520
Jan. 31..	-	a47,300	+4,490	4,336.87	191,300	+17,700	-	a45,200	+2,820
Feb. 28..	-	a51,570	+4,270	4,336.90	191,600	+300	-	a44,050	-1,150
Mar. 31..		a56,290	+4,720	4,337.65	199,800	+8,200		a38,860	-5,190
Apr. 30..	4,445.76	59,220	+2,930	4,337.55	198,700	-1,100	4,836.30	37,060	-1,800
May 31..	4,445.68	58,800	-420	4,335.18	173,700	-25,000	4,836.16	36,540	-520
June 30..	4,445.40	57,350	-1,450	4,333.45	157,000	-16,700	-	a38,200	+1,660
July 31..	4,443.88	49,900	-7,450	4,326.65	105,600	-51,400	4,835.30	33,330	-4,870
Aug. 31..	4,443.08	46,150	-3,750	4,320.85	79,020	-26,580	4,833.50	26,690	-6,640
Sept. 30..	4,440.00	32,660	-13,490	4,323.38	88,700	+9,680	4,832.40	22,700	-3,990
Water year 1953-54...	-	-	-15,820	-	-	+19,620	-	-	-14,500

†Time of day variable. a No gage-height record; contents interpolated.

Deschutes River at Benham Falls, near Bend, Oreg.

Location.—Lat 43°56'20", long 121°24'40", in SE¼ sec. 9, T. 19 S., R. 11 E., on left bank 150 ft upstream from head of Benham Falls, 1½ miles downstream from dam site for proposed Benham Falls Reservoir, 10 miles southwest of Bend, and at mile 181.1.

Drainage area. — 1,759 sq mi.

Records available. — July 1906 to September 1914, August 1920 to September 1921, February 1924 to September 1954. Published as "at West's Ranch near Lava" July 1906 to February 1909 and April to September 1914. Published as "at Benham Falls near Bend" January 1905 to June 1906 and October 1913 to September 1914, but record is a sum of flow for stations at Bend and intervening canals; records not equivalent owing to losses between Benham Falls and Bend, which are now known to exist.

Gage.— Water-stage recorder. Altitude of gage is about 4,140 ft (from river-profile map). July 21, 1906, to Feb. 20, 1909, and Apr. 2 to Sept. 30, 1914, staff gage at site 7 miles upstream at various datums. Feb. 21, 1909, to Feb. 10, 1924, staff gages at two different sites within 600 ft upstream at various datums. Feb. 11, 1924, to Nov. 12, 1947, water-stage recorder at present site at datum 1.00 ft higher.

Average discharge. — 37 years (1906-13, 1924-54), 1,364 cfs (987,500 acre-ft per year).

Extremes. — Maximum discharge during year, 2,970 cfs July 2, 3 (gage height, 4.90 ft); minimum, 794 cfs Nov. 4, 5 (gage height, 1.21 ft).

1906-14, 1920-21, 1924-54: Maximum discharge, 5,000 cfs (estimated) Nov. 27, 1909 (gage height not determined); minimum, 448 cfs sometime during period Jan. 11 to Feb. 3, 1950 (from recorded range in stage); minimum daily, 480 cfs Feb. 12, 1948.

Remarks. — Records good. Small diversions above station for irrigation. Flow regulated since 1922 by Crane Prairie Reservoir and Crescent Lake, and since December, 1942, by Wickiup Reservoir (see preceding page).

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.2	790	4.0	2,310
2.0	1,140	4.9	2,970
3.0	1,660		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,040	922	1,390	1,260	1,550	1,520	1,480	2,300	2,300	2,960	2,760	2,100
2	1,890	894	1,350	1,240	1,570	1,500	1,480	2,280	2,270	2,970	2,750	2,080
3	1,860	818	1,320	1,220	1,600	1,500	1,540	2,250	2,250	2,960	2,750	2,060
4	1,850	798	1,300	1,200	1,620	1,480	1,640	2,230	2,230	2,960	2,760	2,050
5	1,850	*798	1,250	1,210	1,620	1,480	1,760	2,200	2,230	2,950	2,760	2,020
6	1,850	810	1,220	1,240	1,590	1,500	1,940	*2,220	2,260	2,940	*2,760	2,000
7	1,850	910	1,220	1,320	1,580	1,520	1,940	2,290	2,260	*2,920	2,710	2,000
8	1,840	926	1,190	1,360	1,560	1,570	1,860	2,390	2,260	2,920	2,680	2,000
9	1,840	926	1,200	1,350	1,560	1,650	1,840	2,430	2,240	2,910	2,680	2,000
10	1,850	1,040	1,200	1,340	1,520	1,700	1,790	2,440	2,130	2,910	2,680	2,000
11	1,850	1,280	1,240	1,330	1,410	1,700	1,710	2,460	2,030	2,880	2,670	2,000
12	1,850	1,320	1,240	1,320	1,420	1,700	1,680	2,470	2,040	2,870	2,650	2,000
13	1,830	1,320	1,260	1,290	1,440	1,700	*1,670	2,470	2,060	2,870	2,630	2,000
14	1,750	1,320	1,240	1,320	1,440	1,690	1,660	2,480	2,030	2,860	2,630	2,000
15	1,740	1,320	*1,220	1,340	1,460	1,670	1,650	2,490	2,020	2,860	2,640	2,000
16	1,740	1,170	1,200	1,280	1,460	1,650	1,670	2,490	2,020	2,860	2,640	2,000
17	1,610	962	1,180	1,320	1,440	1,640	1,730	2,490	2,010	2,850	2,610	2,000
18	1,360	918	1,200	1,340	1,440	1,650	1,830	2,480	2,000	2,840	2,530	2,000
19	1,340	922	1,230	1,360	1,420	1,650	1,890	2,480	1,990	2,830	2,530	1,970
20	1,280	926	1,260	1,360	1,420	1,640	1,930	2,610	2,000	2,830	2,530	1,940
21	1,180	926	1,250	1,400	1,430	1,520	2,000	2,620	2,000	2,830	2,490	1,920
22	1,180	1,000	1,280	1,420	1,440	1,410	2,060	2,620	2,160	2,810	2,420	*1,920
23	1,170	1,240	1,280	1,430	1,450	1,270	2,110	2,620	*2,330	2,800	2,420	1,910
24	1,100	1,240	1,330	1,430	1,460	1,220	2,190	2,640	2,480	2,790	2,420	1,910
25	1,060	1,240	1,360	1,430	1,500	1,290	2,320	2,650	2,560	2,790	2,400	1,910
26	1,060	1,380	1,360	1,440	1,530	1,240	2,320	2,650	2,620	2,790	2,350	1,890
27	1,050	1,610	1,320	1,440	1,540	1,240	2,320	2,650	2,650	2,790	2,250	1,870
28	1,050	1,530	1,300	1,450	1,530	1,240	2,320	2,650	2,670	2,780	2,200	1,860
29	1,050	1,470	1,270	1,480	-------	1,240	2,300	2,640	2,760	2,780	2,200	1,850
30	986	1,420	1,260	1,500	-------	1,380	2,300	2,580	2,910	2,770	2,200	1,850
31	938	-------	1,260	1,520	-------	1,480	-------	2,340	-------	2,770	2,180	-------
Total	46,894	33,356	39,180	41,940	42,000	46,640	56,930	76,610	67,770	88,650	78,880	59,110
Mean	1,513	1,112	1,264	1,353	1,500	1,505	1,898	2,471	2,259	2,860	2,545	1,970
Ac-ft	93,010	66,160	77,710	83,190	83,310	92,510	112,900	152,000	134,400	175,800	156,500	117,200

Calendar year 1953: Max *2,910 Min 711 Mean 1,701 Ac-ft 1,231,000
Water year 1953-54: Max 2,970 Min 798 Mean 1,857 Ac-ft 1,345,000

* Discharge measurement made on this day.

Note.--No gage-height record Jan. 25 to Feb. 1, Aug. 26 to Sept. 19; discharge estimated on basis of records for station below Lava Island adjusted for flow in Arnold Canal.

Deschutes River below Lava Island, near Bend, Oreg.

Location.—Lat 44°00'00", long 121°22'30", in SW¼ sec. 23, T. 18 S., R. 11 E., on right bank three-quarters of a mile downstream from Lava Island, 1½ miles downstream from intake of Arnold Canal, 5 miles southwest of Bend, and at mile 173.0.

Drainage area.—1,829 sq mi.

Records available.—March 1926 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 3,825 ft (by barometer). Prior to May 4, 1927, at site a quarter of a mile upstream at different datum. May 4, 1927, to Nov. 11, 1947, at present site at datum 1.00 ft higher.

Average discharge.—28 years, 1,163 cfs (842,000 acre-ft per year).

Extremes.—Maximum discharge during year, 2,650 cfs July 2, 3, 4 (gage height, 3.56 ft); minimum, 676 cfs Nov. 4, 5 (gage height, 1.31 ft).

1926-54: Maximum discharge, 2,780 cfs June 28, 29, 30, 1952 (gage height, 3.64 ft); minimum, 416 cfs Jan. 18, 1950 (gage height, 0.79 ft).

Remarks.—Records good except those for periods of no gage-height record, which are fair. Arnold Canal diverts water above station for irrigation (see p. 66). Flow regulated by Crescent Lake and Crane Prairie and Wickiup Reservoirs (see p. 63).

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from trees July 27 to Aug. 26)

1.3	670
2.0	1,190
3.0	2,120
3.6	2,740

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,860	794	*1,280	1,200	1,500	1,420	1,380	2,080	2,150	2,640	2,450	1,850
2	1,730	780	1,240	1,200	1,530	1,410	1,380	2,070	2,110	2,650	*2,440	1,810
3	1,680	690	1,220	1,180	1,550	1,400	1,420	*2,040	2,090	2,650	2,430	1,800
4	1,680	676	1,180	1,150	1,550	1,380	1,500	2,010	2,060	2,650	2,430	1,790
5	1,680	683	1,140	1,160	1,540	1,390	1,600	1,970	2,050	2,630	2,440	1,790
6	1,680	709	1,120	1,180	1,520	1,420	1,720	1,980	2,070	2,620	2,440	1,790
7	1,680	780	1,110	1,210	1,500	1,440	1,790	2,020	2,070	2,610	2,410	1,790
8	1,680	787	1,090	1,250	1,500	1,480	1,730	2,150	2,070	*2,610	2,370	1,780
9	1,680	794	1,090	1,230	1,480	1,550	1,700	2,180	2,080	2,600	2,370	1,780
10	1,690	972	1,100	1,250	1,390	1,600	1,670	2,210	1,990	2,590	2,370	1,780
11	1,690	1,150	1,150	1,260	1,320	1,610	1,600	2,230	1,870	2,580	2,370	1,780
12	1,690	1,190	1,150	1,250	1,330	1,610	1,550	2,280	1,870	2,550	2,340	1,780
13	1,680	1,210	1,170	*1,220	1,350	1,610	1,550	2,300	1,880	2,550	2,320	1,780
14	1,610	1,220	1,160	1,250	1,370	1,600	1,530	2,310	1,850	2,550	2,320	1,780
15	1,600	1,220	1,120	1,290	1,400	1,590	1,530	2,320	1,850	2,540	2,320	1,800
16	1,600	1,050	1,090	1,240	1,410	1,560	1,560	2,320	1,840	2,540	2,340	1,800
17	1,510	860	1,080	1,250	1,390	1,560	1,590	2,320	1,830	2,530	2,330	1,800
18	1,240	840	1,080	1,280	1,380	1,570	1,680	2,310	1,810	2,530	2,270	1,800
19	1,200	840	1,120	1,300	1,350	1,570	1,720	2,300	1,820	2,520	2,240	1,770
20	1,150	840	1,160	1,310	1,350	1,560	1,750	2,390	1,800	2,520	2,240	1,750
21	1,060	840	1,160	1,330	1,370	1,480	1,800	2,440	*1,800	2,520	2,230	1,730
22	1,050	860	1,210	1,370	1,380	1,340	1,850	2,440	1,840	2,500	2,160	1,720
23	1,040	1,100	1,230	1,380	1,390	1,230	1,870	2,440	2,020	2,490	2,130	1,720
24	980	1,100	1,250	1,390	1,390	1,090	1,920	2,450	2,180	2,480	2,130	1,710
25	*919	1,110	1,280	1,370	1,420	*1,220	2,070	2,460	2,290	2,480	2,130	1,710
26	919	1,270	1,280	1,400	1,470	1,150	2,100	2,470	2,350	2,470	2,060	1,700
27	912	1,530	1,260	1,400	1,480	1,150	2,100	2,470	2,390	2,460	1,990	1,680
28	912	1,460	1,250	1,400	1,460	1,150	2,100	2,470	2,390	2,470	1,980	1,680
29	912	1,380	1,240	1,430	-------	1,160	2,090	2,460	2,450	2,470	1,980	1,680
30	870	1,320	1,220	1,460	-------	1,270	2,090	2,440	2,560	2,470	1,980	1,670
31	814	-------	1,200	1,480	-------	1,400	-------	2,240	-------	2,460	1,940	-------
Total	42,398	30,055	36,430	40,070	40,070	43,970	51,940	70,570	61,430	78,930	69,950	52,800
Mean	1,368	1,002	1,175	1,293	1,431	1,418	1,731	2,276	2,048	2,546	2,256	1,760
Ac-ft	84,100	59,610	72,260	79,480	79,480	87,210	103,000	140,000	121,800	156,600	138,700	104,700

Calendar year 1953: Max 2,650 Min 610 Mean 1,557 Ac-ft 1,127,000
Water year 1953-54: Max 2,650 Min 676 Mean 1,695 Ac-ft 1,227,000

* Discharge measurement made on this day.

Note.—No gage-height record Nov. 14-30, Dec. 25 to Jan. 12, Sept. 16-19; discharge estimated on basis of records for station at Benham Falls adjusted for flow in Arnold Canal.

Diversions from Deschutes River near Bend, Oreg.

The following six canals, which are equipped with water-stage recorders, are the only diversions from Deschutes River between gaging stations at Benham Falls and below Bend.

Arnold Canal diverts 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.

Central Oregon Canal diverts from right bank in NE¼ sec. 13, T. 18 S., R. 11 E.; water used for irrigation east of Bend. (Beginning Oct. 1, 1932, record obtained upstream from intake of Pilot Butte Canal.)

Deschutes County Municipal Improvement District Canal diverts from left bank in NE¼ sec. 32, T. 17 S., R. 12 E., at Bend; water used to supplement flow of Tumalo project feed canal for irrigation near Tumalo; water stored at Crescent Lake is diverted by this canal.

North Unit Main Canal diverts water from right bank in NE¼ sec. 29, T. 17 S., R. 12 E.; water used for irrigation near Madras.

North and Swalley Canals divert from right bank in NE¼ sec. 29, T. 17 S., R. 12 E.; water used for irrigation north of Bend, mostly near Redmond.

Records of monthly discharge of these canals, published as a group, are available from October 1926 to September 1954; records for each canal published separately prior to 1926.

Diversions, in acre-feet, water year October 1953 to September 1954

Month	Arnold Canal	Central Oregon Canal	Deschutes County Municipal Improvement District Canal	North Unit Main Canal	North Canal	Swalley Canal	Total
October	4,860	22,060	4,640	11,640	19,410	5,180	67,790
November	2,930	1,990	0	0	946	470	6,340
December	1,630	1,550	0	0	2,470	238	5,890
January	347	2,280	0	0	2,290	426	5,340
February	458	1,250	0	0	639	666	3,010
March	420	841	0	0	1,130	367	2,760
April	3,480	21,240	0	24,260	20,570	3,920	73,470
May	6,010	33,600	2,780	48,420	30,980	7,110	128,900
June	5,560	29,420	3,150	34,130	27,100	6,630	106,000
July	7,090	36,110	5,800	63,960	33,160	7,770	153,900
August	6,800	34,310	9,420	43,070	32,080	7,680	133,400
September	5,690	26,470	7,470	24,490	23,960	6,430	94,510
Water year 1953-54	45,280	211,100	33,260	250,000	194,700	46,890	781,200

Deschutes River below Bend, Oreg.

Location.—Lat 44°05'00", long 121°18'20", in SE¼ sec. 20, T. 17 S., R. 12 E., on right bank half a mile downstream from North Canal Dam, half a mile north of Bend city limits, and at mile 164.4.

Drainage area.—1,899 sq mi.

Records available.—October 1914 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 3,503.96 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1931, at site 200 ft downstream at datum 1.00 ft higher.

Average discharge.—40 years, 600 cfs (434,400 acre-ft per year).

Extremes.—Maximum discharge during year, 1,660 cfs Mar. 10 (gage height, 3.70 ft); minimum, 41 cfs June 28.

1914-54: Maximum discharge, 2,500 cfs Dec. 7, 1921 (gage height, 3.9 ft, present datum); maximum gage height recorded, 4.46 ft Jan. 26, 1930, present datum (backwater from ice); minimum discharge, 1 cfs Aug. 25, 1930.

Maximum discharge known near this site since 1905, 4,820 cfs Nov. 27, 1909.

Remarks.—Records good. Six large canals divert water above station for irrigation (see preceding page). Flow regulated by hydroelectric plant at Bend, since 1922 by Crescent Lake and Crane Prairie Reservoir, and since December 1942 by Wickiup Reservoir (see p. 63).

Rating table, water year 1953-54 (gage height, in feet and discharge, in cubic feet per second)
(Backwater from moss Oct. 1 to Jan. 24)

1.2	42	2.0	310
1.4	78	3.0	990
1.7	165	3.7	1,660

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	522	725	958	1,200	1,450	1,010	1,210	436	*496	250	108	206
2	454	718	1,030	1,170	1,480	1,010	1,010	406	460	334	102	134
3	400	662	1,190	1,160	1,530	1,090	739	352	424	394	116	110
4	400	662	1,150	1,150	1,520	1,420	634	275	394	394	148	92
5	406	662	1,120	1,130	1,510	1,410	690	*183	418	352	192	88
6	388	669	1,100	1,180	1,500	1,450	805	130	472	280	196	88
7	358	812	1,090	1,180	1,480	1,460	888	*76	466	265	192	85
8	305	835	1,050	1,200	1,500	1,510	798	105	472	260	140	76
9	290	828	1,060	1,210	1,480	1,580	753	102	648	275	130	95
10	300	865	1,060	1,220	1,410	1,640	662	116	704	328	130	113
11	300	1,120	1,120	1,270	1,320	1,640	600	102	641	310	130	116
12	364	1,210	1,120	1,250	1,340	1,640	542	140	655	295	124	127
13	490	1,230	1,120	1,230	1,350	1,640	472	158	662	255	144	134
14	370	1,230	1,120	1,240	1,360	1,640	418	210	655	210	196	170
15	280	1,240	1,110	1,310	1,390	1,630	364	250	648	192	215	235
16	280	1,130	1,100	1,250	1,400	1,590	*300	250	648	188	265	370
17	370	1,090	1,040	1,240	1,380	1,590	300	196	600	158	300	536
18	388	798	1,030	1,250	1,370	1,590	340	127	472	144	270	542
19	358	805	918	1,250	*1,330	*1,580	388	83	382	122	290	529
20	346	798	704	1,250	1,320	1,550	382	124	316	113	*400	522
21	300	812	662	1,250	1,340	1,500	424	148	146	108	424	542
22	*352	895	704	1,200	1,360	1,340	394	137	*72	90	394	574
23	334	1,080	820	1,010	*1,370	1,260	346	140	85	95	364	568
24	322	1,090	1,120	998	1,350	1,100	370	158	74	119	382	568
25	255	1,050	1,270	1,390	1,370	1,240	454	245	80	113	400	536
26	250	966	1,290	1,420	1,400	1,180	430	358	66	100	412	490
27	255	1,230	1,250	1,340	1,160	1,170	364	460	55	92	376	442
28	250	1,090	1,230	1,030	1,030	1,160	412	503	42	90	370	412
29	245	958	*1,200	1,060	-------	1,170	418	568	66	90	382	376
30	220	888	1,180	1,070	-------	1,260	424	648	158	95	370	376
31	154	-------	1,190	1,300	-------	1,420	-------	548	-------	105	322	-------
Total	10,306	28,148	33,106	37,408	38,800	43,470	16,331	7,734	11,477	6,216	7,984	9,252
Mean	332	938	1,068	1,207	1,386	1,402	544	249	383	201	258	308
Ac-ft	20,440	55,830	65,660	74,200	76,960	86,220	32,390	15,340	22,760	12,330	15,840	18,350

Calendar year 1953: Max 1,290 Min 27 Mean 584 Ac-ft 422,800
Water year 1953-54: Max 1,640 Min 42 Mean 686 Ac-ft 496,300

* Discharge measurement made on this day.

Tumalo Creek near Bend, Oreg.

Location.—Lat 44°05'20", long 121°22'20", in SE¼ sec. 23, T. 17 S., R. 11 E., on left bank a quarter of a mile upstream from diversion dam of feed canal of Tumalo project, 4 miles upstream from mouth, and 4 miles northwest of Bend.

Drainage area.—47.3 sq mi.

Records available.—October 1906 to December 1908, October 1910 to April 1913 (winters only), November 1913 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 3,566.82 ft (corrected) above mean sea level, datum of 1929. Prior to November 1910, staff gage at site half a mile upstream at different datum. November 1910 to Apr. 26, 1915, staff gage, and Apr. 27, 1915, to Sept. 30, 1918, staff gage or water-stage recorder, at present site and datum.

Average discharge.—36 years (1913-14, 1916-21, 1923-35, 1936-54), 102 cfs (73,840 acre-ft per year).

Extremes.—Maximum discharge during year, 430 cfs June 15; minimum daily, 70 cfs Jan. 20, 21, 25. 1906-8, 1911-54: Maximum discharge, 1,420 cfs about Jan. 6, 1923 (no flow in canal), from rating curve extended above 200 cfs; minimum daily, 25 cfs Jan. 3, 1924.

Remarks.—Records good except those for periods of ice effect or no gage-height record, which are poor. All records presented herein include flow in Columbia Southern Canal, which diverts 8 miles above station for irrigation of lands near Tumalo. No flow in Columbia Southern Canal Oct. 22 to May 6. Crater Creek Canal diverts flow of tributaries of Soda Creek into head of Tumalo Creek.

Revisions (water years).—WSP 864: 1937. WSP 1218: Drainage area.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	77	111	98	77	81	77	164	163	247	109	93
2	80	77	107	97	*77	81	76	157	166	229	*112	91
3	80	77	107	96	77	81	79	159	*194	222	106	90
4	77	77	102	95	79	82	82	186	202	243	100	88
5	77	77	100	96	77	79	89	196	176	273	100	86
6	77	77	98	*95	77	79	84	196	170	242	104	83
7	77	75	100	95	77	79	82	214	167	231	106	*84
8	77	77	*98	91	76	96	84	232	192	231	105	84
9	79	*75	111	89	77	132	*84	252	188	*242	108	85
10	85	78	104	89	79	121	81	242	191	279	106	87
11	82	85	100	89	77	*112	84	253	196	255	104	92
12	80	81	98	89	89	110	87	*221	252	251	103	99
13	*78	80	98	86	85	108	123	218	244	236	100	90
14	71	80	95	88	82	102	127	229	223	233	104	98
15	77	80	95	88	81	102	123	253	359	225	104	104
16	78	91	91	91	79	102	134	280	312	197	99	103
17	80	86	93	89	79	100	155	305	226	187	97	98
18	93	80	91	98	81	98	171	334	211	178	94	93
19	84	81	156	85	82	96	178	358	211	189	107	88
20	82	80	188	70	81	95	173	332	289	169	111	85
21	79	85	152	70	85	95	178	293	302	136	106	86
22	77	155	132	72	84	93	188	273	301	125	104	86
23	77	231	124	73	82	91	201	273	320	126	101	85
24	78	162	115	76	82	91	201	284	299	126	97	84
25	77	150	115	70	84	87	203	255	288	127	99	86
26	75	139	111	75	82	84	203	211	305	120	97	84
27	78	183	109	80	81	84	201	193	289	116	93	84
28	77	150	105	84	82	84	196	173	*236	109	92	84
29	77	132	102	82	-------	82	186	177	225	104	89	83
30	78	118	102	79	-------	81	176	167	248	99	94	83
31	77	-------	100	79	-------	79	-------	176	-------	107	94	-------
Total	2,444	3,096	3,410	2,654	2,251	2,887	4,106	7,256	7,145	5,854	3,145	2,666
Mean	78.8	103	110	85.6	80.4	93.1	137	234	238	189	101	88.9
Ac-ft	4,850	6,140	6,760	5,260	4,460	5,730	8,140	14,390	14,170	11,610	6,240	5,290

Calendar year 1953: Max 408 Min 70 Mean 133 Ac-ft 96,390
Water year 1953-54: Max 359 Min 70 Mean 129 Ac-ft 93,040

* Discharge measurement made on this day.

Note.—No gage-height record on river station Oct. 1-5, Jan. 1, 2; discharge estimated on basis of records for Squaw Creek near Sisters, and unpublished records for Tumalo feed canal. Stage-discharge relation affected by ice Jan. 12, 13, 19-23, 25-27, Mar. 3.

Squaw Creek near Sisters, Oreg.

Location.—Lat 44°13'50", long 121°34'20", in NW¼ sec. 32, T. 15 S., R. 10 E., on right bank 600 ft upstream from intake of McCallister ditch and 4 miles south of Sisters.
Drainage area.—54.8 sq mi.
Records available.—July 1906 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 3,490 ft (by barometer). July 1, 1906, to May 29, 1913, staff gage at site 800 ft downstream at different datum, below intake, but including flow of McAllister ditch. May 30, 1913, to Sept. 2, 1915, staff gage, and Mar. 24, 1916, to Oct. 5, 1928, water-stage recorder, at site 100 ft downstream at different datum.
Average discharge.—42 years (1906-18, 1919-20, 1925-54), 105 cfs (76,020 acre-ft per year).
Extremes.—Maximum discharge during year, 946 cfs Nov. 23 (gage height, 3.36 ft); minimum, 49 cfs sometime during period Nov. 3-9.
1906-54: Maximum gage height, about 8.75 ft (over top of gage) Nov. 22, 1909, site and datum then in use (discharge not determined); maximum discharge recorded since that time, 1,130 cfs Dec. 2, 1941 (gage height, 3.33 ft); minimum, 19 cfs Dec. 6, 1922.
Remarks.—Records fair except those for periods of shifting control, ice effect, or no gage-height record, which are poor. A canal near mouth of Pole Creek, a tributary above station, diverts entire flow of that creek for irrigation of lands near Sisters.
Revisions.—WSP 1218: Drainage area.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a70	55	119	98	71	66	64	102	188	261	172	120
2	a70	55	119	96	69	67	66	100	185	249	175	120
3	a70	57	115	92	69	b65	69	113	195	246	168	120
4	a70	a55	a110	92	69	b65	74	140	202	261	158	116
5	a70	a55	a110	98	67	64	74	145	190	299	155	109
6	a70	a55	a105	94	66	64	69	145	185	292	150	107
7	a70	a55	a105	90	66	64	67	165	185	288	152	109
8	67	a55	*106	*86	66	102	67	188	198	276	152	107
9	64	*57	124	83	*66	126	66	196	202	*285	152	104
10	69	62	111	81	64	111	66	193	198	316	148	a105
11	76	71	104	81	66	102	66	196	202	302	142	a105
12	67	69	100	81	75	98	*71	*193	234	299	142	a110
13	*69	64	96	b80	72	96	126	190	231	296	140	a110
14	67	62	92	77	69	88	111	202	220	296	140	a110
15	62	62	90	77	67	*88	102	217	334	296	132	a110
16	57	81	86	81	66	86	104	256	*276	270	128	107
17	55	71	83	83	66	83	122	271	225	264	123	102
18	76	62	83	83	64	83	133	304	212	258	125	95
19	64	64	270	b75	64	81	128	341	212	267	135	93
20	59	59	284	b65	69	77	124	338	264	237	138	91
21	59	67	190	b70	72	75	124	306	264	205	130	89
22	59	395	162	b72	66	74	126	276	279	190	128	87
23	57	586	152	b75	66	74	126	276	310	188	128	87
24	55	241	133	b75	66	72	126	288	296	190	123	84
25	55	188	133	b70	67	71	126	261	279	190	120	87
26	55	168	124	b75	66	69	124	234	306	188	116	87
27	55	214	117	b80	66	71	124	210	302	182	114	84
28	53	152	111	b85	66	69	119	200	261	*180	114	84
29	53	140	106	81	--------	69	113	198	252	178	116	82
30	55	131	109	77	--------	69	109	188	270	172	118	78
31	53	--------	102	74	--------	67	--------	192	--------	170	120	--------
Total	1,951	3,508	3,851	2,527	1,886	2,456	2,986	6,624	7,157	7,591	4,254	2,999
Mean	62.9	117	124	81.5	67.4	79.2	99.5	214	239	245	137	100
Ac-ft	3,870	6,960	7,640	5,010	3,740	4,870	5,920	13,140	14,200	15,060	8,440	5,950

Calendar year 1953: Max 586 Min 42 Mean 128 Ac-ft 92,590
Water year 1953-54: Max 586 Min 53 Mean 131 Ac-ft 94,800

Peak discharge (base, 300 cfs).—Nov. 23 (2 a. m.) 946 cfs (3.36 ft); Dec. 19 (9:30 p. m.) 432 cfs (2.83 ft); May 18 (10 p. m.) 374 cfs (2.47 ft); June 15 (1 p. m.) 418 cfs (2.57 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage and records for Tumalo Creek near Bend and Lake Creek near Sisters.
b Stage-discharge relation affected by ice.
Note.—Shifting-control method used May 8-18.

Deschutes River near Culver, Oreg.

Location.—Lat 44°32'30", long 121°17'10", in SW¼ sec. 10, T. 12 S., R. 12 E., on right bank 0.7 mile downstream from bridge on Cove-Grandview road, 2⅔ miles above Crooked River, 4 miles northwest of Culver, and at mile 116.5.

Drainage area.—2,723 sq mi.

Records available.—July 1952 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 1,755 ft above mean sea level (river-profile survey).

Extremes.—Maximum discharge during year, 2,330 cfs Nov. 23 (gage height, 4.37 ft); minimum, 514 cfs June 30 (gage height, 1.35 ft).

1952-54: Maximum discharge, that of Nov. 23, 1953; minimum, 482 cfs July 31, 1952 (gage height, 1.23 ft).

Remarks.—Records excellent. Slight regulation by Crescent Lake and Crane Prairie and Wickiup Reservoirs. Many diversions for irrigation above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.3	500
2.0	745
3.0	1,320
4.3	2,270

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	872	781	1,450	1,800	1,990	1,500	1,900	854	938	638	547	715
2	902	1,170	1,550	1,800	1,990	1,490	1,600	848	902	745	547	624
3	794	1,150	1,630	1,750	2,020	1,490	1,490	800	854	806	544	582
4	767	1,100	1,740	1,720	2,030	1,750	1,190	*740	830	848	552	555
5	778	1,070	1,790	1,700	2,040	1,930	1,220	687	800	872	576	549
6	778	1,080	1,780	1,730	2,030	1,960	1,290	638	824	860	613	535
7	750	1,100	1,720	*1,750	1,990	2,000	1,440	616	872	756	610	541
8	730	1,270	1,720	1,730	2,010	2,040	1,400	579	848	710	599	538
9	691	1,300	1,740	1,780	2,010	2,200	1,330	602	968	695	573	530
10	*687	1,300	1,780	1,780	1,990	2,250	1,250	613	1,130	794	564	535
11	695	1,450	1,740	1,830	*1,870	2,250	1,190	624	1,120	896	561	561
12	695	1,660	1,720	1,830	1,880	2,250	1,120	616	1,140	850	558	567
13	824	1,680	1,790	1,830	1,970	2,240	1,030	620	1,230	794	558	579
14	908	1,690	1,780	1,760	1,950	2,230	992	638	1,190	720	585	588
15	740	1,700	1,740	1,790	1,970	2,220	878	687	1,220	700	638	*624
16	691	1,710	1,660	1,830	1,990	2,200	784	745	*1,450	655	644	687
17	695	1,480	1,600	1,810	1,980	2,190	745	800	1,260	634	687	860
18	842	1,320	1,510	1,850	1,950	2,170	750	767	1,120	602	700	968
19	812	*1,290	1,630	1,840	1,940	2,190	830	800	932	592	679	968
20	789	1,290	1,760	1,830	1,930	2,140	830	762	950	576	745	956
21	750	1,320	1,440	1,860	1,950	2,110	830	745	968	564	824	956
22	740	1,480	1,370	1,940	1,950	1,970	860	695	720	552	836	998
23	745	2,120	1,430	1,700	1,950	1,810	836	671	710	535	778	1,000
24	750	2,000	1,590	1,550	1,930	1,670	789	683	667	533	778	998
25	735	1,850	1,930	1,710	1,890	*1,640	818	715	630	552	794	992
26	687	1,710	1,950	1,950	1,930	1,700	884	750	627	552	842	938
27	675	1,790	1,930	2,050	1,890	1,710	836	848	627	544	824	890
28	683	1,970	1,890	1,820	1,510	1,720	800	890	599	535	789	848
29	679	1,640	1,850	1,740	--------	1,720	830	932	541	*530	789	812
30	671	1,550	1,820	1,660	--------	1,720	812	1,050	527	527	794	789
31	644	--------	1,800	1,680	--------	1,910	--------	1,060	--------	530	767	--------
Total	23,199	44,021	52,830	55,400	54,530	60,370	31,554	23,075	27,194	20,677	20,895	22,283
Mean	748	1,467	1,704	1,787	1,948	1,947	1,052	744	906	667	674	743
Ac-ft	46,010	87,310	104,800	109,900	108,200	119,700	62,590	45,770	53,940	41,010	41,440	44,200

Calendar year 1953: Max 2,120 Min 505 Mean 1,102 Ac-ft 797,600
Water year 1953-54: Max 2,250 Min 527 Mean 1,195 Ac-ft 864,900

* Discharge measurement made on this day.

North Fork Beaver Creek near Paulina, Oreg.

Location (revised). —Lat 44°10'00", long 119°44'00", in SW¼ sec. 21, T. 16 S., R. 25 E., on left bank 2 miles upstream from confluence with South Fork and 12 miles east of Paulina.
Drainage area. —64.4 sq mi (revised).
Records available. —October 1945 to September 1954 in reports of Geological Survey (discontinued). January 1942 to September 1945 in files of Bureau of Reclamation.
Gage. —Water-stage recorder. Datum of gage is 3,848.83 ft above mean sea level (survey by Bureau of Reclamation).
Average discharge. —12 years, 27.2 cfs (19,690 acre-ft per year).
Extremes. —Maximum discharge during year, 678 cfs Dec. 19 (gage height, 4.76 ft), from rating curve extended above 330 cfs; minimum, 0.2 cfs on many days in July and August.
1942-54: Maximum discharge, 955 cfs Mar. 25, 1952 (gage height, 5.85 ft), from rating curve extended above 330 cfs; no flow July 30 to Aug. 7, Aug. 19, 20, 1951.
Remarks. —Records good except those for periods of ice effect and those below 3 cfs, which are fair. Several small dams above station store water for irrigation and stock watering. Most of summer flow diverted above station for irrigation.
Revisions. —Revised figures of discharge, in cubic feet per second, for the water years 1948 and 1950, superseding those published in WSP 1124 and 1184, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1947		1947-Con.		1950-Con.		1950-Con.	
Nov. 14	1.4	Dec. 16	4.9	May 14	89	June 8	5.4
15	2.8	23	8.1	15	76	9	4.9
20	8.5	24	6.5	16	63	10	4.2
21	4.9	25	5.2	17	57	11	4.4
22	2.6	26	4.2	18	42	12	15
23	1.8	27	4.6	19	33	13	14
24	1.6	28	6.5	20	31	14	8.9
25	2.1	29	6.5	21	29	15	7.5
26	6.2	30	5.5	22	28	16	26
27	9.2	31	4.2	23	26	17	15
28	6.2			24	20	18	11
29	4.9	1950		25	16	19	7.9
30	7.1	May 1	70	26	14	20	6.2
Dec. 3	8.8	2	71	27	11	21	6.2
4	11	3	57	28	11	22	5.4
6	11	4	51	29	9.9	23	4.4
7	9.6	5	45	30	8.9	24	4.2
8	9.6	6	39	31	7.2	25	4.2
9	9.6	7	33	June 1	5.9	26	3.8
10	6.8	8	31	2	4.9	27	2.9
11	8.1	9	30	3	4.2	28	2.4
12	5.5	10	35	4	3.6	29	1.9
13	6.2	11	43	5	2.9	30	1.4
14	8.1	12	56	6	3.1		
15	7.4	13	74	7	4.2		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet	
November 1947	154.8	31	0.5	5.16	307	
December	406.9	66	4.2	13.1	807	
Calendar year 1947	4,745.4	141	.1	13.0	9,408	6.75
Water year 1947-48	11,687.1	419	.2	31.9	23,180	
May 1950	1,207.0	89	7.2	38.9	2,390	
June	196.0	389	1.4	6.53	389	
Water year 1949-50	9,026.7	338	.2	24.7	17,900	
Calendar year 1950	10,784.8	346	.2	29.5	21,380	6.23

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North Fork Beaver Creek near Paulina, Oreg. —Continued

Rating table, water year 1953-54, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

0.2	0.2	0.9	17
.3	.4	1.2	39
.4	.8	1.5	70
.5	2.1	2.0	134
.6	4.2	3.0	298
.7	7.4	4.0	500

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.7	4.2	10	69	b40	19	20	3.0	0.7	0.3	0.3
2	.5	.7	5.5	9.5	b50	b32	19	17	2.2	.6	.3	.3
3	.4	.7	15	b9.5	42	b31	25	15	1.9	.4	.3	.3
4	.4	.7	50	11	42	30	32	15	2.2	.4	.3	.3
5	.4	.7	14	*15	40	30	68	*14	5.5	.4	.3	.4
6	.4	.7	12	13	41	33	72	14	7.1	.4	.3	.4
7	.4	.7	9.1	14	45	37	60	13	5.8	.3	.3	.4
8	.4	.7	6.1	11	58	120	61	13	4.2	.4	.3	.4
9	.4	.7	16	b10	*68	328	58	13	3.9	.4	.3	.4
10	.5	.7	74	9.1	63	276	46	17	4.2	.4	.2	.3
11	.5	.7	b44	9.5	60	141	44	13	3.7	.4	.2	.3
12	*.5	.8	b23	b8	332	98	49	9.5	3.0	.3	.2	.4
13	.5	.8	b23	6.8	253	70	82	8.2	3.2	.3	.2	.4
14	.5	.7	b20	7.4	134	62	123	6.8	3.0	.3	.3	*.4
15	.5	.7	b19	7.1	91	54	97	5.8	3.7	.3	.3	.4
16	.5	.8	22	b9	70	46	87	4.8	3.9	.3	.3	.6
17	.6	*.9	b22	b13	86	46	105	3.9	*2.8	.3	.3	.7
18	1.0	.8	33	b12	92	37	121	3.4	2.4	.2	.2	.6
19	.7	.9	394	b11	59	38	98	2.8	2.1	.2	.3	.5
20	.6	1.1	309	b8	74	36	77	2.4	1.9	.2	.4	.5
21	.6	1.2	97	8.2	154	37	66	2.2	1.6	.3	.4	.4
22	.7	3.0	b44	13	89	33	61	2.1	1.4	.3	.3	.5
23	.7	108	b32	b16	73	*29	58	1.9	1.1	.3	.3	.5
24	.7	32	b28	b25	91	35	50	1.8	.9	.3	.3	.5
25	.7	11	b20	b11	94	28	44	1.9	.8	.2	.3	.5
26	.7	6.4	b16	9.1	77	27	37	2.2	.8	.2	.4	.5
27	.7	43	17	9.9	58	25	39	2.4	.7	.2	.3	.4
28	.7	16	b14	18	52	26	38	2.1	.7	*.3	.3	.4
29	.7	7.8	13	108	-------	b21	29	2.2	.6	.3	.3	.5
30	.7	5.5	b10	128	-------	19	25	3.0	.2	.3	.3	.6
31	.7	-------	9.9	93	-------	20	-------	3.0	-------	.3	.3	-------
Total	17.7	249.1	1,415.8	643.1	2,457	1,885	1,790	236.4	78.8	10.2	9.1	13.1
Mean	0.57	8.30	45.7	20.7	87.8	60.8	59.7	7.62	2.63	0.33	0.29	0.44
Ac-ft	35	494	2,810	1,280	4,870	3,740	3,550	469	156	20	18	26

Calendar year 1953: Max 515 Min 0.3 Mean 34.7 Ac-ft 25,100
Water year 1953-54: Max 394 Min 0.2 Mean 24.1 Ac-ft 17,470

Peak discharge (base, 400 cfs).--Dec. 19 (7:30 p. m.) 678 cfs (4.76 ft); Feb. 12 (9 p. m.) 561 cfs (4.27 ft); Mar. 9 (12 m.) 410 cfs (3.57 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Beaver Creek near Paulina, Oreg.

Location.—Lat 44°09'50", long 119°55'20", in NE¼ sec. 26, T. 16 S., R. 23 E., on right bank three-quarters of a mile downstream from Paulina Creek, 1⅞ miles downstream from Wolf Creek, and 3 miles northeast of Paulina.

Drainage area.—450 sq mi, approximately (revised).

Records available.—October 1945 to September 1954 in reports of Geological Survey. October 1941 to September 1945 in files of Bureau of Reclamation.

Gage.—Water-stage recorder. Altitude of gage is 3,690 ft (by barometer).

Average discharge.—12 years (1942-54), 103 cfs (74,570 acre-ft per year).

Extremes.—Maximum discharge during year, 1,440 cfs Dec. 20 (gage height, 5.70 ft); minimum, 0.2 cfs Sept. 10.

1941-54: Maximum discharge, 4,310 cfs Dec. 28, 1945 (gage height, 10.2 ft), from rating curve extended above 900 cfs on basis of discharge of Crooked River near Post; no flow Oct. 13-29, 1945.

Remarks.—Records good. No regulation. Diversions for irrigation above station, and one on left bank diverting past station for irrigation of about 700 acres.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 20				Dec. 21 to Sept. 30					
0.1	0.5	0.3	4.6	0.1	0.1	0.5	13	2.0	260
.2	2.0	.4	8.1	.2	1.5	.7	26	3.0	610
Note.--Same as preceding table above 0.4 ft.				.3	4.5	1.0	56	4.5	1,080
				.4	8.1	1.5	135		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.2	2.5	46	62	198	188	112	71	3.8	0.6	0.7	0.4
2	5.2	2.3	45	57	168	162	110	64	4.9	.6	.9	.4
3	5.2	2.0	56	52	145	145	115	50	4.5	.6	.9	.4
4	5.2	1.3	108	56	143	141	129	43	3.5	.6	.9	.4
5	5.2	1.3	82	*64	139	137	170	*35	11	.6	.9	.4
6	5.2	2.9	66	63	141	145	216	32	18	.6	.9	.3
7	5.2	3.2	60	62	143	153	205	30	19	.7	.7	.3
8	5.2	3.5	50	57	168	266	200	25	19	.7	.5	.3
9	5.2	3.5	51	48	*188	718	200	20	18	.7	.5	.3
10	5.5	3.8	94	52	200	795	185	23	17	.7	.5	.3
11	5.5	4.3	127	52	185	451	175	21	16	.7	.5	.3
12	*5.5	4.6	103	45	756	314	178	20	17	.7	.5	.3
13	5.2	4.6	103	40	926	252	213	18	13	.7	.5	.3
14	4.9	4.9	98	48	437	246	272	20	9.6	.7	.5	*.4
15	4.9	5.2	85	51	318	221	272	19	10	.7	.6	.4
16	4.6	5.2	90	51	252	200	246	7.3	16	.9	.6	.4
17	4.6	*5.2	90	63	272	195	246	4.9	*13	.9	.6	.4
18	4.3	5.5	95	56	284	168	263	3.8	8.1	.9	.6	.4
19	4.3	14	562	49	221	172	252	2.8	6.1	.9	.6	.4
20	4.3	20	1,070	34	224	162	224	2.3	5.8	.9	.7	1.9
21	4.6	20	367	41	402	162	195	2.0	5.5	.9	.6	5.8
22	4.6	28	192	54	328	155	170	2.0	3.2	.9	.5	5.5
23	4.3	92	123	74	266	*149	155	2.3	1.5	.9	.5	5.2
24	4.0	147	121	55	297	151	145	1.8	1.3	.9	.5	5.2
25	4.0	82	82	40	311	147	131	1.5	.9	.9	.5	5.2
26	3.8	61	82	48	272	139	119	1.3	.9	.9	.6	5.2
27	3.5	76	85	49	221	131	108	1.1	.7	.9	.6	5.2
28	3.5	101	74	62	202	131	103	1.8	.6	*.9	.5	5.2
29	3.5	66	71	188	-------	127	96	2.6	.6	.9	.5	5.2
30	3.5	55	56	287	-------	115	88	2.6	.6	.9	.5	5.5
31	3.2	-------	58	246	-------	117	-------	3.5	-------	.9	.4	-------
Total	142.9	827.8	4,392	2,206	7,807	6,755	5,293	534.6	249.1	24.3	18.8	61.9
Mean	4.61	27.6	142	71.2	279	218	176	17.2	8.30	0.78	0.61	2.06
Ac-ft	283	1,640	8,710	4,380	15,480	13,400	10,500	1,060	494	48	37	123

Calendar year 1953: Max 1,260 Min 0.6 Mean 126 Ac-ft 91,080
Water year 1953-54: Max 1,070 Min 0.3 Mean 77.6 Ac-ft 56,160

Peak discharge (base, 600 cfs).—Dec. 20 (6:30 a. m.) 1,440 cfs (5.70 ft); Feb. 12 (10 p. m.) 1,380 cfs (5.50 ft); Mar. 10 (3 a. m.) 899 cfs (3.83 ft).

* Discharge measurement made on this day.

North Fork Crooked River above Deep Creek, Oreg.

Location (revised).—Lat 44°20', long 120°05', in NE¼ sec. 28, T. 14 S., R. 22 E., on left bank three-quarters of a mile upstream from Deep Creek, 15 miles northwest of Paulina, and 38 miles east of Prineville.

Drainage area.—159 sq mi.

Records available.—October 1945 to September 1954 in reports of Geological Survey (discontinued). November 1941 to September 1945 (incomplete) in files of Bureau of Reclamation.

Gage.—Water-stage recorder. Datum of gage is 4,356.00 ft above mean sea level (surveys of Bureau of Reclamation). Prior to Oct. 1, 1946, at datum 0.33 ft higher.

Average discharge.—11 years (1943-54), 97.0 cfs (70,230 acre-ft per year).

Extremes.—Maximum discharge during year, 1,270 cfs Mar. 9 (gage height, 3.63 ft); minimum, 0.8 cfs Aug. 5-9.

1941-54: Maximum discharge, 2,060 cfs Apr. 7, 1943 (gage height, 4.17 ft), from rating curve extended above 950 cfs; maximum gage height, 8.01 ft Jan. 1, 1943 (present datum, ice jam); minimum discharge, 0.5 cfs Aug. 14, 15, 1942, Aug. 3 to Sept. 24, 1951.

Remarks.—Records good except those for periods of ice effect, which are fair. Several diversions for irrigation of about 3,600 acres above station. No regulation.

Revisions.—WSP 1094: Drainage area.

Rating table, water year 1953-54, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.3	0.5	0.6	3.7	1.1	34	1.8	190
.4	1.0	.7	6.9	1.3	57	3.0	820
.5	1.9	.9	18	1.5	96	3.6	1,250

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.3	6.9	37	b38	b40	208	85	145	55	6.3	1.0	1.4
2	3.2	6.9	38	b34	b36	158	106	135	42	6.3	1.0	1.4
3	3.2	6.9	47	b30	b32	b150	148	122	33	5.3	1.0	1.4
4	3.2	6.9	50	b32	b30	b150	305	129	33	4.0	.9	1.4
5	3.2	6.9	41	b34	b30	b150	528	*132	41	3.3	.8	1.4
6	3.2	8.3	35	*b36	b30	176	415	125	52	3.0	.8	1.4
7	3.3	9.2	35	b34	b30	235	290	117	52	2.6	.8	1.4
8	3.3	8.7	30	b32	b32	672	325	117	42	2.4	.8	1.4
9	3.3	8.3	46	b28	b34	1,230	330	129	55	2.3	.8	1.4
10	4.0	8.3	55	b30	*b36	880	226	158	101	2.4	.9	1.4
11	*5.3	8.7	60	b30	b38	600	226	125	78	2.1	1.0	1.6
12	5.6	9.7	59	b27	b100	400	265	104	64	1.7	1.0	1.6
13	5.0	11	66	b25	310	260	435	85	62	1.6	1.0	1.6
14	4.7	10	59	b27	380	265	518	74	56	1.5	1.0	1.6
15	4.7	9.2	52	b30	335	235	420	67	56	1.4	1.2	*1.7
16	4.3	9.2	47	b30	295	190	395	64	55	1.3	1.2	1.8
17	4.7	b9	41	b34	300	148	446	57	*44	1.2	1.2	2.1
18	8.8	*b8.5	46	b30	280	122	501	51	34	1.1	1.1	2.1
19	18	9.7	145	b28	240	132	440	44	26	*1.1	1.2	2.1
20	12	11	518	b24	260	145	375	44	26	1.2	1.3	1.8
21	8.3	11	285	b26	b460	125	335	43	20	1.3	1.4	1.9
22	6.9	50	119	b32	b500	106	315	38	16	1.3	1.3	1.8
23	6.6	375	81	b34	410	114	305	32	13	1.3	1.2	1.9
24	6.3	117	72	b32	395	*132	280	28	10	1.3	1.3	1.9
25	6.3	66	b55	b28	420	89	245	29	8.7	1.2	1.4	1.9
26	6.3	52	b50	b36	360	114	226	37	7.8	1.1	1.5	2.1
27	6.3	96	b50	b34	226	122	217	43	7.8	1.0	1.5	1.9
28	6.3	78	b46	b34	240	132	222	32	7.8	1.0	1.5	1.9
29	6.3	52	b40	b40	-------	85	172	40	7.4	1.0	1.4	1.8
30	6.3	45	b36	b55	-------	74	162	78	6.6	1.0	1.4	1.8
31	6.3	-------	b36	b44	-------	81	-------	52	-------	1.0	1.4	-------
Total	178.5	1,115.3	2,377	1,008	5,879	7,680	9,258	2,476	1,112.1	64.6	35.3	50.9
Mean	5.76	37.2	76.7	32.5	210	248	309	79.9	37.1	2.08	1.14	1.70
Ac-ft	354	2,210	4,710	2,000	11,660	15,230	18,360	4,910	2,210	128	70.0	101

Calendar year 1953: Max 1,460 Min 2.0 Mean 146 Ac-ft 106,100
Water year 1953-54: Max 1,230 Min 0.8 Mean 85.6 Ac-ft 61,940

Peak discharge (base, 850 cfs).—Mar. 9 (2 p. m.) 1,270 cfs (3.63 ft).

* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Crooked River near Post, Oreg.

Location.—Lat 44°07'00", long 120°16'50", in NW¼NW¼ sec. 7, T. 17 S., R. 21 E., on right bank 1 mile downstream from North Fork and 11½ miles southeast of Post.
Drainage area.—2,160 sq mi, approximately, of which 500 sq mi is probably noncontributing.
Records available.—November 1908 to August 1911, December 1939 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 3,461.72 ft above mean sea level, datum of 1929. Prior to Dec. 30, 1939, staff gage at site half a mile upstream at different datum.
Average discharge.—14 years (1940-54), 343 cfs (248,300 acre-ft per year).
Extremes.—Maximum discharge during year, 3,810 cfs Mar. 9 (gage height, 5.47 ft); minimum, 6 cfs Aug. 16.
1908-11, 1939-54: Maximum discharge, 7,550 cfs Mar. 26, 1952 (gage height, 7.31 ft), from rating curve extended above 3,800 cfs; minimum, 4 cfs Aug. 20, 1953.
Remarks.—Records good. Diversions above station for irrigation.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.8	5.0	2.5	350
1.0	16	3.0	570
1.2	32	3.5	980
1.5	74	4.0	1,540
2.0	185	5.0	2,990

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	61	188	197	402	570	332	378	104	38	11	10
2	41	63	172	182	350	484	350	354	94	36	11	9.5
3	42	66	194	163	312	434	414	322	81	34	9	9.5
4	36	68	252	177	301	418	637	315	74	32	8.5	9.5
5	34	68	245	*185	298	422	1,200	*304	90	28	8.5	10
6	36	69	212	182	294	475	1,100	290	119	26	9	9.5
7	42	69	172	191	294	506	890	259	130	24	8.5	9.5
8	42	64	158	174	315	1,220	930	256	110	24	9.5	10
9	42	64	169	144	*350	3,060	920	256	114	23	8.5	11
10	47	69	239	166	390	2,690	732	304	200	21	8.5	9.5
11	50	71	273	163	370	1,540	800	270	174	21	8.5	9.5
12	52	72	290	132	946	1,070	930	230	146	21	7.5	11
13	*48	76	298	125	1,600	820	1,260	197	139	20	8	12
14	50	78	287	153	1,080	764	1,460	172	134	19	8.5	*14
15	50	81	259	156	780	700	1,270	153	130	18	8	11
16	48	78	248	163	618	606	1,220	139	134	19	7.5	12
17	50	*78	236	177	600	540	1,330	127	*119	16	7.5	15
18	64	72	239	166	618	475	1,380	114	104	17	8.5	18
19	78	78	831	140	530	480	1,220	102	94	16	8.5	19
20	79	85	1,910	110	488	480	1,020	92	85	15	8.5	17
21	68	83	1,220	146	839	462	920	90	79	15	9.5	17
22	60	202	594	180	910	430	820	85	69	16	9.5	17
23	58	840	394	180	740	*422	756	78	58	16	9.5	20
24	58	493	374	158	810	444	679	71	50	15	9.5	24
25	58	343	273	151	1,010	386	618	68	47	15	8	24
26	60	256	248	188	930	406	560	78	43	15	8	24
27	60	332	273	172	672	410	520	90	42	15	8.5	25
28	61	374	239	169	618	422	525	83	42	*14	9.5	27
29	61	266	236	311	-------	370	448	85	39	13	10	47
30	61	218	188	565	-------	350	410	114	38	12	11	41
31	61	-------	188	475	-------	340	-------	116	-------	12	10	-------
Total	1,634	4,837	11,099	5,941	17,465	22,196	25,651	5,592	2,882	626	276.0	502.5
Mean	52.7	161	358	192	624	716	855	180	96.1	20.2	8.90	16.8
Ac-ft	3,240	9,590	22,010	11,780	34,640	44,030	50,880	11,090	5,720	1,240	547	997

Calendar year 1953: Max 3,940 Min 6 Mean 462 Ac-ft 334,200
Water year 1953-54: Max 3,060 Min 7.5 Mean 270 Ac-ft 195,800

Peak discharge (base, 2,000 cfs).—Dec. 20 (8:30 p. m.) 2,080 cfs (4.42 ft); Mar. 9 (9 p. m.) 3,810 cfs (5.47 ft).
* Discharge measurement made on this day.

Crooked River above Hoffman Dam, near Prineville, Oreg.

Location.—Lat 44°08'40", long 120°49'40", in NE¼ sec. 32, T. 16 S., R. 16 E., on right bank 0.9 mile upstream from Hoffman diversion dam and 11 miles south of Prineville.

Drainage area.—2,810 sq mi, approximately, of which 500 sq mi is probably noncontributing.

Records available.—October 1908 to September 1914, January 1940 to February 1941 (discharge measurements only), March 1941 to September 1954. Published as "near Prineville" October 1908 to December 1912; as "at Hoffman's Ranch, near Prineville" January 1913 to September 1914.

Gage.—Water-stage recorder. Datum of gage is 2,981.23 ft above mean sea level, datum of 1929. Prior to December 1912, staff gage at site at Stearns ranch, 5½ miles downstream at different datum. January 1913 to September 1914 staff gage at site at Hoffman ranch 1 mile downstream, below Hoffman diversion, at different datum.

Average discharge.—19 years (1908-14, 1941-54), 387 cfs (280,200 acre-ft per year).

Extremes.—Maximum discharge during year, 3,920 cfs Mar. 10 (gage height, 5.85 ft); minimum, 1.3 cfs Aug. 13, 14.

1908-14, 1940-54: Maximum discharge observed, 9,080 cfs Mar. 1, 2, 1910 (gage height, 9.4 ft, site and datum then in use), from rating curve extended above 1,000 cfs; no flow at times in 1940.

Remarks.—Records good except those for periods of ice effect, which are fair. No regulation; diversions above station for irrigation.

Rating tables, water year 1953-54, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 10

1.5	39	3.0	565
1.7	68	4.0	1,460
2.0	128	5.0	2,700
2.5	281	6.0	4,160

Mar. 11 to Sept. 30

1.0	1.7	1.3	18
1.1	4.5	1.5	39
1.2	10		

Note.--Same as preceding table above 1.5 ft.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	72	251	240	516	742	392	444	147	44	4.8	4.1
2	42	72	226	230	450	650	386	403	128	47	4.1	4.5
3	43	73	210	223	409	537	414	381	121	46	2.8	5.4
4	44	75	247	204	381	509	509	355	110	42	3.1	4.5
5	46	81	277	*217	375	489	1,010	335	110	40	3.4	4.8
6	40	82	281	223	375	509	1,280	*330	124	38	3.8	4.5
7	39	82	243	223	370	565	1,070	312	140	35	3.8	4.8
8	43	84	207	226	381	710	956	281	160	31	5.4	5.8
9	46	81	195	213	*409	2,670	1,020	270	158	27	4.8	6.4
10	49	79	226	198	437	3,440	893	285	152	21	3.8	5.8
11	55	84	270	226	450	2,180	824	321	230	21	2.8	5.8
12	*55	88	316	b210	586	1,410	911	270	210	19	2.1	5.8
13	55	88	325	b180	1,680	1,060	1,130	240	180	20	1.6	5.8
14	55	86	325	b170	1,490	911	1,620	207	172	20	1.7	*6.9
15	57	88	312	b200	1,020	832	1,470	186	172	18	2.1	6.9
16	55	96	290	217	790	734	1,320	166	169	16	2.8	7.4
17	57	98	285	b220	695	680	1,380	152	166	14	3.1	12
18	63	*90	270	b210	710	600	1,500	138	*152	7.4	2.6	13
19	73	90	374	b200	688	551	1,420	126	138	8.0	2.8	14
20	82	92	1,760	b190	586	544	1,200	113	128	8.0	4.1	15
21	86	102	1,880	b170	680	544	1,040	102	115	6.4	4.5	20
22	81	110	920	226	1,060	516	920	94	106	5.4	3.1	17
23	72	579	558	251	920	482	850	88	96	6.4	3.1	13
24	68	718	502	243	875	*495	782	86	84	6.4	3.8	15
25	66	495	530	220	1,120	509	702	84	70	5.8	3.4	14
26	66	386	325	210	1,180	457	642	84	65	5.4	4.5	16
27	68	340	330	247	929	476	593	90	63	4.5	6.9	18
28	68	463	316	230	774	482	572	98	58	*4.5	6.4	19
29	68	397	330	254	---	489	537	124	49	3.8	5.4	25
30	70	299	376	556	---	431	476	135	44	4.8	4.8	36
31	70	---	240	600	---	403	---	142	---	5.4	4.5	---
Total	1,822	5,570	13,197	7,427	20,336	25,607	27,819	6,442	3,817	581.2	115.9	336.2
Mean	58.8	186	426	240	726	826	927	208	127	18.7	3.74	11.2
Ac-ft	3,610	11,050	26,180	14,730	40,340	50,790	55,180	12,780	7,570	1,150	230	667

Calendar year 1953: Max 4,600 Min 21 Mean 531 Ac-ft 384,100
Water year 1953-54: Max 3,440 Min 1.6 Mean 310 Ac-ft 224,300

Peak discharge (base, 2,500 cfs).--Mar. 10 (9:30 a. m.) 3,920 cfs (5.85 ft).
* Discharge measurement made on this day
b Stage-discharge relation affected by ice.

Crooked River near Culver, Oreg.

Location.—Lat 44°33'35", long 121°16'10", in sec. 3 (50 ft west of ¼-corner on line between secs. 2 and 3), T. 12 S., R. 12 E., on right bank 1 mile upstream from mouth, 1 mile downstream from Cove powerplant, and 4 miles northwest of Culver.

Drainage area.—4,330 sq mi, approximately, of which 500 sq mi is probably noncontributing.

Records available.—October 1917 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 1,664.86 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Aug. 2, 1945, staff gages at several sites within 1 mile of present site at various datums. Aug. 2-27, 1945, staff gage at present site at datum 1.11 ft higher.

Average discharge.—37 years, 1,519 cfs (1,100,000 acre-ft per year).

Extremes.—Maximum discharge during year, 4,690 cfs Mar. 11 (gage height, 5.90 ft); minimum, 921 cfs Sept. 29; minimum daily, 1,350 cfs July 26 to Aug. 1.

1917-54; Maximum discharge observed, 8,260 cfs Mar. 30, 31, 1943 (gage height, 6.70 ft, site and datum then in use); minimum, 920 cfs Oct. 14, 1945; minimum daily, 970 cfs July 12 to Sept. 5, 1921.

Remarks.—Records excellent. Flow slightly regulated by Ochoco Reservoir (capacity, 47,500 acre-ft); occasional diurnal fluctuation caused by powerplant 1 mile above station. Summer flow above Prineville affected by diversions for irrigation and return flow from irrigated areas. Springs increase flow about 1,000 cfs within an area extending 17 miles above station.

Revisions (water years).—WSP 864: 1922, 1925, 1928, 1932, 1936-37.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

2.5	1,310
3.0	1,640
4.0	2,520
6.0	4,820

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,440	1,460	1,670	1,590	2,090	2,170	1,860	1,850	1,590	1,360	1,350	1,420
2	1,440	1,430	1,630	1,610	1,980	2,140	1,860	1,830	1,590	1,380	1,360	1,430
3	1,450	1,410	1,610	1,600	1,910	2,090	1,940	*1,810	1,560	1,380	1,360	1,420
4	1,450	1,410	1,560	1,570	1,860	1,990	1,860	1,750	1,560	1,390	1,370	1,420
5	1,460	1,420	1,600	1,570	1,840	1,930	2,080	1,720	1,560	1,390	1,360	1,420
6	1,470	1,420	1,640	*1,580	1,820	1,900	2,730	1,690	1,540	1,380	1,370	1,440
7	1,460	1,420	1,650	1,590	1,820	1,920	2,850	1,670	1,540	1,390	1,380	1,440
8	1,450	1,420	1,600	1,580	1,820	1,980	2,670	1,660	1,540	1,410	1,380	1,440
9	1,440	1,420	1,570	1,560	1,850	2,340	2,580	1,620	1,670	1,410	1,370	1,450
10	*1,440	1,420	1,590	1,560	*1,880	3,890	2,610	1,630	1,730	1,420	1,380	1,440
11	1,440	1,410	1,620	1,550	1,900	4,460	2,480	1,630	1,660	1,410	1,380	1,440
12	1,460	1,410	1,640	1,560	1,940	3,380	2,440	1,660	1,730	1,410	1,380	1,430
13	1,480	1,420	1,690	1,540	2,270	2,750	2,480	1,620	1,720	1,400	1,380	*1,440
14	1,460	1,430	1,710	1,520	3,200	2,540	2,730	1,600	1,680	1,390	1,390	1,440
15	1,450	1,420	1,700	1,560	2,930	2,510	3,050	1,560	*1,660	1,390	1,400	1,440
16	1,460	1,430	1,700	1,600	2,510	2,430	2,880	1,520	1,660	1,360	1,410	1,470
17	1,460	1,430	1,660	1,600	2,300	2,310	2,780	1,490	1,610	1,360	1,420	1,480
18	1,490	1,430	1,660	1,580	2,220	2,220	2,870	1,480	1,600	1,360	1,420	1,460
19	1,520	*1,430	1,670	1,570	2,220	2,130	2,950	1,460	1,580	1,360	1,440	1,460
20	1,490	1,420	2,090	1,540	2,170	2,080	2,830	1,450	1,580	1,360	1,460	1,460
21	1,500	1,420	3,200	1,490	2,080	2,050	2,630	1,430	1,540	1,360	1,470	1,460
22	1,500	1,450	2,980	1,540	2,210	2,040	2,450	1,420	1,480	1,370	1,460	1,440
23	1,500	1,520	2,300	1,600	2,410	2,010	2,320	1,430	1,440	1,380	1,440	1,430
24	1,500	2,010	1,990	1,650	2,300	1,990	2,250	1,440	1,430	1,370	1,440	1,420
25	1,500	2,020	1,860	1,560	2,310	*1,990	2,170	1,430	1,410	1,360	1,440	1,410
26	1,480	1,630	1,780	1,550	2,500	1,980	2,090	1,450	1,400	1,350	1,460	1,410
27	1,480	1,730	1,700	1,550	2,480	1,930	2,020	1,450	1,380	1,350	1,470	1,410
28	1,470	1,670	1,700	1,590	2,260	1,940	1,980	1,460	1,390	1,350	1,480	1,410
29	1,460	1,780	1,670	1,680	-------	1,950	1,910	1,500	1,390	1,350	1,480	1,410
30	1,460	1,760	1,630	1,800	-------	1,940	1,900	1,620	1,370	*1,350	1,460	1,410
31	1,460	-------	1,620	2,130	-------	1,880	-------	1,600	-------	1,350	1,450	-------
Total	45,520	45,650	55,690	49,570	61,080	70,860	72,250	48,930	46,590	42,650	43,810	43,050
Mean	1,468	1,522	1,796	1,599	2,181	2,286	2,408	1,578	1,553	1,376	1,413	1,435
Ac-ft	90,290	90,550	110,500	98,320	121,200	140,500	143,300	97,050	92,410	84,600	86,900	85,390

Calendar year 1953: Max 5,930 Min 1,350 Mean 1,957 Ac-ft 1,417,000
Water year 1953-54: Max 4,460 Min 1,350 Mean 1,714 Ac-ft 1,241,000

* Discharge measurement made on this day.

Lake Creek near Sisters, Oreg.

Location.—Lat 44°25'40", long 121°43'30", in SW¼ sec. 24, T. 13 S., R. 8 E., on left bank a quarter of a mile downstream from Suttle Lake, 6 miles upstream from mouth, and 13 miles northwest of Sisters.

Drainage area.—22.2 sq mi.

Records available.—1911-13 (occasional readings during summers), April 1915 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 3,430 ft (from topographic map). May 31, 1911, to Oct. 30, 1913, and Apr. 7, 1915, to Mar. 31, 1916, staff gages at two sites 1,000 ft upstream at different datums. Apr. 1, 1916, to Oct. 12, 1928, staff gage or water-stage recorder at site 40 ft downstream at different datum.

Average discharge.—38 years (1915-18, 1919-54), 50.9 cfs (36,850 acre-ft per year).

Extremes.—Maximum discharge during year, 157 cfs Dec. 22 (gage height, 2.36 ft); minimum, 26 cfs Sept. 24, 26 (gage height, 0.88 ft).

1911-13, 1915-54: Maximum discharge, 351 cfs Dec. 16, 1946 (gage height, 3.50 ft); minimum, 1.0 cfs Nov. 4, 5, 1940; minimum daily, 8 cfs Nov. 5, 1940, Oct. 6, 1942.

Remarks.—Records fair. Occasional regulation by storage in Suttle Lake; no diversion above station.

Revisions (water years).—WSP 1124: 1943, 1947. WSP 1218: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.9	27	2.0	113
1.0	33	2.3	149
1.5	67		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	43	48	73	82	87	82	62	96	89	58	44	42
2	48	46	69	80	87	80	61	94	88	58	44	42
3	56	43	64	81	84	75	67	92	80	58	44	41
4	53	42	64	82	82	73	69	89	72	57	44	41
5	44	41	65	78	80	73	72	88	73	57	43	40
6	39	42	69	75	79	73	74	87	74	54	43	41
7	39	42	72	77	77	73	74	80	73	54	43	41
8	38	41	72	*74	75	75	79	76	73	52	43	40
9	39	*40	76	73	*73	79	79	78	74	*51	43	42
10	39	40	76	72	71	82	77	81	73	51	43	41
11	41	39	76	70	71	84	68	87	73	51	43	41
12	43	39	77	69	77	85	*63	*89	76	51	43	41
13	*36	39	78	69	77	86	69	94	79	50	43	42
14	32	39	79	69	78	85	72	103	76	51	42	42
15	32	39	78	73	79	*83	75	105	76	50	42	43
16	33	40	77	78	78	82	79	101	*74	46	43	43
17	34	41	75	76	80	80	82	99	76	45	42	43
18	41	41	73	74	81	78	86	99	77	44	43	42
19	53	40	86	70	82	77	88	100	77	45	43	42
20	53	40	103	68	87	76	92	102	75	44	42	41
21	48	40	128	67	86	74	102	105	73	45	44	41
22	44	62	146	76	86	73	104	107	70	45	43	41
23	43	88	146	79	85	69	102	107	65	45	43	41
24	42	90	136	78	85	72	100	105	64	45	41	34
25	45	97	126	76	88	71	100	102	63	44	41	42
26	36	100	116	80	87	68	99	102	63	44	43	33
27	30	102	107	88	85	71	100	100	62	44	43	34
28	32	94	101	95	83	69	100	97	61	*44	43	37
29	33	83	90	88	-------	66	99	96	61	44	43	36
30	41	78	86	84	-------	65	97	93	58	44	43	37
31	48	-------	83	85	-------	64	-------	90	-------	44	42	-------
Total	1,278	1,656	2,767	2,386	2,270	2,343	2,491	2,944	2,168	1,515	1,329	1,027
Mean	41.2	55.2	89.3	77.0	81.1	75.6	83.0	95.0	72.3	48.9	42.9	40.2
Ac-ft	2,530	3,280	5,490	4,730	4,500	4,650	4,940	5,840	4,300	3,000	2,640	2,390

Calendar year 1953: Max 288 Min 30 Mean 70.3 Ac-ft 50,910
Water year 1953-54: Max 146 Min 30 Mean 66.7 Ac-ft 48,290

* Discharge measurement made on this day.

Metolius River near Grandview, Oreg.

Location.—Lat 44°36'40", long 121°27'10", in NE¼ sec. 19, T. 11 S., R. 11 E., on right bank at Montgomery Ranch, 8 miles northwest of Grandview and 13 miles northwest of Culver.
Drainage area.—324 sq mi (hydrologic drainage boundary uncertain owing to groundwater exchange).
Records available.—April 1910 to February 1912 (gage heights only), March 1912 to December 1913, October 1921 to September 1954. Prior to October 1921, published as "at Hubbards Ranch."
Gage.—Water-stage recorder. Datum of gage is 1,910 ft (river-profile survey). Apr. 24, 1910, to Dec. 30, 1913, staff gage at site 5 miles upstream at different datum. Oct. 1, 1921, to May 3, 1949, staff gage at site 20 ft downstream at present datum.
Average discharge.—33 years (1921-54), 1,446 cfs (1,047,000 acre-ft per year).
Extremes.—Maximum discharge during year, 2,930 cfs Nov. 23 (gage height, 1.83 ft); minimum, 1,480 cfs Nov. 20, 21.
1921-54: Maximum discharge, 5,780 cfs Jan. 7, 1923 (gage height, 3.32 ft), from rating curve extended above 2,200 cfs; minimum, 1,080 cfs Feb. 17, 1932, Oct. 2-31, Nov. 6, 7, 10-14, 1942.
Remarks.—Records excellent. No regulation or diversion above station. Stream is spring fed.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.5	1,460
1.0	2,010
1.5	2,560

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,570	1,500	1,600	1,710	1,930	1,840	1,670	1,750	1,800	1,840	1,710	1,660
2	1,540	1,490	1,600	1,690	1,890	1,830	1,660	1,750	1,790	1,820	1,720	1,660
3	1,540	1,490	1,600	1,690	1,870	1,810	1,740	1,760	1,790	1,810	1,710	1,650
4	1,540	1,490	1,590	1,790	1,840	1,790	1,760	*1,770	1,780	1,820	1,710	1,650
5	1,530	1,480	1,580	1,770	1,820	1,780	1,800	1,770	1,760	1,870	1,710	1,640
6	1,520	1,490	1,640	1,740	1,800	1,770	1,780	1,760	1,760	1,860	1,710	1,640
7	1,520	1,480	1,600	*1,740	1,780	1,760	1,750	1,770	1,760	1,840	1,710	1,620
8	1,520	1,480	1,620	1,710	1,770	1,870	1,760	1,800	1,770	1,840	1,710	1,620
9	1,520	1,480	1,790	1,700	1,760	2,030	1,750	1,830	1,810	1,830	1,700	1,620
10	*1,540	1,490	1,790	1,690	1,760	2,020	1,740	1,830	1,790	1,870	1,690	1,620
11	1,520	1,480	1,700	1,680	*1,780	1,940	1,720	1,860	1,790	1,860	1,680	1,620
12	1,520	1,470	1,740	1,660	1,900	1,890	1,710	1,840	1,860	1,860	1,680	1,650
13	1,500	1,470	1,710	1,650	1,980	1,870	1,810	1,830	1,840	1,840	1,690	1,640
14	1,490	1,470	1,680	1,670	1,960	1,840	1,820	1,830	1,800	1,860	1,710	1,640
15	1,490	1,480	1,670	1,660	1,900	1,840	1,790	1,860	1,910	1,840	1,690	1,660
16	1,490	1,560	1,660	1,680	1,890	1,830	1,790	1,890	*1,900	1,820	1,680	*1,660
17	1,500	1,520	1,650	1,670	1,880	1,810	1,820	1,910	1,830	1,810	1,680	1,650
18	1,550	1,490	1,640	1,660	1,860	1,790	1,860	1,960	1,790	1,810	1,680	1,620
19	1,530	*1,480	2,090	1,640	1,840	1,790	1,840	2,020	1,800	1,820	1,720	1,620
20	1,530	1,460	2,500	1,610	1,910	1,780	1,830	2,000	1,860	1,790	1,710	1,610
21	1,520	1,490	2,150	1,650	2,010	1,760	1,820	1,970	1,880	1,770	1,700	1,610
22	1,500	2,230	2,030	1,810	1,980	1,750	1,830	1,910	1,870	1,740	1,680	1,600
23	1,500	2,490	1,960	1,810	1,940	1,740	1,830	1,900	1,890	1,750	1,680	1,600
24	1,500	1,910	1,900	1,760	1,940	1,740	1,820	1,900	1,860	1,750	1,670	1,600
25	1,500	1,790	1,860	1,710	1,940	*1,720	1,810	1,890	1,860	1,740	1,670	1,600
26	1,500	1,710	1,830	1,710	1,930	1,710	1,800	1,890	1,870	1,740	1,670	1,600
27	1,490	1,760	1,810	1,810	1,900	1,720	1,810	1,840	1,880	1,740	1,660	1,590
28	1,490	1,670	1,780	2,060	1,870	1,710	1,790	1,830	1,840	1,740	1,660	1,590
29	1,490	1,640	1,750	2,120	--------	1,690	1,780	1,820	1,820	*1,740	1,660	1,590
30	1,490	1,610	1,720	2,040	--------	1,680	1,770	1,800	1,840	1,710	1,660	1,590
31	1,500	--------	1,710	1,970	--------	1,680	--------	1,810	--------	1,710	1,660	--------
Total	46,940	48,050	54,950	54,260	52,630	55,780	53,460	57,350	54,800	55,840	52,370	48,720
Mean	1,514	1,602	1,773	1,750	1,880	1,799	1,782	1,850	1,827	1,801	1,689	1,624
Ac-ft	93,100	95,310	109,000	107,600	104,400	110,600	106,000	113,800	108,700	110,800	103,900	96,630

Calendar year 1953: Max 3,000 Min 1,460 Mean 1,750 Ac-ft 1,267,000
Water year 1953-54: Max 2,500 Min 1,460 Mean 1,740 Ac-ft 1,260,000

* Discharge measurement made on this day.

Deschutes River near Madras, Oreg.

Location.—Lat 44°42'30", long 121°14'10", in NE¼ sec. 13, T. 10 S., R. 12 E., on right bank 1 mile downstream from Pelton dam site, 5 miles upstream from Shitike Creek, 7½ miles northwest of Madras, and at mile 101.6 (river-profile survey).

Drainage area.—7,900 sq mi, approximately.

Records available.—October 1923 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 1,407.35 ft above mean sea level (levels by Ebasco Services, Inc.). Prior to May 5, 1924, staff gage and May 5, 1924, to June 5, 1933, water-stage recorder, at site 1 mile upstream at different datum.

Average discharge.—31 years, 4,341 cfs (3,143,000 acre-ft per year).

Extremes.—Maximum discharge during year, 9,430 cfs Mar. 11 (gage height, 5.15 ft); minimum, 3,980 cfs Nov. 1 (gage height, 2.10 ft).

1923-54: Maximum discharge, 13,300 cfs Jan. 1, 1943 (gage height, 6.89 ft); minimum, 2,940 cfs Sept. 20, 1942 (gage height, 1.41 ft).

Remarks.—Records excellent. Large diversions in upper river basin for irrigation. Some winter and spring runoff stored in Crescent Lake and in Crane Prairie, Wickiup, and Ochoco Reservoirs. Slight fluctuations caused by powerplants on Deschutes River near Redmond and Crooked River near Culver.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

2.1	3,980
3.0	5,460
4.5	8,160
6.0	11,200

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,340	4,100	5,270	5,630	6,850	6,220	6,030	4,980	4,880	4,350	4,080	4,290
2	4,340	4,530	5,310	5,650	6,670	6,130	5,670	4,950	4,810	4,450	4,080	4,160
3	4,260	4,500	5,360	5,580	6,580	6,040	5,700	*4,920	4,760	4,480	4,080	4,080
4	4,240	4,430	5,410	*5,630	6,490	6,130	5,490	4,810	4,660	4,550	4,080	4,040
5	4,240	4,420	5,460	5,650	6,440	6,260	5,470	4,730	4,630	4,610	4,100	4,020
6	4,240	4,430	5,580	5,630	6,330	6,260	6,400	4,700	4,610	4,610	4,150	4,020
7	4,210	4,430	5,510	5,630	6,280	6,300	6,710	4,580	4,640	4,500	4,180	4,010
8	4,180	4,610	5,270	5,600	*6,260	6,490	6,550	4,530	4,660	4,500	4,160	4,010
9	4,160	4,660	5,600	5,610	6,280	7,140	6,350	4,560	4,900	4,450	4,100	4,010
10	4,130	4,680	5,700	5,580	6,300	8,670	6,280	4,580	5,150	4,580	4,080	4,020
11	4,150	4,810	5,610	5,610	6,210	9,210	6,120	4,630	5,090	4,660	4,080	4,020
12	4,160	5,040	5,680	5,610	6,440	8,060	5,940	4,610	5,200	4,590	4,080	4,070
13	4,260	5,070	5,720	5,580	6,960	7,470	5,990	4,560	5,320	4,560	4,080	*4,070
14	*4,370	5,020	5,700	5,530	7,750	7,250	6,240	4,560	5,200	4,480	4,130	4,080
15	4,190	5,000	5,650	5,560	7,540	7,160	6,440	4,610	*5,290	4,430	4,210	4,160
16	4,130	*5,120	5,560	5,680	7,110	7,070	6,170	4,660	5,600	4,350	4,230	4,260
17	4,150	4,980	5,430	5,580	6,890	6,910	6,030	4,700	5,290	4,310	4,240	4,370
18	4,350	4,750	5,360	5,630	6,730	6,780	6,170	4,700	5,070	4,270	4,290	4,480
19	4,370	4,680	5,860	5,600	6,670	6,670	6,300	4,780	4,830	4,270	4,340	4,500
20	4,310	4,680	7,160	5,540	6,710	6,570	6,080	4,730	4,860	4,210	4,390	4,480
21	4,240	4,700	7,480	5,530	6,800	6,490	5,830	4,660	4,900	4,180	4,450	4,450
22	4,230	5,600	7,030	5,950	6,870	*6,350	5,720	4,560	4,610	4,150	4,450	4,470
23	4,260	6,850	6,330	5,920	7,030	6,150	5,560	4,510	4,510	4,130	4,400	4,450
24	4,230	6,490	6,100	5,670	6,910	5,990	5,430	4,330	4,470	4,120	4,370	4,430
25	4,210	6,240	6,220	5,580	6,870	5,920	5,340	4,580	4,400	4,120	4,390	4,420
26	4,130	5,810	6,130	5,810	7,090	5,950	5,320	4,640	4,420	4,120	4,430	4,370
27	4,100	5,760	6,030	6,010	7,000	5,900	5,220	4,660	4,400	4,080	4,430	4,320
28	4,080	5,880	5,940	6,820	6,420	5,900	5,120	4,700	4,350	4,070	4,400	4,260
29	4,070	5,610	5,850	6,940	-------	5,900	5,090	4,750	4,230	4,070	4,390	4,230
30	4,060	5,460	5,720	6,620	-------	5,900	5,040	4,950	4,210	*4,040	4,390	4,190
31	4,060	-------	5,680	6,730	-------	5,990	-------	4,980	-------	4,060	4,350	-------
Total	130,450	152,340	180,710	179,690	188,480	205,230	176,070	145,400	143,950	134,350	131,610	126,740
Mean	4,208	5,078	5,829	5,796	6,731	6,620	5,869	4,690	4,798	4,334	4,245	4,225
Ac-ft	258,700	302,200	358,400	356,400	373,800	407,100	349,200	288,400	285,500	266,500	261,000	251,400

Calendar year 1953: Max 9,430 Min 3,940 Mean 5,270 Ac-ft 3,815,000
Water year 1953-54: Max 9,210 Min 4,010 Mean 5,192 Ac-ft 3,759,000

* Discharge measurement made on this day.

Warm Springs River at Hehe Mill, near Warm Springs, Oreg.

Location.—Lat 44°58'00", long 121°28'20", in N½ sec. 18, T. 7 S., R. 11 E., on left bank at downstream side of highway bridge, a quarter of a mile east of abandoned Hehe Mill, 10 miles south of Bear Springs ranger station, and 18 miles northwest of Warm Springs.
Drainage area.—108 sq mi.
Records available.—June 1915, August 1949 to September 1954 (discontinued).
Gage.—Water-stage recorder. Datum of gage is 746.26 ft above mean sea level (Oregon State Highway Department benchmark). During June 1915, staff gage at site half a mile downstream at different datum.
Average discharge.—5 years, 185 cfs (133,900 acre-ft per year).
Extremes.—Maximum discharge during year, 527 cfs Dec. 20 (gage height, 2.40 ft); minimum, 110 cfs Oct. 16.
1915, 1949-54: Maximum discharge, 662 cfs Feb. 11, 1951 (gage height, 2.80 ft), from rating curve extended above 350 cfs; maximum gage height, 4.56 ft Jan. 31, 1951 (ice jam); minimum discharge, 98 cfs Jan. 17, 1950.
A discharge of 97 cfs was measured on Sept. 5, 1915.
Remarks.—Records fair. No regulation or diversion above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 6 to Jan. 31, Aug. 16 to Sept. 30)

0.9	101	2.0	368
1.3	174	2.5	518

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	116	123	139	174	264	264	165	241	258	156	131	135
2	114	123	137	167	246	244	163	232	246	154	131	135
3	113	123	139	167	238	235	206	*227	238	152	131	135
4	112	124	144	*206	224	221	232	230	235	148	131	135
5	112	124	142	232	219	216	261	227	224	146	130	135
6	112	130	165	216	208	211	287	230	224	148	130	135
7	112	128	148	214	198	206	269	235	216	146	130	135
8	112	128	142	203	*193	232	269	246	216	144	130	135
9	112	128	184	193	188	269	261	261	238	144	128	133
10	113	131	224	186	184	287	246	264	221	144	128	135
11	112	130	184	176	181	284	241	284	214	144	130	135
12	112	131	188	172	203	266	238	275	230	142	130	137
13	112	130	186	170	238	252	252	272	230	139	130	*133
14	*112	133	174	184	232	241	275	272	214	137	130	135
15	112	131	165	179	214	238	272	269	*216	137	130	135
16	112	*137	161	175	214	238	272	275	235	137	131	137
17	112	131	154	170	227	227	284	278	219	135	130	135
18	113	128	152	165	211	214	310	293	206	135	130	131
19	113	128	259	161	219	211	322	310	198	135	135	131
20	113	128	506	160	269	206	310	322	196	133	133	131
21	114	128	394	154	316	201	298	307	191	137	135	130
22	113	196	322	211	301	*193	296	298	186	135	135	130
23	114	221	276	244	293	188	298	281	176	133	135	130
24	114	161	246	224	298	186	298	275	174	133	135	128
25	116	142	224	211	313	184	298	275	170	133	135	128
26	116	135	211	208	313	176	293	307	167	131	139	128
27	118	141	203	214	287	186	293	293	167	131	137	126
28	118	137	196	264	278	184	287	264	167	131	135	124
29	118	137	191	307	-------	174	269	266	161	130	135	124
30	118	135	179	301	-------	170	258	278	156	*130	133	124
31	121	-------	172	281	-------	167	-------	261	-------	131	133	-------
Total	3,531	4,102	6,309	6,289	6,769	6,771	8,023	8,348	6,189	4,311	4,096	3,960
Mean	114	137	204	203	242	218	267	269	206	139	132	132
Cfsm	1.06	1.27	1.89	1.88	2.24	2.02	2.47	2.49	1.91	1.29	1.22	1.22
In.	1.22	1.41	2.17	2.17	2.33	2.33	2.76	2.87	2.13	1.48	1.41	1.36
Ac-ft	7,000	8,140	12,510	12,470	13,430	13,430	15,910	16,560	12,280	8,550	8,120	7,850

Calendar year 1953: Max 543 Min 102 Mean 175 Cfsm 1.62 In. 21.99 Ac-ft 126,600
Water year 1953-54: Max 506 Min 112 Mean 188 Cfsm 1.74 In. 23.64 Ac-ft 136,200

* Discharge measurement made on this day.

White River below Tygh Valley, Oreg.

Location.—Lat 45°14'30", long 121°05'30", in NW¼ sec. 8, T. 4 S., R. 14 E., on left bank about 900 ft below Pacific Power & Light Co.'s plant at White River Falls and 4½ miles east of Tygh Valley.

Drainage area.—393 sq mi.

Records available.—October 1917 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 840 ft (by barometer). Prior to July 28, 1931, water-stage recorder at site 50 ft downstream at datum 0.31 ft higher.

Average discharge.—37 years, 429 cfs (310,600 acre-ft per year).

Extremes.—Maximum discharge during year, 2,970 cfs Dec. 20 (gage height, 5.87 ft); minimum, 28 cfs Sept. 3 (gage height, -0.25 ft); minimum daily, 126 cfs Oct. 6, 8.

1917-54: Maximum discharge, 13,300 cfs Jan. 6, 1923 (gage height, about 13.3 ft), from rating curve extended above 5,000 cfs; minimum, 10 cfs Dec. 11-14, 1919, Aug. 9, 1931; minimum daily, 71 cfs Aug. 31, 1941.

Remarks.—Records good. Diversions above station for irrigation. Some regulation at low flow by powerplant.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.1	120	3.0	745
1.4	167	4.0	1,370
2.0	330	5.5	2,600

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	135	317	439	825	844	421	622	790	467	175	147
2	146	141	334	439	690	760	414	600	720	424	175	147
3	133	133	379	543	660	*685	459	604	710	396	173	141
4	132	138	379	710	*622	618	547	645	685	386	171	144
5	128	144	365	655	582	630	600	665	670	372	173	136
6	126	149	495	609	547	624	632	710	670	351	173	146
7	*128	158	410	568	535	591	596	775	695	*337	171	138
8	126	146	354	535	507	613	609	938	670	330	169	141
9	133	143	716	515	515	1,080	622	1,140	720	320	163	136
10	146	146	1,010	483	515	1,230	600	1,150	680	320	160	132
11	146	151	*665	447	507	1,070	586	1,230	660	297	158	146
12	136	149	780	451	691	894	600	1,080	740	285	158	149
13	135	146	720	535	1,280	822	*730	1,020	685	276	156	151
14	135	147	614	503	1,130	765	932	960	650	267	156	144
15	139	149	568	435	927	740	850	966	755	261	156	154
16	141	162	519	451	806	715	850	1,050	750	246	154	162
17	144	179	483	443	1,060	655	1,010	1,110	725	237	153	156
18	165	*156	455	390	911	604	1,180	1,210	670	234	149	158
19	169	156	1,050	350	858	578	1,100	1,330	655	234	158	149
20	156	154	2,530	350	1,280	564	990	1,260	670	216	169	149
21	162	154	1,680	410	1,600	535	949	1,080	660	229	171	149
22	151	482	1,230	573	1,370	515	960	960	627	219	158	147
23	146	705	960	765	1,190	511	990	894	600	211	156	147
24	144	487	750	622	1,120	503	960	*894	560	206	154	144
25	143	414	600	519	1,120	479	932	866	547	192	158	149
26	144	351	520	503	1,120	475	878	878	551	189	160	147
27	143	365	450	560	992	479	866	850	527	192	151	153
28	144	340	551	884	939	479	795	770	547	185	149	144
29	146	323	503	1,440	--------	439	695	765	475	181	147	143
30	146	294	459	966	--------	443	675	785	459	177	149	141
31	141	--------	455	890	--------	435	--------	740	--------	173	149	-------
Total	4,418	6,897	21,301	17,983	24,899	20,375	23,028	28,547	19,523	8,410	4,972	4,390
Mean	143	230	687	580	889	657	768	921	651	271	160	146
Ac-ft	8,760	13,680	42,250	35,670	49,390	40,410	45,680	56,620	38,720	16,680	9,860	8,710

Calendar year 1953: Max 4,050 Min 124 Mean 555 Ac-ft 401,900 17.48
Water year 1953-54: Max 2,530 Min 126 Mean 506 Ac-ft 366,400

Peak discharge (base, 1,200 cfs).--Nov. 22 (11 p. m.) 1,230 cfs (3.81 ft); Dec. 10 (12:30 a. m.) 1,370 cfs (4.00 ft); Dec. 20 (3 a. m.) 2,970 cfs (5.87 ft); Jan. 29 (time unknown) about 1,500 cfs; Feb. 14 (1 a. m.) 1,540 cfs (4.22 ft); Feb. 21 (time unknown) about 1,900 cfs; Mar. 10 (2 a. m.) 1,280 cfs (3.88 ft); May 11 (2 a. m.) 1,300 cfs (3.90 ft); May 19 (1 to 5 a. m.) 1,390 cfs (4.03 ft).

* Discharge measurement made on this day.

Deschutes River at Moody, near Biggs, Oreg.

Location.—Lat 45°37'20", long 120°54'05", in SE¼ sec. 26, T. 2 N., R. 15 E., on right bank at Moody, 1½ miles upstream from mouth and 5 miles southwest of Biggs.
Drainage area.—10,500 sq mi, approximately.
Records available.—October 1897 to December 1899, July 1906 to September 1954. Published as "near Moro" 1897-99.
Gage.—Water-stage recorder. Datum of gage is 167.43 ft above mean sea level, datum of 1929. October 1897 to December 1899 staff gage at site 10 miles upstream at different datum. July 1906 to July 1930 staff gage at site 300 ft downstream at datum 0.5 ft lower.
Average discharge.—49 years (1898-99, 1906-54), 5,804 cfs (4,202,000 acre-ft per year).
Extremes.—Maximum discharge during year, 15,600 cfs Jan. 29 (gage height, 5.25 ft); minimum, 4,520 cfs Nov. 2 (gage height, 2.51 ft).
1897-99, 1906-54: Maximum discharge, 43,600 cfs Jan. 7, 1923 (gage height, 10.2 ft, site and datum then in use), from rating curve extended above 15,000 cfs; minimum, 3,380 cfs Sept. 16-19, 1931 (gage height, 2.06 ft).
Remarks.—Records excellent. Many diversions in upper river basin for irrigation. Some winter and spring runoff stored in Crescent Lake and in Crane Prairie, Wickiup, and Ochoco Reservoirs. Records of chemical analyses and water temperatures for the water year 1954 are given in WSP 1353.
Cooperation.—Water-stage recorder inspected by agent of Eastern Oregon Land Co.
Revisions.—WSP 754: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Dec. 20 to Mar. 22)

2.5	4,490
3.0	6,030
4.0	9,530
6.0	18,600

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,870	4,550	6,230	7,270	11,400	8,750	7,370	6,860	6,760	5,380	4,780	4,900
2	4,930	4,720	6,060	7,200	10,500	8,500	7,230	6,760	6,620	5,570	4,810	4,840
3	4,900	5,020	6,160	7,170	9,990	*8,250	7,060	6,720	6,520	5,600	4,840	4,720
4	4,810	4,990	6,290	7,100	9,610	8,040	7,200	6,720	6,430	5,540	4,780	4,660
5	4,780	4,930	6,260	7,720	9,270	8,180	7,340	6,560	6,390	5,570	4,810	4,660
6	*4,810	4,930	6,590	7,680	9,010	8,140	7,820	6,520	6,290	5,600	4,840	4,640
7	4,780	4,960	6,760	7,580	8,750	8,110	8,540	6,520	6,330	*5,570	4,870	4,640
8	4,750	4,960	6,490	7,480	8,610	8,210	8,570	6,560	6,330	5,440	4,870	4,610
9	4,720	5,140	6,660	7,300	8,540	9,050	8,320	6,760	6,460	5,440	4,840	4,610
10	4,720	5,170	*7,930	7,270	8,540	10,600	8,180	6,960	6,760	5,440	4,780	4,610
11	4,750	5,200	7,480	7,200	8,470	12,000	8,000	7,100	6,830	5,600	4,780	4,610
12	4,750	5,350	7,230	7,170	8,540	11,700	7,760	7,100	6,790	5,570	4,750	4,660
13	4,750	5,540	7,370	7,100	10,800	10,300	*7,760	6,930	7,100	5,480	4,780	4,720
14	4,870	5,570	7,170	7,100	11,400	9,640	8,210	6,830	7,030	5,410	4,810	4,690
15	4,930	5,570	7,000	7,270	11,100	9,380	8,500	6,760	6,930	5,320	4,870	4,810
16	4,810	5,600	6,830	7,300	10,100	9,270	8,470	6,890	7,130	5,200	*4,900	4,870
17	4,810	*5,700	6,660	7,130	9,950	9,090	8,290	7,000	7,130	5,080	4,840	4,930
18	4,840	5,480	6,490	7,100	9,720	8,830	8,390	7,100	6,720	5,020	4,870	5,020
19	5,020	5,260	6,860	7,130	9,230	8,610	8,650	7,270	6,430	5,020	4,900	5,020
20	4,930	5,230	12,700	*7,000	9,610	8,540	8,650	7,400	6,290	5,020	4,960	5,050
21	4,840	5,200	13,200	6,860	10,200	8,390	8,290	7,230	6,390	4,990	5,050	5,050
22	4,750	5,480	11,300	7,480	10,600	8,250	8,070	6,960	6,230	4,930	5,080	5,050
23	4,780	8,430	9,640	9,950	10,200	7,820	7,900	6,760	5,900	4,900	5,020	5,080
24	4,750	8,720	8,720	8,830	9,990	7,650	7,760	6,690	5,800	4,870	4,990	5,080
25	4,750	7,930	8,360	7,960	9,870	7,440	7,620	*6,660	5,700	4,840	4,960	5,050
26	4,720	7,230	8,210	7,820	9,830	7,440	7,540	6,660	5,640	4,840	4,990	5,020
27	4,660	6,720	8,040	8,000	9,870	7,370	7,400	6,660	5,600	4,840	5,020	4,960
28	4,640	6,890	7,820	12,600	9,460	7,400	7,300	6,560	5,600	4,810	5,020	4,900
29	4,640	6,660	7,760	14,800	-------	7,340	7,130	6,490	5,510	4,810	4,990	4,840
30	4,610	6,390	7,510	13,100	-------	7,270	6,960	6,760	5,350	4,780	4,990	4,810
31	4,610	-------	7,340	11,600	-------	7,270	-------	6,790	-------	4,780	4,930	-------
Total	148,280	173,520	239,120	254,270	273,160	266,830	236,280	211,540	190,990	161,260	151,720	145,110
Mean	4,783	5,784	7,714	8,202	9,756	8,607	7,876	6,824	6,366	5,202	4,894	4,837
Ac-ft	294,100	344,200	474,300	504,300	541,800	529,200	468,700	419,600	378,800	319,900	300,900	287,800

Calendar year 1953: Max 18,300 Min 4,550 Mean 6,787 Ac-ft 4,914,000
Water year 1953-54: Max 14,800 Min 4,550 Mean 6,718 Ac-ft 4,864,000

* Discharge measurement made on this day.

Columbia River near The Dalles, Oreg.

Location.—Lat 45°39'00", long 120°58'00", in NE¼ sec. 20, T. 2 N., R. 15 E., on left bank 300 ft upstream from staff gage in entrance to Celilo Canal, just upstream from Celilo Falls, 3 miles downstream from Deschutes River, 11 miles east of The Dalles, and at mile 201.

Drainage area.—237,000 sq mi, approximately.

Records available.—June 1878 to September 1954. Prior to October 1936, published as "at The Dalles." Maximum stage for each year in period 1858 to 1877 from readings of gage at Lower Cascades Landing.

Gage.—Water-stage recorder. Datum of gage is 0.12 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1931, records based on staff gage at The Dalles supplemented for a few short periods by gage-height records at Umatilla and Cascade locks; datum of gage at The Dalles was 46.86 ft higher than present datum. Oct. 1, 1931, to May 1, 1935, staff gage in entrance to Celilo Canal 300 ft downstream from present site at datum 37.59 ft higher.

Average discharge.—76 years, 195,100 cfs (141,200,000 acre-ft per year).

Extremes.—Maximum discharge during year, 570,000 cfs May 23 (gage height, 143.66 ft); minimum, 82,800 cfs Dec. 29 (gage height, 129.29 ft).

1858-1954: Maximum discharge, 1,240,000 cfs June 6, 1894 (gage height, 106.5 ft on gage at The Dalles, 160.1 ft at present site); minimum observed, 35,000 cfs Jan. 12, 1937 (gage height, 126.0 ft).

Remarks.—Records excellent. Some regulation by Franklin D. Roosevelt Lake above Grand Coulee Dam and by reservoirs in Kootenai, Flathead, Pend Oreille, Spokane, Chelan, Yakima, and Snake River basins. Diurnal fluctuations caused by powerplant and gates at McNary Dam. Records of chemical analyses and water temperatures for the water year 1954 at a point 9 miles upstream are given in WSP 1353.

Cooperation.—Recorder inspected and gages read by Corps of Engineers.

Revisions (water years).—WSP 534: 1920(m). WSP 1094: 1894. WSP 1248: 1876(M), 1886, 1888-89, and 1909.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103,000	105,000	95,700	121,000	134,000	126,000	121,000	183,000	513,000	453,000	302,000	185,000
2	107,000	104,000	95,000	124,000	126,000	124,000	127,000	178,000	513,000	445,000	283,000	177,000
3	104,000	92,900	98,800	119,000	126,000	115,000	127,000	175,000	515,000	438,000	265,000	171,000
4	102,000	89,900	100,000	100,000	139,000	120,000	127,000	184,000	517,000	439,000	256,000	179,000
5	99,500	100,000	100,000	99,500	145,000	122,000	127,000	199,000	511,000	432,000	253,000	174,000
6	100,000	104,000	100,000	102,000	110,000	118,000	125,000	184,000	507,000	431,000	245,000	183,000
7	98,500	107,000	106,000	111,000	130,000	117,000	140,000	200,000	505,000	429,000	239,000	179,000
8	100,000	111,000	102,000	108,000	124,000	113,000	157,000	219,000	501,000	437,000	236,000	183,000
9	98,500	114,000	101,000	110,000	119,000	122,000	155,000	236,000	*494,000	461,000	236,000	177,000
10	100,000	109,000	108,000	110,000	119,000	126,000	157,000	261,000	495,000	465,000	236,000	166,000
11	103,000	106,000	112,000	111,000	119,000	136,000	159,000	286,000	483,000	470,000	222,000	159,000
12	105,000	105,000	105,000	106,000	117,000	161,000	147,000	336,000	491,000	466,000	208,000	159,000
13	100,000	106,000	106,000	99,500	118,000	170,000	130,000	350,000	505,000	471,000	209,000	149,000
14	97,800	105,000	102,000	112,000	120,000	161,000	127,000	365,000	505,000	467,000	208,000	143,000
15	104,000	98,000	96,400	115,000	123,000	147,000	160,000	366,000	506,000	471,000	207,000	136,000
16	105,000	104,000	93,800	116,000	126,000	141,000	178,000	385,000	514,000	470,000	205,000	151,000
17	108,000	104,000	99,000	112,000	126,000	135,000	182,000	388,000	522,000	458,000	202,000	141,000
18	105,000	99,000	111,000	107,000	129,000	133,000	176,000	422,000	530,000	440,000	199,000	140,000
19	104,000	102,000	108,000	105,000	122,000	139,000	172,000	447,000	521,000	438,000	196,000	145,000
20	96,600	103,000	115,000	103,000	123,000	140,000	193,000	456,000	509,000	*422,000	192,000	140,000
21	93,200	106,000	112,000	113,000	126,000	134,000	196,000	512,000	499,000	431,000	190,000	142,000
22	92,000	112,000	125,000	116,000	124,000	133,000	184,000	546,000	486,000	427,000	188,000	139,000
23	90,800	109,000	126,000	118,000	115,000	130,000	175,000	561,000	499,000	401,000	188,000	138,000
24	90,400	97,100	116,000	115,000	125,000	126,000	172,000	531,000	515,000	385,000	*186,000	133,000
25	92,000	90,600	112,000	108,000	127,000	129,000	169,000	521,000	510,000	381,000	187,000	136,000
26	97,100	104,000	107,000	110,000	125,000	130,000	178,000	529,000	507,000	372,000	190,000	129,000
27	109,000	100,000	96,100	112,000	125,000	129,000	170,000	544,000	476,000	353,000	187,000	133,000
28	103,000	92,700	89,200	116,000	129,000	129,000	173,000	543,000	473,000	348,000	190,000	125,000
29	106,000	92,000	85,200	125,000	--------	131,000	186,000	530,000	485,000	327,000	190,000	121,000
30	107,000	96,100	90,800	132,000	--------	129,000	182,000	520,000	474,000	323,000	192,000	125,000
31	105,000	--------	107,000	128,000	--------	121,000	--------	515,000	--------	313,000	189,000	--------
Total	‡3,126.4	‡3,068.3	‡3,221	‡3,484	‡3,491	‡4,087	‡4,772	‡11,674	‡15,083	‡13,064	‡6,676	‡4,558
Mean	100,900	102,300	103,900	112,400	124,700	131,800	159,100	376,600	502,800	421,400	215,400	151,900
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-
Ac-ft	‡6,201	‡6,086	‡6,389	‡6,910	‡6,924	‡8,106	‡9,465	‡23,160	‡29,920	‡25,910	‡13,240	‡9,041

Calendar year 1953: Max 609,000 Min 70,600 Mean 184,000 Cfsm 0.776 In. 10.54 Ac-ft 133,200,000
Water year 1953-54: Max 561,000 Min 85,200 Mean 209,100 Cfsm 0.882 In. 11.97 Ac-ft 151,400,000

* Discharge measurement made on this day.
‡ Expressed in thousands.

Klickitat River above West Fork, near Glenwood, Wash.

Location.—Lat 46°15'40", long 121°14'30", in S½ sec. 18, T. 9 N., R. 13 E., on right bank half a mile upstream from Swamp Creek, 1½ miles upstream from West Fork, and 17 miles north of Glenwood.

Drainage area.—151 sq mi.

Records available.—November 1944 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 2,720 ft (from river-profile map).

Average discharge.—9 years (1945-54), 365 cfs (264,200 acre-ft per year).

Extremes.—Maximum discharge during year, 2,150 cfs May 19 (gage height, 3.64 ft); minimum, 91 cfs Oct. 25-29, Nov. 3 (gage height, 1.18 ft).

1944-54: Maximum discharge, 3,280 cfs May 27, 1948 (gage height, 4.28 ft); minimum, 48 cfs Nov. 14, 15, 1944, but may have been less during period of ice effect; minimum gage height, 0.98 ft Nov. 14, 15, 1944, Nov. 22, 1952.

Remarks.—Records excellent except those for periods of ice effect, which are fair. No regulation or diversion.

Rating table, water year 1953-54, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

1.1	71	1.8	330	2.7	965
1.3	125	2.1	500	3.1	1,380
1.5	195	2.4	710	3.6	2,080

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	138	99	203	195	151	180	176	482	866	816	310	155
2	119	99	191	188	148	170	180	458	841	734	320	148
3	108	94	184	180	142	165	203	494	858	688	310	148
4	102	96	176	158	142	165	245	586	884	672	281	148
5	99	99	173	203	142	165	286	635	841	695	276	*145
6	99	102	184	258	140	165	268	734	798	688	272	138
7	99	102	165	240	135	162	250	858	798	726	272	135
8	96	99	151	*220	135	188	258	994	832	702	258	135
9	99	96	332	203	135	356	254	1,140	850	650	250	135
10	113	105	423	203	135	378	245	1,380	947	658	236	135
11	108	119	320	188	135	345	254	1,550	974	658	228	138
12	102	110	383	175	151	315	281	1,400	1,050	614	224	138
13	99	105	296	180	207	300	389	1,260	1,020	565	220	135
14	96	108	272	188	188	291	482	1,200	956	586	220	135
15	94	132	268	176	173	276	464	1,270	1,080	607	220	135
16	94	148	250	155	180	268	506	1,420	1,030	558	207	135
17	96	122	228	155	184	250	742	1,640	893	546	199	138
18	108	113	224	155	176	240	858	1,860	790	513	195	132
19	105	*116	297	135	169	228	774	2,080	782	513	195	125
20	102	110	614	120	162	220	710	1,920	911	488	203	119
21	99	113	452	150	199	211	688	1,630	1,000	434	203	116
22	96	220	330	180	191	207	726	1,450	1,020	394	195	116
23	94	188	280	165	180	207	750	1,380	1,010	394	195	113
24	*94	169	260	155	*199	207	742	1,400	920	400	188	113
25	94	207	240	150	207	203	718	*1,350	911	378	180	113
26	91	258	230	150	203	207	672	1,200	*965	367	180	108
27	91	272	220	150	188	*207	628	1,040	956	356	173	105
28	91	245	210	150	188	191	593	947	858	*341	165	105
29	91	224	200	150	-------	188	552	902	790	320	162	108
30	99	216	190	150	-------	188	520	884	824	315	162	108
31	99	-------	203	150	-------	184	-------	902	-------	310	158	-------
Total	3,115	4,286	8,149	5,375	4,685	7,027	14,414	36,446	27,255	16,686	6,857	3,857
Mean	100	143	263	173	167	227	480	1,176	908	538	221	129
Cfsm	0.662	0.947	1.74	1.15	1.11	1.50	3.18	7.79	6.01	3.56	1.46	0.854
In.	0.77	1.06	2.01	1.32	1.15	1.73	3.55	8.98	6.71	4.11	1.69	0.95
Ac-ft	6,180	8,500	16,160	10,660	9,290	13,940	28,590	72,290	54,060	33,100	13,600	7,650

Calendar year 1953: Max 1,530 Min 86 Mean 342 Cfsm 2.26 In. 30.71 Ac-ft 247,300
Water year 1953-54: Max 2,080 Min 91 Mean 378 Cfsm 2.50 In. 34.03 Ac-ft 274,000

Peak discharge (base, 700 cfs).--Apr. 18 (12 to 4 a. m.) 884 cfs (2.61 ft); May 19 (9:30 p. m.) 2,150 cfs (3.64 ft); June 15 (9 p. m.) 1,140 cfs (2.88 ft); June 23 (1 to 3 a. m.) 1,060 cfs (2.80 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 22-30, Jan. 12, 13, 17-31, Feb. 6-11, Mar. 1-6, 11-13.

West Fork Klickitat River near Glenwood, Wash.

Location (revised). —Lat 46°15'30", long 121°16'20", in SE¼ sec. 14, T. 9 N., R. 12 E., on right bank at road bridge 2 miles upstream from mouth and 17 miles north of Glenwood.

Drainage area. —87.0 sq mi.

Records available. —June to November 1910, August to November 1916, November 1944 to November 1948, September 1953 to November 1954 (discontinued).

Gage. —Water-stage recorder. Altitude of gage is 2,800 ft (from river-profile map). June 17 to Nov. 30, 1910, staff gage at site 2 miles upstream at datum 2,988.89 ft above mean sea level, unadjusted. Aug. 25 to Sept. 14, 1916, staff gage, and Sept. 15 to Nov. 9, 1916, water-stage recorder, at site 1 mile downstream at different datum.

Extremes. —1953: Maximum discharge during September not determined; minimum, 154 cfs Sept. 25, 26; minimum gage height, 1.43 ft Sept. 30.

1953-54: Maximum discharge during water year, 940 cfs May 19 (gage height, 3.00 ft); minimum, 162 cfs Oct. 4, 5, 6; minimum gage height, 1.31 ft May 1.

1954: Maximum discharge during period October to November not determined; minimum, 198 cfs Nov. 2-5 (gage height, 1.33 ft).

1910, 1916, 1944-48, 1953-54: Maximum discharge, 1,560 cfs May 26, 1948 (gage height, 4.23 ft); minimum daily, 100 cfs Dec. 24, 1944.

Remarks. —Records fair. No regulation or diversion above station.

Rating table, Sept. 1, 1953, to Nov. 30, 1954 (gage height, in feet, and discharge, in cubic feet per second)

(Shifting-control method used Sept. 1 to Oct. 25, 1953, July 28 to Sept. 13, 1954)

1.2	135
1.5	255
2.0	470
2.5	699
3.0	940

Discharge, in cubic feet per second, 1953

Day	Discharge	Day	Discharge	Day	Discharge	Day	Discharge
Sept. 1	a190	Sept. 9	*170	Sept. 17	166	Sept. 25	154
2	a195	10	a169	18	170	26	154
3	a178	11	a169	19	166	27	158
4	a181	12	a168	20	162	28	182
5	a175	13	a168	21	162	29	162
6	a176	14	a167	22	162	30	166
7	a179	15	a167	23	158	31	----------
8	a175	16	166	24	158		

Total	5,073
Mean	169
Cubic feet per second per square mile	1.94
Runoff in inches	2.17
Runoff in acre-feet	10,060

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage and records for nearby stations.

Note. —Result of discharge measurement Aug. 4, 1953, 200 cfs.

West Fork Klickitat River near Glenwood, Wash. --Continued

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	170	174	268	259	226	226	210	214	538	629	339	276
2	166	178	268	255	222	218	210	190	520	592	335	276
3	166	174	268	251	218	218	226	210	538	560	331	272
4	166	174	268	251	218	214	222	239	551	556	326	272
5	162	178	268	251	214	214	218	276	551	560	322	*272
6	162	182	268	247	210	210	218	301	542	565	322	272
7	170	178	268	*247	210	210	218	404	551	574	322	263
8	170	182	259	243	210	222	214	524	560	551	318	259
9	174	182	372	243	210	234	218	574	583	510	314	259
10	194	194	331	247	210	239	218	634	615	528	310	255
11	174	198	305	251	210	230	222	694	615	530	305	259
12	170	194	343	243	230	226	218	676	638	500	305	255
13	174	198	301	251	230	222	234	652	647	480	301	251
14	170	206	293	251	226	222	243	647	624	480	301	251
15	170	226	284	251	222	222	239	671	694	485	297	247
16	174	255	280	239	222	222	255	708	746	430	297	251
17	178	230	272	239	226	226	322	784	690	470	293	247
18	178	222	268	234	222	230	365	886	597	450	293	243
19	174	*218	314	226	226	230	356	920	588	430	289	243
20	178	214	444	234	243	230	331	891	657	420	293	239
21	178	218	386	243	247	230	322	813	741	410	289	234
22	174	259	326	268	247	222	331	727	765	410	293	234
23	178	263	297	251	243	222	326	713	789	400	289	234
24	*178	263	276	243	*243	222	326	722	746	395	284	230
25	170	268	272	234	239	222	326	*708	727	395	284	230
26	170	263	263	230	239	222	314	*690	*737	390	289	226
27	170	272	268	234	239	*226	305	615	718	380	284	226
28	174	263	263	234	234	222	276	565	690	*378	280	218
29	170	263	259	226	-------	222	251	538	638	360	280	222
30	166	268	259	226	-------	218	230	533	638	348	280	218
31	170	-------	259	230	-------	214	-------	533	-------	343	276	-------
Total	5,338	6,557	9,070	7,532	6,336	6,907	7,964	18,252	19,234	14,509	9,341	7,434
Mean	172	219	293	243	226	223	265	589	641	468	301	248
Cfsm	1.98	2.52	3.37	2.79	2.60	2.56	3.05	6.77	7.37	5.38	3.46	2.85
In.	2.28	2.80	3.88	3.22	2.71	2.95	3.40	7.80	8.22	6.20	3.99	3.18
Ac-ft	10,590	13,010	17,990	14,940	12,570	13,700	15,800	36,200	38,150	28,780	18,530	14,750

Calendar year 1953: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1953-54: Max 920 Min 162 Mean 325 Cfsm 3.74 In. 50.63 Ac-ft 235,000

* Discharge measurement made on this day.

Note.--Doubtful or no gage-height record July 11-27; discharge estimated on basis of records for nearby stations.

Discharge, in cubic feet per second, 1954

Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.	Day	Oct.	Nov.
1	214	202	9	206	222	17	210	a250	25	218	a250
2	210	198	10	206	210	18	206	a275	26	214	a255
3	210	198	11	251	206	19	222	a315	27	214	a260
4	206	198	12	243	206	20	226	a310	28	210	a250
5	*206	198	13	222	206	21	247	a290	29	210	a230
6	206	206	14	218	222	22	239	a270	30	206	a220
7	206	202	15	214	243	23	226	a250	31	202	-------
8	210	218	16	210	*234	24	222	a235			

	Oct.	Nov.
Total	6,710	7,029
Mean	216	234
Cubic feet per second per square mile	2.48	2.69
Runoff in inches	2.87	3.00
Runoff in acre-feet	13,310	13,940

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for stations near Glenwood, and above West Fork near Glenwood.

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Klickitat River near Glenwood, Wash.

Location.—Lat 46°05'20", long 121°15'30", in SE¼ sec. 14, T. 7 N., R. 12 E., on left bank half a mile downstream from Dairy Creek, 5 miles north of Glenwood, and 7 miles upstream from Trout Creek.

Drainage area.—360 sq mi.

Records available.—October 1909 to September 1954 (1920-28 incomplete).

Gage.—Water-stage recorder. Datum of gage is 1,703 ft above mean sea level, datum of 1929. Prior to July 19, 1910, staff gages and July 19 to Dec. 16, 1910, water-stage recorder, at site 1½ miles upstream at different datum. Dec. 17, 1910, to Sept. 30, 1918, water-stage recorder at datum 1.50 ft higher, and Oct. 1, 1918, to Nov. 6, 1928, water-stage recorder at datum 0.50 ft higher, at site 50 ft downstream. Nov. 7, 1928, to Sept. 30, 1934, at present site at datum 1 ft higher.

Average discharge.—37 years (1909-20, 1928-54), 832 cfs (602,300 acre-ft per year).

Extremes.—Maximum discharge during year, 3,380 cfs May 19 (gage height, 6.41 ft); minimum, 388 cfs Oct. 7, 8, 26-30, Nov. 3-5, 9, 10; minimum gage height, 3.43 ft Oct. 26-30, Nov. 3-5, 9, 10.

1909-54: Maximum discharge, 9,870 cfs Dec. 22, 1933 (gage height, 7.9 ft, present datum), from rating curve extended above 2,000 cfs; minimum, 204 cfs Nov. 28, 1931.

Remarks.—Records good. All low-water flow of Hellroaring Creek, a tributary of Big Muddy Creek, is diverted for irrigation of about 7,000 acres below station in the vicinity of Glenwood. No regulation.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 30 to Jan. 21)

Oct. 1 to May 18				May 19 to Sept. 30			
3.4	370	5.0	1,700	3.4	420	5.0	1,750
3.6	495	5.5	2,250	3.6	555	5.5	2,270
4.0	780	6.5	3,240	4.0	860	6.5	3,500
4.5	1,200			4.5	1,280		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	450	400	628	572	488	642	670	1,310	1,840	1,820	924	570
2	424	400	607	551	476	628	649	1,270	1,750	1,720	932	570
3	412	388	600	537	469	600	780	1,290	1,750	1,640	900	555
4	400	388	579	544	469	600	900	1,440	1,790	1,620	836	541
5	394	394	572	663	462	600	1,020	1,520	1,740	1,670	796	*534
6	394	400	621	765	456	600	988	1,660	1,690	1,680	780	527
7	388	400	572	*705	456	586	940	1,880	1,700	1,750	796	520
8	394	394	537	663	450	663	980	2,070	1,750	1,710	788	513
9	430	388	999	621	469	1,160	956	2,260	1,770	1,590	780	513
10	537	406	1,080	607	456	1,320	924	2,560	1,920	1,690	765	527
11	462	443	884	579	450	1,160	908	2,770	1,960	1,650	735	541
12	430	424	996	530	509	1,080	996	2,620	2,060	1,570	720	520
13	424	418	844	565	656	996	1,190	2,440	2,060	1,500	705	506
14	418	443	796	579	614	956	1,340	2,410	1,960	1,500	698	492
15	412	482	772	558	572	916	1,310	2,500	2,160	1,530	682	492
16	406	537	735	502	579	884	1,370	2,710	2,200	1,460	660	492
17	430	482	698	516	593	852	1,720	2,920	1,970	1,420	645	499
18	450	450	677	523	572	820	1,910	3,120	1,790	1,380	630	492
19	424	456	975	488	572	796	1,830	3,270	1,760	1,350	652	485
20	412	*436	1,520	400	628	772	1,720	3,160	1,970	1,290	668	478
21	406	469	1,210	462	780	750	1,650	2,920	2,150	1,190	652	472
22	400	758	1,010	628	735	742	1,730	2,690	2,230	1,120	668	472
23	394	663	900	600	684	735	1,770	2,610	2,200	1,110	668	499
24	*394	600	828	558	*705	742	1,770	2,620	2,060	1,110	630	534
25	*394	649	758	523	728	720	1,760	2,540	2,010	1,090	608	541
26	388	728	720	516	720	728	1,670	*2,360	2,070	1,070	600	513
27	388	765	677	530	691	*742	1,590	2,130	*2,050	1,040	585	478
28	388	712	670	502	670	712	1,550	1,970	1,940	1,010	562	478
29	388	670	628	502	--------	684	1,470	1,880	1,830	*972	555	472
30	394	656	572	495	--------	691	1,400	1,840	1,850	948	570	466
31	400	--------	572	495	--------	677	--------	1,860	--------	924	570	--------
Total	12,825	15,199	24,237	17,279	16,109	24,554	39,461	70,600	57,980	43,124	21,760	15,292
Mean	414	507	782	557	575	792	1,315	2,277	1,933	1,391	702	510
Cfsm	1.15	1.41	2.17	1.55	1.60	2.20	3.65	6.32	5.37	3.86	1.95	1.42
In.	1.32	1.57	2.50	1.79	1.66	2.54	4.08	7.29	5.99	4.45	2.25	1.58
Ac-ft	25,440	30,150	48,070	34,270	31,950	48,700	78,270	140,000	115,000	85,540	43,160	30,330

Calendar year 1953: Max 2,720 Min 332 Mean 895 Cfsm 2.49 In. 33.74 Ac-ft 648,000
Water year 1953-54: Max 3,270 Min 388 Mean 982 Cfsm 2.73 In. 37.02 Ac-ft 710,900

* Discharge measurement made on this day.

Little Klickitat River near Wahkiacus, Wash.

Location.—Lat 45°50'30", long 121°03'20", in SE¼ sec. 9, T. 4 N., R. 14 E., on right bank half a mile downstream from Bowman Creek, three-quarters of a mile upstream from mouth, and 2 miles northeast of Wahkiacus.

Drainage area.—280 sq mi, approximately.

Records available.—November 1944 to September 1948, October 1950 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 580 ft (by barometer). Prior to Dec. 29, 1950, staff gage and crest-stage indicator at same site and datum.

Average discharge.—7 years (1945-48, 1950-54), 204 cfs (147,700 acre-ft per year).

Extremes.—Maximum discharge during year, 2,410 cfs Feb. 21 (gage height, 6.50 ft); minimum, 34 cfs Aug. 14 (gage height, 2.48 ft).

1944-48, 1950-54: Maximum discharge, 7,000 cfs (revised) Jan. 7, 1948 (gage height, 9.4 ft, from high-water mark); minimum observed, 17 cfs Aug. 3-6, 11, 16-27, Aug. 29 to Sept. 3, 1945, Aug. 30, 1947; minimum gage height observed, 1.24 ft Aug. 25, 26, 27, 1945.

Revisions.—The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
1044	1945	Feb. 8, 1945	932	†4.40
1064	1946	Dec. 28, 1945	6,600	†9.20
1094	1947	Dec. 15, 1946	1,530	†5.60
1124	1948	Jan. 7, 1948	7,000	‡9.40

†From graph based on gage readings.
‡From high-water mark.

Remarks.—Records good. Some small diversions above station for irrigation. No regulation.

Revisions.—WSP 1248: Drainage area. Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1946 and 1948, superseding those published in WSP 1064 and 1124, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1945		1948-Con.		1948-Con.	
Dec. 28	2,360	Jan. 7	4,000	Feb. 23	2,080
29	2,530	8	1,500	24	820
30	1,600	9	600	25	1,020
1948		10	350	26	1,680
Jan. 6	1,590	11	250	27	1,410
		Feb. 22	2,650	28	820

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
December 1945	9,825	2,530	45	317	19,490
Calendar year 1945	34,201	2,530	17	93.7	67,850
Water year 1945-46	72,821	2,530	18	200	144,400
January 1948	12,869	4,000	86	415	25,530
February	14,857	2,650	69	512	29,470
Water year 1947-48	67,176	4,000	24	184	133,200

Little Klickitat River near Wahkiacus, Wash. —Continued

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

2.4	26	4.5	650
2.7	62	5.0	970
3.0	110	5.5	1,370
3.5	225	6.0	1,850
4.0	405		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	37	58	120	333	535	258	246	159	87	40	37
2	38	37	56	114	311	477	255	234	148	87	38	36
3	37	37	55	110	304	441	318	228	146	80	38	37
4	35	37	54	533	286	405	410	228	148	77	38	37
5	36	41	52	482	272	385	459	234	142	74	40	37
6	36	42	108	345	*255	369	477	234	135	72	40	*37
7	37	41	85	304	246	345	432	243	133	71	38	36
8	36	41	72	258	234	548	418	258	127	68	38	35
9	36	40	196	225	228	998	405	269	127	68	38	36
10	38	41	297	*214	212	1,010	377	272	125	74	37	35
11	40	44	162	198	206	800	353	283	123	79	37	36
12	38	43	137	171	237	662	349	272	129	72	36	36
13	38	41	120	162	397	580	405	262	133	66	35	37
14	37	42	108	310	520	520	450	246	127	65	35	38
15	38	43	105	294	472	472	*428	237	133	62	36	52
16	38	47	100	212	486	436	405	234	140	59	36	46
17	40	47	95	198	867	410	441	231	127	58	36	46
18	48	*44	91	214	764	*381	468	231	123	56	36	43
19	46	42	756	201	981	361	441	234	116	55	37	41
20	41	42	933	164	1,560	353	405	234	116	54	37	41
21	38	43	459	183	1,760	333	377	225	114	54	38	40
22	38	98	322	511	1,250	318	361	217	110	54	37	38
23	*38	133	252	600	963	314	357	203	107	52	36	38
24	37	77	212	454	914	318	341	*193	105	51	35	38
25	37	71	188	361	865	314	329	193	102	51	37	38
26	37	72	173	311	776	311	314	188	102	49	40	38
27	38	80	159	297	668	311	300	178	102	49	38	37
28	38	72	150	341	606	304	283	166	*96	*48	37	37
29	38	65	137	373	-------	290	266	166	91	46	38	38
30	38	61	123	337	-------	280	258	168	88	43	38	38
31	37	-------	121	337	-------	272	-------	162	-------	40	37	-------
Total	1,185	1,601	5,936	8,934	16,973	13,853	11,140	6,969	3,674	1,921	1,157	1,159
Mean	38.2	53.4	191	288	606	447	371	225	122	62.0	37.3	38.6
Ac-ft	2,350	3,180	11,770	17,720	33,670	27,480	22,100	13,820	7,290	3,810	2,290	2,300

Calendar year 1953: Max 2,340 Min 31 Mean 198 Ac-ft 143,300
Water year 1953-54: Max 1,760 Min 35 Mean 204 Ac-ft 147,800

Peak discharge (base, 1,600 cfs).--Dec. 19 (8 p. m.) 1,640 cfs (5.83 ft); Feb. 21 (3 p. m.) 2,410 cfs (6.50 ft).

* Discharge measurement made on this day.

Klickitat River near Pitt, Wash.

Location (revised).—Lat 45°45'30", long 121°12'30", in SW¼ sec. 8, T. 3 N., R. 13 E., on left bank 2⅛ miles south of Pitt, 5 miles upstream from Silvias Creek, and 7 miles upstream from mouth.

Drainage area.—1,290 sq mi, approximately.

Records available.—July 1909 to January 1912, October 1928 to September 1954. Published as "at Klickitat" 1909-12 and as "at Pitt" 1928-35.

Gage.—Water-stage recorder. Altitude of gage is 285 ft (from river-profile map). July 3, 1909, to Jan. 31, 1912, staff gage at Klickitat, just downstream from Snider Creek, 7 miles upstream at different datum. Oct. 1, 1928, to Sept. 30, 1935, staff gage at site 175 ft downstream from highway bridge at Pitt, 3.5 miles upstream from present site at different datum.

Average discharge.—28 years (1909-11, 1928-54), 1,563 cfs (1,132,000 acre-ft per year).

Extremes.—Maximum discharge during year, 7,980 cfs Feb. 21 (gage height, 8.00 ft); minimum, 706 cfs Nov. 3, 4 (gage height, 3.94 ft).

1909-12, 1928-54: Maximum discharge, 25,500 cfs (revised) Dec. 22, 1933 (gage height, 12.50 ft, site and datum then in use, from graph based on gage readings), from rating curve extended above 3,400 cfs on basis of velocity-area study and gage-height curve of relation; minimum, 466 cfs Feb. 4, 1937.

Revisions.—The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
292	1910	Nov. 24, 1909	†11,100	9.0
694	1929	May 24, 1929	3,430	‡3.8
709	1930	Feb. 20, 1930	6,120	‡5.40
724	1931	Mar. 31, 1931	18,500	‡10.3
739	1932	Feb. 26, 1932	8,020	‡6.40
754	1933	June 9, 1933	5,580	‡4.9
794	1934	Dec. 22, 1933	25,500	‡12.50
794	1935	Dec. 21, 1934	7,030	‡6.1
814	1936	Jan. 12, 1936	5,460	7.05
834	1937	Apr. 15, 1937	6,780	7.55
864	1938	Dec. 30, 1937	17,300	10.80
904	1940	Feb. 28, 1940	8,120	8.07
964	1942	Feb. 4, 1942	5,010	6.84
984	1943	Mar. 31, 1943	14,500	10.10
1064	1946	Dec. 28, 1945	11,400	9.15
1124	1948	Jan. 7, 1948	15,700	10.34

† Maximum observed.
‡ From graph based on gage readings.

Remarks.—Records good. Several small diversions above station for irrigation of about 7,500 acres mostly in vicinity of Glenwood. 73.2 cfs measured in Hellroaring irrigation canal on Aug. 25, 1948. No regulation.

Revisions (water years).—WSP 794: 1934. WSP 1218: Drainage area. Revised figures of discharge, in cubic feet per second, for high-water period in the water year 1934, superseding those published in WSP 794, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1933		1934-Con.		1934-Con.	
Dec. 20	8,540	Jan. 2	5,150	Jan. 17	4,810
21	13,000	3	12,300	18	3,840
22	23,500	4	10,700	19	4,470
23	21,000	5	7,650	20	5,510
24	15,800	6	5,870	21	5,330
25	11,200	7	4,980	22	5,690
26	8,100	8	4,310	23	13,500
27	6,630	9	3,990	24	9,330
28	5,510	10	3,990	25	7,230
29	5,870	11	3,690	26	5,870
30	5,690	12	3,690	27	5,330
31	5,330	13	3,840	28	4,640
		14	3,990	29	4,150
1934		15	3,400	30	3,840
Jan. 1	4,980	16	3,690	31	3,690

	Maximum	Minimum	Mean	Per square mile	Runoff	
					Inches	Acre-feet
December 1933	23,500	755	6,160	4.78	5.51	378,800
Calendar year 1933	23,500	590	2,104	1.63	22.14	1,523,000
January 1934	13,500	3,400	5,600	4.34	5.00	344,000
Water year 1933-34	23,500	685	2,193	1.70	23.08	1,587,000

Revised peak discharge.—1937-38: Dec. 30 (12:30 a. m.) 17,300 cfs; Mar. 18 (2:15 p. m.) 9,560 cfs.
1939-40: Feb. 6 (5 p. m.) 7,300 cfs; Feb. 26 (4:30 p. m.) 5,230 cfs; Feb. 27 (9:30 a. m.) 6,040 cfs; Feb. 28 (3 p. m.) 8,120 cfs.
1942-43: Jan. 1 (12:10 a. m.) 7,570 cfs; Mar. 31 (4 p. m.) 14,500 cfs.

Klickitat River near Pitt, Wash.—Continued

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

3.9	670	5.5	2,680
4.2	955	6.0	3,530
4.6	1,400	7.0	5,530
5.0	1,920	8.0	7,980

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	817	724	997	1,170	1,850	3,100	2,080	2,520	2,630	2,390	1,270	925
2	779	724	966	1,140	1,780	2,790	2,090	2,390	2,490	2,270	1,270	935
3	770	715	955	1,130	1,720	2,550	2,650	2,330	2,420	2,160	1,240	925
4	742	715	935	1,990	1,660	2,390	3,350	2,460	2,520	2,090	1,170	915
5	724	724	945	2,210	1,610	2,270	2,890	2,550	2,420	2,140	1,140	895
6	724	742	1,150	2,200	*1,570	2,200	4,020	2,700	2,360	2,160	1,100	*885
7	724	742	1,030	1,950	*1,520	2,080	3,640	2,910	2,330	2,210	1,120	865
8	724	733	966	1,790	1,480	2,700	3,620	3,210	2,410	2,220	1,120	855
9	733	724	1,870	1,620	1,470	4,550	3,570	3,420	2,390	2,060	1,100	855
10	846	733	1,990	*1,580	1,410	5,380	3,280	3,730	2,570	2,160	1,080	855
11	808	788	1,530	1,580	1,400	4,470	3,130	4,140	2,660	2,210	1,060	885
12	751	770	1,580	1,440	1,520	3,820	3,110	3,890	2,740	2,060	1,040	885
13	733	760	1,380	1,410	2,050	3,400	3,480	3,600	2,840	1,960	1,030	865
14	733	760	1,270	2,030	2,520	3,180	3,820	3,490	2,700	1,930	1,030	846
15	724	798	1,240	1,960	2,470	2,980	*3,660	3,510	2,870	1,960	1,020	885
16	724	875	1,180	1,720	2,470	2,810	3,640	3,690	3,080	1,920	997	865
17	733	846	1,140	1,600	3,480	2,650	4,080	3,980	2,780	1,850	986	875
18	808	*788	1,100	1,640	3,490	*2,520	4,290	4,230	2,500	1,790	966	865
19	770	779	2,970	1,520	3,800	2,460	4,140	4,610	2,390	1,750	966	865
20	751	770	3,980	1,220	5,620	2,390	3,850	4,570	2,580	1,700	997	855
21	742	788	2,760	1,180	6,600	2,330	3,620	4,120	2,860	1,620	997	855
22	733	1,260	2,160	1,960	5,710	2,280	3,570	3,750	2,910	1,520	986	855
23	*733	1,200	1,850	2,780	4,710	2,280	3,580	3,550	2,940	1,500	1,020	846
24	742	1,030	1,650	2,360	4,570	2,330	3,510	3,530	2,760	1,500	997	905
25	733	1,040	1,510	2,080	4,490	2,330	3,400	*3,530	2,660	1,470	966	905
26	*724	1,150	1,450	1,920	4,230	2,360	3,260	3,420	2,700	1,460	955	895
27	733	1,180	1,360	1,850	3,750	2,470	3,110	3,100	2,700	1,420	945	836
28	724	1,140	1,300	1,790	3,390	2,460	2,990	2,860	*2,540	*1,390	925	846
29	724	1,060	1,260	1,910	-------	2,280	2,820	2,710	2,440	1,350	925	836
30	715	1,030	1,180	1,860	-------	2,200	2,680	2,680	2,380	1,320	925	826
31	724	-------	1,170	1,860	-------	2,140	-------	2,620	-------	1,270	935	-------
Total	23,145	26,088	46,824	54,450	82,340	86,150	101,930	103,800	78,570	56,810	32,278	26,206
Mean	747	870	1,510	1,756	2,941	2,779	3,398	3,348	2,619	1,833	1,041	874
Cfsm	0.579	0.674	1.17	1.36	2.28	2.15	2.63	2.60	2.03	1.42	0.807	0.678
In.	0.67	0.75	1.35	1.57	2.37	2.48	2.94	2.99	2.27	1.64	0.93	0.76
Ac-ft	45,910	51,740	92,870	108,000	163,300	170,900	202,200	205,900	155,800	112,700	64,020	51,980

Calendar year 1953: Max 9,460 Min 697 Mean 1,847 Cfsm 1.43 In. 19.45 Ac-ft 1,337,000
Water year 1953-54: Max 6,600 Min 715 Mean 1,969 Cfsm 1.53 In. 20.72 Ac-ft 1,425,000

Peak discharge (base, 4,000 cfs).--Dec. 20 (5 a. m.) 4,470 cfs (6.50 ft); Feb. 21 (4:30 p. m.) 7,980 cfs (8.00 ft); Mar. 10 (3 a. m.) 5,620 cfs (7.04 ft); Apr. 6 (1 to 2:30 a. m.) 4,230 cfs (6.38 ft); Apr. 18 (8 a. m.) 4,410 cfs (6.47 ft); May 11 (6:30 a. m.) 4,230 cfs (6.38 ft); May 20 (6 a. m.) 4,780 cfs (6.65 ft).

* Discharge measurement made on this day.

Green Point Creek below North Fork, near Dee, Oreg.

Location.—Lat 45°35'20", long 121°39'30", in NE¼ sec. 11, T. 1 N., R. 9 E., on left bank three-quarters of a mile upstream from mouth, 1¼ miles downstream from North Fork, and 1½ miles west of Dee.
Drainage area.—20.0 sq mi.
Records available.—August 1949 to September 1954 (discontinued).
Gage.—Water-stage recorder. Altitude of gage is 1,100 ft above mean sea level (by barometer).
Average discharge.—5 years, 111 cfs (80,360 acre-ft per year).
Extremes.—Maximum discharge during year, 1,150 cfs Dec. 9 (gage height, 4.03 ft); minimum, 14 cfs Sept. 20-24.
1949-54: Maximum discharge, 1,670 cfs Jan. 9, 1953 (gage height, 4.70 ft); maximum gage height, about 5.0 ft Jan. 9, 1953 (momentary backwater from log jam); minimum discharge, 12 cfs Sept. 18-24, 1951, Oct. 1, 2, 6-30, Nov. 25, 1952.
Remarks.—Records good. Water is diverted above station in NW¼ sec. 10, T. 1 N., R. 9 E., and from North Fork in SE¼SW¼ sec. 30, T. 2 N., R. 9 E., and in SW¼ sec. 3, T. 1 N., R. 9 E., for irrigation outside Green Point Creek basin near Oak Grove.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 8				Dec. 9 to Sept. 30			
0.6	22	2.0	265	0.6	12	1.5	139
.9	54	2.5	405	.7	18	2.0	255
1.2	96	3.0	580	.9	40	3.0	580
1.5	150			1.2	84	4.0	1,130

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	a29	126	94	91	129	78	108	198	76	26	17
2	36	a31	136	91	89	*117	78	105	154	73	26	16
3	33	a29	a200	91	*84	108	176	105	141	66	26	16
4	32	a28	a200	231	79	101	255	121	133	65	26	16
5	*31	a28	a280	361	73	96	310	135	125	60	25	16
6	31	a32	a380	275	70	94	258	150	119	58	25	16
7	30	a36	a220	218	66	92	196	169	123	56	24	16
8	30	a31	a200	180	65	193	215	196	121	*50	23	16
9	30	a30	*840	150	64	355	205	225	125	50	22	15
10	32	a30	546	131	62	304	169	242	119	65	22	15
11	30	a31	286	115	59	215	156	240	114	60	21	16
12	29	a32	414	103	76	169	*171	208	114	54	21	16
13	29	a31	268	96	125	141	331	178	108	50	21	16
14	28	a32	205	119	135	123	283	169	101	48	20	15
15	28	a40	169	125	115	115	228	175	156	45	20	16
16	26	a66	139	112	108	110	230	194	187	44	20	16
17	28	*50	119	105	114	103	289	200	178	43	*20	16
18	33	44	119	96	115	94	265	220	150	40	20	16
19	33	42	511	87	149	92	222	222	135	39	20	15
20	31	42	622	76	337	87	198	196	137	38	21	14
21	a30	96	410	71	456	84	187	169	125	44	21	14
22	a29	457	268	272	304	86	196	145	115	41	20	14
23	a28	285	191	228	230	91	196	133	106	38	19	14
24	a27	238	154	180	225	94	184	135	99	36	20	17
25	a26	191	129	150	220	94	171	*141	94	35	20	20
26	a26	160	117	131	212	101	158	178	89	33	20	18
27	a26	186	110	115	171	117	158	154	94	33	18	16
28	a26	148	115	108	147	114	141	133	96	32	18	16
29	a26	121	114	105	-------	101	127	139	81	32	17	16
30	a27	114	99	96	-------	91	117	147	76	29	16	16
31	a27	-------	92	92	-------	84	-------	169	-------	27	18	-------
Total	917	2,710	7,779	4,404	4,041	3,895	5,948	5,201	3,713	1,460	656	476
Mean	29.6	90.3	251	142	144	126	198	168	124	47.1	21.2	15.9
Ac-ft	1,820	5,380	15,430	8,740	8,020	7,730	11,800	10,320	7,360	2,900	1,300	944

Calendar year 1953: Max 1,240 Min 21 Mean 130 Ac-ft 93,760
Water year 1953-54: Max 840 Min 14 Mean 113 Ac-ft 81,740

76,72

Peak discharge (base, 850 cfs).--Dec. 9 (4 p. m.) 1,150 cfs (4.03 ft); Dec. 19 (8 p. m.) 1,040 cfs (3.87 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for West Fork Hood River near Dee and recorded range in stage.

West Fork Hood River near Dee, Oreg.

Location.—Lat 45°36'00", long 121°38'20", in SE¼ sec. 1, T. 1 N., R. 9 E., on left bank a quarter of a mile upstream from Dead Point Creek, half a mile upstream from mouth, and 1 mile northwest of Dee.

Drainage area.—96 sq mi, approximately.

Records available.—September 1913 to February 1916 (incomplete), June 1932 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 802.08 ft above mean sea level, datum of 1929. Prior to Feb. 12, 1916, staff gage at site half a mile upstream at different datum.

Average discharge.—22 years (1932-54), 545 cfs (394,600 acre-ft per year).

Extremes.—Maximum discharge during year, 7,290 cfs Dec. 9 (gage height, 9.20 ft); minimum, 137 cfs Oct. 16, 17 (gage height, 1.44 ft).

1913-14, 1932-54: Maximum discharge, 12,900 cfs Dec. 22, 1933 (gage height, 12.4 ft), from rating curve extended above 5,000 cfs; minimum, 93 cfs Aug. 22, 1941 (gage height, 1.37 ft).

Remarks.—Records good. Diversions above station for irrigation.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
1.4	129	4.0	1,220	1.5	155	4.0	1,290
2.0	280	5.0	1,940	2.0	290	6.0	2,980
3.0	660	7.0	4,030	3.0	715	8.0	5,460

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	214	165	888	566	562	738	481	517	1,010	594	258	210
2	191	174	948	553	530	*674	499	486	820	526	252	202
3	168	157	1,200	548	508	625	954	512	756	486	241	197
4	157	152	1,190	1,440	476	580	1,280	566	702	454	241	200
5	*152	154	1,690	2,030	450	548	1,760	584	666	445	241	192
6	154	179	2,150	1,390	427	535	1,420	630	720	436	238	184
7	152	201	1,230	1,080	414	512	1,050	715	760	427	236	184
8	150	174	1,110	904	396	1,010	1,180	860	702	*380	233	184
9	154	165	*4,280	775	392	1,780	1,070	954	710	400	227	177
10	189	170	2,630	697	384	1,560	898	948	688	540	222	192
11	170	179	1,650	634	388	1,090	830	976	648	490	219	202
12	161	179	2,580	580	481	871	*850	860	702	436	219	213
13	154	168	1,500	548	710	756	1,830	746	670	414	219	200
14	150	182	1,110	720	692	688	1,500	715	625	400	219	192
15	144	250	910	724	616	648	1,140	770	994	372	210	210
16	142	*466	775	638	666	612	1,080	860	1,070	342	208	227
17	152	368	679	598	706	571	1,270	898	1,050	339	*208	227
18	201	301	706	558	688	540	1,170	988	871	336	200	224
19	182	301	3,250	*508	942	517	994	964	815	336	213	202
20	182	286	3,760	454	2,130	494	898	840	888	328	255	194
21	174	768	2,340	454	2,650	481	830	733	805	400	236	190
22	157	3,770	1,460	1,520	1,760	476	830	656	702	332	213	187
23	152	2,110	1,070	1,190	1,280	481	835	674	656	314	222	180
24	148	1,490	860	893	1,270	499	785	697	607	300	238	187
25	148	1,130	738	746	1,210	486	733	*702	589	290	224	190
26	142	893	674	684	1,210	540	697	910	576	280	219	187
27	142	1,130	616	638	948	746	706	785	630	284	205	180
28	142	860	684	702	830	692	638	679	598	274	200	175
29	144	720	625	638	-------	594	584	715	558	271	202	175
30	152	746	566	584	-------	540	553	785	544	268	208	173
31	148	-------	540	576	-------	499	-------	942	-------	255	230	-------
Total	4,968	17,988	44,409	24,570	23,716	21,383	29,345	23,667	22,150	11,749	6,956	5,837
Mean	160	600	1,433	793	847	690	978	763	738	379	224	195
Ac-ft	9,850	35,680	88,080	48,730	47,040	42,410	58,200	46,940	43,930	23,300	13,800	11,580

Calendar year 1953: Max 7,150 Min 133 Mean 714 Ac-ft 517,100
Water year 1953-54: Max 4,280 Min 142 Mean 649 Ac-ft 469,500

91-79

Peak discharge (base, 4,100 cfs).-- Nov. 22 (2 p. m.) 6,230 cfs (8.55 ft); Dec. 9 (4:30 p. m.) 7,290 cfs (9.20 ft); Dec. 19 (8:30 p. m.) 6,400 cfs (8.63 ft).

* Discharge measurement made on this day.

Hood River near Hood River, Oreg.

Location.—Lat 45°42'00", long 121°30'40", in SE¼ sec. 36, T. 3 N., R. 10 E., on right bank at Powerdale, a quarter of a mile upstream from Pacific Power & Light Co.'s plant and three-quarters of a mile south of town of Hood River.

Drainage area.—329 sq mi.

Records available.—March 1913 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 106.23 ft above mean sea level, datum of 1929. Prior to Nov. 14, 1934, at site 220 ft upstream at same datum.

Average discharge.—41 years, 1,080 cfs (781,900 acre-ft per year).

Extremes.—Maximum discharge during year, 9,990 cfs Dec. 19; minimum daily, 399 cfs Sept. 9, 30. 1913-54: Maximum discharge, 34,000 cfs Jan. 6, 1923 (gage height, 11.1 ft, site then in use), no diversion by power conduit; minimum daily, 165 cfs Aug. 5, 1941.

Remarks.—Records good. Many diversions above station for irrigation. Daily discharge regulated by pondage at sawmill at Dee. All records herein include flow in Pacific Power & Light Co.'s conduit, which diverts water 3 miles above station and returns water to river a quarter of a mile below station.

Cooperation.—Water-stage recorder inspected by employees of Pacific Power & Light Co.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	599	475	1,480	1,270	1,380	2,080	1,110	1,200	1,800	1,130	591	470
2	536	522	1,530	1,220	1,320	*1,840	1,120	1,150	1,520	1,050	602	460
3	493	481	1,960	1,260	*1,280	1,710	1,730	1,160	1,440	977	584	450
4	476	477	1,890	2,870	1,240	1,600	2,140	1,280	1,380	938	579	450
5	*460	478	2,290	3,490	1,200	1,520	2,730	1,300	1,270	948	551	422
6	457	515	3,270	2,670	1,160	1,480	2,470	1,340	1,260	943	557	404
7	454	566	2,120	2,250	1,120	1,450	2,000	1,460	1,370	944	562	408
8	451	525	1,810	1,920	1,100	2,320	2,120	1,660	1,280	*929	559	408
9	470	504	*5,660	1,690	1,080	3,510	2,080	1,860	1,330	922	465	399
10	548	509	4,340	1,550	1,070	2,970	1,870	1,820	1,300	1,200	520	408
11	534	540	2,790	1,410	1,060	2,420	1,700	1,910	1,270	1,120	496	470
12	493	524	3,920	1,310	1,270	2,060	*1,710	1,730	1,380	1,010	476	470
13	487	508	2,670	1,250	1,800	1,870	2,780	1,540	1,340	969	443	455
14	479	520	2,130	1,650	1,810	1,720	2,620	1,470	1,220	955	446	427
15	470	557	1,810	1,700	1,640	1,620	2,130	1,520	1,650	908	436	455
16	461	*902	1,570	1,620	1,730	1,590	2,020	1,660	1,880	847	436	500
17	472	773	1,410	1,500	1,780	1,470	2,280	1,720	1,810	814	*413	500
18	583	659	1,420	1,400	1,810	1,380	2,290	1,890	1,580	774	413	475
19	541	653	4,700	1,250	2,270	1,340	2,050	1,960	1,480	837	441	455
20	521	614	6,920	*1,070	4,160	1,290	1,910	1,790	1,630	782	517	441
21	522	975	4,380	1,110	5,160	1,250	1,810	1,580	1,600	818	500	436
22	504	5,570	*3,060	2,870	3,920	1,200	1,820	1,420	1,470	720	465	436
23	486	3,430	2,400	2,520	3,080	1,210	1,850	1,400	1,410	699	490	427
24	462	2,440	2,010	1,990	3,080	1,220	1,740	1,470	1,250	694	470	432
25	491	1,960	1,750	1,700	3,060	1,190	1,650	1,420	1,190	679	470	450
26	447	1,620	1,600	1,570	3,080	1,220	1,570	*1,700	1,180	650	455	427
27	462	1,960	1,500	1,520	2,550	*1,520	1,570	1,540	1,230	647	436	417
28	466	1,570	1,490	1,590	2,270	1,480	1,480	1,350	1,250	626	422	413
29	468	1,360	1,420	1,550	--------	1,280	1,360	1,370	1,080	609	450	413
30	466	1,330	1,280	1,440	--------	1,210	1,280	1,480	1,080	597	460	399
31	468	--------	1,230	1,410	--------	1,140	--------	1,580	--------	592	511	--------
Total	15,227	33,517	77,810	53,620	57,480	51,160	56,990	47,730	41,930	26,328	15,216	13,177
Mean	491	1,117	2,510	1,730	2,053	1,650	1,900	1,540	1,398	849	491	439
Ac-ft	30,200	66,480	154,300	106,400	114,000	101,500	113,000	94,670	83,170	52,220	30,180	26,140

Calendar year 1953: Max 11,880 Min 369 Mean 1,383 Ac-ft 1,001,000
Water year 1953-54: Max 6,920 Min 399 Mean 1,343 Ac-ft 972,300

Peak discharge (base, 4,600 cfs).--Nov. 22 (4 p. m.) 8,420 cfs; Dec. 9 (6 p. m.) 9,550 cfs; Dec. 12 (7 a. m.) 4,860 cfs; Dec. 19 (10 p. m.) 9,990 cfs; Feb. 21 (10:30 a. m.) 5,900 cfs.

* Discharge measurement made on this day.

White Salmon River near Underwood, Wash.

Location. —Lat 45°45'00", long 121°31'30", in NW¼ sec. 14, T. 3 N., R. 10 E., on right bank 300 ft downstream from bridge, 1,000 ft downstream from Northwestern Electric Co.'s conduit powerplant, and 2 miles north of mouth at Underwood.

Drainage area. —390 sq mi, approximately.

Records available. —October 1912 to February 1913, March 1915 to September 1930, September 1935 to September 1954.

Gage. —Water-stage recorder. Datum of gage is 112.96 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to March 1913, reference point at dam, 1 mile upstream at different datum. March 1915 to July 16, 1918, water-stage recorder at site 200 ft upstream at datum 3.24 ft higher. July 17, 1918, to Sept. 30, 1930, water-stage recorder at site 200 ft upstream at datum 2.24 ft higher than present datum.

Average discharge. —34 years (1915-30, 1935-54), 1,083 cfs (784,100 acre-ft per year).

Extremes. —Maximum discharge during year, 4,410 cfs Feb. 21 (gage height, 7.10 ft); minimum, 39 cfs Nov. 9 (gage height, 1.38 ft); minimum daily, 542 cfs Oct. 27.

1912-13, 1015-30, 1935-54: Maximum discharge, 9,700 cfs Dec. 29, 1917 (gage height, 9.5 ft, site and datum then in use), from rating curve extended above 2,700 cfs; practically no flow at times when powerplant is shut down.

Revisions. —The figures of minimum discharge for some water years have been revised, as shown in the following table. They supersede those published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
814	1936	Dec. 21, 1935	46	1.48
834	1937	Nov. 29, 1936	72	1.77
864	1938	Oct. 26, 1937	54	1.59
884	1939	July 16, 1939	13	.80
904	1940	July 4, 1940	21	1.02
934	1941	Oct. 22, 1940	14	.81

Remarks. —Records good. Water diverted to irrigate about 4,500 acres in the Trout Lake area. Low and medium flow regulated by powerplant of the Northwestern Electric Co.

Revisions (water years). —WSP 484: 1915-17. WSP1218: Drainage area.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	752	580	950	1,110	1,320	2,030	1,400	1,440	1,760	1,490	892	766
2	750	623	956	1,170	1,290	1,880	1,390	1,390	1,660	1,450	940	830
3	770	672	952	1,110	1,280	1,810	1,600	1,410	1,690	1,380	960	818
4	748	616	926	1,520	1,280	1,670	1,790	1,400	1,720	1,360	922	798
5	666	622	938	1,640	1,250	1,600	2,090	1,380	1,680	1,360	927	812
6	658	669	1,160	1,830	1,270	1,580	2,180	1,430	1,670	1,310	922	766
7	682	669	1,280	1,760	1,050	1,550	2,040	1,500	1,660	1,360	1,000	772
8	678	586	1,070	1,600	1,240	1,870	2,080	1,620	1,660	1,320	823	779
9	705	620	1,620	1,490	1,080	2,690	2,020	1,740	1,640	1,280	912	728
10	720	669	2,540	1,400	1,200	3,120	1,910	1,870	1,680	1,340	890	749
11	634	626	1,860	1,360	1,140	2,650	1,860	1,960	1,630	1,400	916	806
12	658	669	1,820	1,320	1,130	2,320	1,780	1,980	1,640	1,350	862	764
13	661	608	1,710	1,310	1,410	2,120	1,950	1,890	1,640	1,310	886	786
14	634	639	1,490	1,490	1,580	1,940	2,060	1,850	1,590	1,290	866	894
15	635	669	1,360	1,660	1,530	1,870	1,970	1,850	1,780	1,290	840	735
16	637	716	1,300	1,480	1,570	1,830	1,930	1,950	1,980	1,260	868	814
17	662	782	1,210	1,410	1,660	1,740	1,970	2,060	1,880	1,210	848	774
18	678	710	1,160	1,390	1,710	*1,650	2,050	2,140	1,760	1,120	870	848
19	706	674	1,580	1,290	1,850	1,620	1,980	2,270	1,690	1,190	828	832
20	654	674	2,960	1,280	2,560	1,600	1,880	2,270	1,760	1,120	864	729
21	646	*692	2,440	1,160	3,680	1,550	1,830	2,150	1,810	1,110	942	818
22	*647	1,130	2,020	1,530	3,440	1,530	1,820	2,000	1,790	1,080	846	790
23	643	1,380	1,700	1,810	2,900	1,520	1,830	1,910	1,740	1,030	848	764
24	625	1,160	1,530	1,730	2,860	1,530	1,820	1,920	1,670	1,040	905	758
25	754	1,160	1,410	1,570	2,860	1,520	1,790	1,870	1,570	910	846	788
26	606	1,140	1,330	1,480	2,730	1,550	1,700	*1,870	1,560	1,100	862	700
27	542	1,260	1,300	1,410	2,390	1,680	1,640	1,800	1,560	1,020	820	692
28	585	1,120	1,280	1,360	2,200	1,600	1,610	1,730	1,570	1,020	866	700
29	642	1,130	1,230	1,360	-------	1,520	1,530	1,670	1,490	*964	820	688
30	664	1,070	1,140	1,350	-------	1,480	1,490	1,680	1,480	1,070	846	720
31	592	-------	1,120	1,320	-------	1,430	-------	1,700	-------	976	856	-------
Total	20,634	24,335	45,342	44,700	51,460	56,050	54,990	55,700	50,410	37,510	27,293	23,218
Mean	666	811	1,463	1,442	1,838	1,808	1,833	1,797	1,680	1,210	880	774
Ac-ft	40,930	48,270	89,930	88,660	102,100	111,200	109,100	110,500	99,990	74,400	54,130	46,050

Calendar year 1953: Max 5,700 Min 519 Mean 1,314 Ac-ft 951,600
Water year 1953-54: Max 3,680 Min 542 Mean 1,347 Ac-ft 975,300

* Discharge measurement made on this day.

Little White Salmon River at Willard, Wash.

Location.—Lat 45°46'50" (revised), long 121°37'30", in NW¼ sec. 1, T. 3 N., R. 9 E., on right bank at Willard a quarter of a mile downstream from Lava Creek.

Drainage area.—117 sq mi.

Records available.—November 1903 to August 1906 (fragmentary), December 1944 to September 1954. Published as "below Lava Creek, near Cooks" 1903-6.

Gage.—Water-stage recorder. Altitude of gage is 1,230 ft (from river-profile map). Prior to Aug. 6, 1906, nonrecording gage near present site at different datum.

Average discharge.—9 years (1945-54), 468 cfs (338,800 acre-ft per year).

Extremes.—Maximum discharge during year, 3,560 cfs probably Dec. 9 (gage height, 9.08 ft, from high-water mark); minimum, 15.5 cfs Nov. 13 (gage height, 1.33 ft).

1903-6, 1944-54: Maximum discharge, 4,140 cfs Dec. 15, 1946 (gage height, 9.50 ft), from rating curve extended above 2,500 cfs; minimum, 1.6 cfs Dec. 3, 1952 (gage height, 0.73 ft).

Remarks.—Records good except those for periods of no gage-height record, which are fair. Broughton Lumber Co. diversion may at times carry as much as 30 cfs. Other diversions above station for water supply, irrigation and hatchery purposes. Slight regulation.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.3	14	2.5	106	4.0	340	7.0	1,290
1.6	28	3.0	170	5.0	570	8.0	2,240
2.0	56	3.5	251	6.0	850		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	81	30	280	680	592	796	548	562	495	446	329	178
72	72	21	290	680	580	739	538	550	495	446	325	172
3	67	19	350	700	562	694	730	542	498	450	319	167
4	63	18.5	430	1,000	550	658	925	540	500	457	316	163
5	54	17.5	480	1,300	*525	628	1,190	535	502	455	312	159
6	50	23	800	1,300	508	608	1,190	530	502	453	308	153
7	48	25	650	1,200	485	592	1,010	535	502	450	303	*151
8	47	30	550	1,050	466	727	950	548	500	448	298	148
9	45	19	1,000	*949	457	1,200	900	550	500	453	294	144
10	46	18	1,700	910	443	1,310	800	542	495	462	289	140
11	44	17.5	1,000	853	434	988	760	535	490	441	282	139
12	42	17	1,000	805	446	847	720	515	490	427	280	136
13	41	16	850	772	562	751	900	500	483	421	275	134
14	41	18.5	750	838	602	685	*919	490	483	414	271	129
15	41	33	680	841	578	648	856	490	512	410	266	125
16	38	59	620	814	608	620	811	493	508	403	261	125
17	39	62	600	769	640	595	859	495	498	396	256	122
18	42	50	580	733	648	568	853	498	485	392	251	117
19	40	42	1,000	680	777	552	793	502	483	387	244	112
20	38	*40	1,600	660	1,410	548	736	500	483	383	242	108
21	*36	44	1,300	640	2,010	540	697	493	473	377	236	105
22	*33	360	1,100	950	1,680	530	685	488	469	373	227	100
23	32	340	1,000	1,100	1,180	530	682	485	464	368	222	97
24	30	300	900	950	1,050	538	668	485	460	364	219	95
25	46	280	850	850	1,030	542	652	490	455	360	214	92
26	28	260	800	750	1,010	582	638	502	453	350	211	93
27	27	280	760	700	922	760	622	*490	*453	350	204	85
28	26	290	740	650	850	*736	608	483	450	340	198	81
29	26	280	720	640	-------	665	592	488	448	*340	193	79
30	26	270	700	620	-------	612	578	485	448	336	187	77
31	24	-------	680	600	-------	575	-------	498	-------	332	182	-------
Total	1,313	3,280.0	24,760	25,984	21,605	21,364	23,410	15,839	14,477	12,484	8,014	3,726
Mean	42.4	109	799	838	772	689	780	511	483	403	259	124
Ac-ft	2,600	6,510	49,110	51,540	42,850	42,370	46,430	31,420	28,710	24,760	15,900	7,390

Calendar year 1953: Max 2,950 Min 16 Mean 519 Ac-ft 375,900
Water year 1953-54: Max 2,010 Min 16 Mean 483 Ac-ft 349,600

Peak discharge (base, 1,600 cfs).--Probably Dec. 9 (time unknown) 3,560 cfs (9.08 ft); probably Dec. 20 (time and discharge unknown); Feb. 21 (1 a. m.) 2,250 cfs (8.01 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 18, 19, Nov. 22 to Jan. 8, Jan. 19-31, Apr. 8-13, July 25-29; discharge estimated on basis of high-water mark, recorded range in stage, and records for station below Lapham Creek near Willard.

Little White Salmon River below Lapham Creek, near Willard, Wash.

Location.—Lat 45°46'00", long 121°37'40", in NW¼ sec. 12, T. 3 N., R. 9 E., on right bank 0.3 mile downstream from Lapham Creek and 1.2 miles south of Willard.

Drainage area.—123 sq mi.

Records available.—September 1949 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 980 ft (from river-profile map).

Average discharge.—5 years, 565 cfs (409,000 acre-ft per year).

Extremes.—Maximum discharge during year, 2,750 cfs Dec. 9 (gage height, 5.46 ft); minimum, 67 cfs Nov. 13 (gage height, 1.57 ft).

1949-54: Maximum discharge, 3,610 cfs Jan. 9, 1953 (gage height, 5.98 ft); minimum, 59 cfs Oct. 31, 1952 (gage height, 1.35 ft).

Remarks.—Records good. Broughton Lumber Co. diversion above station may at times carry as much as 30cfs. Other diversions above station for water supply, irrigation, and hatchery purposes. Possibly some regulation.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 20		Nov. 21 to Sept. 30			
1.5	67	1.8	105	3.5	730
1.7	103	2.1	177	4.0	1,050
1.9	147	2.5	300	5.0	2,080
		3.0	490		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	147	94	318	784	665	874	630	635	553	499	386	232
2	136	82	328	784	660	820	615	620	553	504	378	229
3	129	79	398	808	640	772	808	605	553	504	374	223
4	126	77	490	1,140	620	742	1,040	600	558	508	370	220
5	118	77	553	1,420	600	715	1,320	595	558	504	366	217
6	116	82	966	*1,430	*576	690	1,370	590	558	499	363	214
7	111	84	760	1,320	553	675	1,170	600	558	499	356	*211
8	109	88	635	1,230	540	826	1,110	605	558	494	356	208
9	109	77	1,350	1,130	530	1,290	1,070	610	558	504	352	*205
10	114	76	1,840	1,040	512	1,400	973	600	553	512	346	202
11	107	76	1,140	959	504	1,140	904	590	548	494	342	199
12	105	74	1,150	904	522	945	892	571	544	478	338	197
13	105	70	973	862	645	832	1,040	553	540	474	332	194
14	103	76	856	952	695	772	*1,060	548	540	466	328	191
15	101	94	784	994	665	736	938	548	566	462	324	188
16	99	120	736	931	695	705	898	548	562	454	318	188
17	101	124	700	868	736	*675	945	548	553	446	314	185
18	107	111	680	826	742	650	938	548	544	442	307	183
19	105	103	1,110	772	911	635	880	553	540	438	300	180
20	103	99	1,760	736	1,500	630	820	553	540	434	296	174
21	101	*109	1,480	710	2,040	615	784	548	535	430	290	167
22	*97	*413	1,250	1,200	1,660	605	778	544	526	426	282	169
23	95	398	1,110	1,300	1,330	610	778	544	522	422	276	167
24	94	346	994	1,070	1,220	620	760	544	517	418	272	164
25	107	324	931	938	1,190	625	736	544	512	418	268	164
26	90	307	886	856	1,150	670	715	558	508	410	265	164
27	90	328	862	808	1,040	868	700	*548	508	406	259	156
28	88	332	844	766	945	832	680	540	504	402	253	154
29	86	324	814	736	-------	760	665	544	*494	*398	250	151
30	90	314	790	705	-------	700	650	544	499	390	241	149
31	90	-------	772	685	-------	655	-------	553	-------	386	238	-------
Total	3,279	4,958	28,260	29,664	24,086	24,084	26,667	17,631	16,162	14,121	9,740	5,645
Mean	106	165	912	957	860	777	889	569	539	456	314	188
Ac-ft	6,500	9,830	56,050	58,840	47,770	47,770	52,890	34,970	32,060	28,010	19,320	11,200

Calendar year 1953: Max 3,140 Min 70 Mean 587 Ac-ft 425,300
Water year 1953-54: Max 2,040 Min 70 Mean 560 Ac-ft 405,200

Peak discharge (base, 1,500 cfs).--Dec. 9 (8 p. m.) 2,750 cfs (5.46 ft); Dec. 20 (11 a. m.) 1,820 cfs (4.80 ft); Jan. 5 (5:30 p. m.) 1,500 cfs (4.53 ft); Jan. 22 (5:30 p. m.) 1,580 cfs (4.60 ft); Feb. 21 (1 p. m.) 2,300 cfs (5.16 ft); Mar. 9 (9 p. m.) 1,540 cfs (4.56 ft).

* Discharge measuremmet made on this day.

Wind River above Trout Creek, near Carson, Wash.

Location. --Lat 45°48'30", long 121°54'30", in NE¼ sec. 26, T. 4 N., R. 7 E., on left bank 30 ft downstream from bridge, three-quarters of a mile upstream from Trout Creek, and 7 miles northwest of Carson.
Drainage area. --108 sq mi.
Records available. --October 1944 to September 1954.
Gage. --Staff gage and crest-stage indicator; gage read twice daily. Altitude of gage is 850 ft (from topographic map).
Average discharge. --10 years, 579 cfs (419,200 acre-ft per year).
Extremes. --Maximum discharge during year, 5,460 cfs Dec. 9 (gage height, 12.36 ft); minimum observed, 84 cfs Oct. 16 (gage height, 1.78 ft).
1944-54: Maximum discharge, 8,880 cfs Feb. 8, 1945 (gage height, 15.5 ft, from high-water mark), from rating curve extended above 5,000 cfs; minimum observed, 52 cfs Oct. 27-30, 1945.
Remarks. --Records good. Very small regulation by fish hatchery dam above station. No diversion above station which is not returned to stream.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 9				Dec. 10 to Sept. 30			
1.7	78	4.0	422	1.8	90	4.0	451
2.0	104	5.0	690	2.1	119	6.0	1,080
2.5	158	6.0	1,050	2.5	166	8.0	2,030
3.0	231	7.0	1,500	3.0	241	10.0	3,380
3.5	317	10.0	3,380	3.5	338		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	159	101	797	682	561	918	561	577	727	451	167	112
2	142	100	832	697	552	834	569	252	673	420	163	110
3	116	98	909	715	525	757	1,040	555	649	392	160	108
4	106	95	1,070	1,200	*499	748	1,290	577	626	374	158	*108
5	100	97	1,260	*1,810	471	661	1,750	611	580	363	160	107
6	98	132	2,300	1,720	446	628	1,580	617	575	348	157	106
7	95	151	1,520	1,440	432	603	1,320	739	577	357	152	106
8	93	134	1,170	1,280	420	984	1,380	904	552	340	148	108
9	87	125	3,220	1,140	411	2,140	1,320	949	528	336	145	104
10	105	125	2,990	946	402	2,180	1,170	928	507	366	142	104
11	103	134	1,800	854	390	1,460	1,050	921	486	366	140	114
12	97	132	2,210	795	594	1,200	1,010	879	499	338	139	118
13	*90	135	1,650	649	1,400	1,020	*1,540	816	471	319	138	115
14	88	150	1,330	703	1,260	924	1,420	770	456	311	137	108
15	86	334	1,120	848	1,040	840	1,200	809	688	301	137	119
16	85	538	1,000	751	1,090	*778	1,100	879	795	286	136	117
17	108	470	879	697	1,190	718	1,210	942	718	272	131	116
18	178	364	848	670	1,200	664	1,190	963	640	263	130	112
19	177	344	2,010	608	1,200	631	1,090	970	608	254	130	108
20	152	354	3,380	536	2,120	603	988	*907	676	245	133	105
21	*139	450	2,330	563	3,360	572	921	792	628	243	129	103
22	126	*2,070	1,550	1,870	2,300	563	904	733	591	224	127	101
23	120	1,550	1,260	1,360	1,740	558	900	721	555	218	126	99
24	113	1,170	1,100	1,030	1,460	552	886	727	515	213	124	97
25	109	1,130	1,000	868	1,340	542	844	694	*505	204	129	96
26	103	1,030	858	809	1,270	583	778	760	492	198	129	95
27	102	1,100	767	736	1,110	834	745	736	499	*190	127	93
28	100	986	748	682	1,000	774	718	628	499	186	122	92
29	98	842	718	631	--------	694	673	643	454	183	118	92
30	102	794	661	580	--------	626	626	658	458	178	115	92
31	101	--------	611	566	--------	591	--------	724	--------	172	114	--------
Total	3,478	15,235	43,898	28,436	29,783	26,180	31,773	23,681	17,227	8,911	4,263	3,165
Mean	112	508	1,416	917	1,064	845	1,059	764	574	287	138	106
Cfsm	1.04	4.70	13.1	8.49	9.85	7.82	9.81	7.07	5.31	2.66	1.28	0.981
In.	1.20	5.25	15.12	9.79	10.26	9.02	10.94	8.15	5.93	3.07	1.47	1.09
Ac-ft	6,900	30,220	87,070	56,400	59,070	51,930	63,020	46,970	34,170	17,670	8,460	6,280

Calendar year 1953: Max 5,400 Min 78 Mean 693 Cfsm 6.42 In. 87.12 Ac-ft 501,700
Water year 1953-54: Max 3,380 Min 85 Mean 647 Cfsm 5.99 In. 81.29 Ac-ft 468,200

Peak discharge (base, 3,000 cfs).--Dec. 9 (time unknown) 5,460 cfs (12.36 ft); Dec. 20 (time unknown) 4,350 cfs (11.17 ft); Feb. 21 (time unknown) 3,920 cfs (10.67 ft).
* Discharge measurement made on this day.

Wind River near Carson, Wash.

Location.—Lat 45°44'10", long 121°48'10", in SW¼NE¼ sec. 21, T. 3 N., R. 8 E., on right bank three-quarters of a mile upstream from Little Wind River, 1 mile northeast of Carson, and 2½ miles upstream from mouth. Records include flow of Little Wind River.

Drainage area.—225 sq mi, includes that of Little Wind River.

Records available.—December 1934 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 150 ft (from topographic map).

Average discharge.—19 years, (1935-54), 1,135 cfs (821,700 acre-ft per year).

Extremes.—Maximum discharge during year, 14,600 cfs Dec. 9 (gage height, 15.42 ft); minimum, 210 cfs Oct. 17; minimum gage height, 3.25 ft Sept. 30.

1934-54: Maximum discharge, 20,000 cfs (revised) Dec. 29, 1937 (gage height, 17.30 ft), from rating curve extended above 15,000 cfs by logarithmic plotting; minimum, 123 cfs Nov. 30, 1952; minimum gage height, 2.21 ft Nov. 29, Dec. 1, 1936.

Revisions.—The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
794	1935	Dec. 21, 1934	12,200	14.6
814	1936	Jan. 12, 1936	10,900	13.96
834	1937	Apr. 14, 1937	14,900	15.72
864	1938	Dec. 29, 1937	20,000	17.30
964	1942	Dec. 19, 1941	15,800	15.99
984	1943	Nov. 23, 1942	17,600	16.58
1044	1945	Feb. 8, 1945	17,600	16.62
1064	1946	Dec. 28, 1945	15,800	16.02

Remarks.—Records good. Flow occasionally affected by pondage at Forest Service powerplant on Trout Creek. No diversion above station.

Revisions.—WSP 964: Drainage area. Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1935-37, superseding those published in WSP 794, 814, and 834, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1934		1936-Con.		1936-Con.	
Dec. 20	6,390	Jan. 3	3,920	Jan. 15	4,030
21	8,430	4	7,170		
22	6,690	5	5,810	1937	
23	5,130	6	3,700	Apr. 12	2,760
24	4,260	9	3,490	13	9,140
25	5,130	10	5,460	14	11,600
26	4,190	11	8,370	15	8,500
		12	8,730	16	5,180
1936		13	7,670	17	3,700
Jan. 2	5,950	14	5,130		

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
December 1934.....	76,972	8,430	822	2,483	11.0	12.72	152,700
January 1936.....	104,500	8,730	910	3,371	15.0	17.27	207,300
Water year 1935-36.....	357,754	8,730	169	977	4.34	59.13	709,600
Calendar year 1936.....	358,902	8,730	142	981	4.36	59.32	711,800
April 1937.....	91,680	11,600	1,400	3,056	13.6	15.15	181,800
Water year 1936-37.....	352,579	11,600	142	966	4.29	58.27	699,300
Calendar year 1937.....	503,787	14,200	183	1,380	6.13	83.26	999,200

Wind River near Carson, Wash.—Continued

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 8				Dec. 9 to Sept. 30			
3.3	212	6.0	1,100	3.2	221	6.0	1,050
3.6	269	7.0	1,670	3.6	291	7.0	1,580
4.0	359	8.0	2,400	4.0	377	8.0	2,280
4.5	491	9.0	3,290	4.5	507	9.0	3,140
5.0	660	10.0	4,380	5.0	662	10.0	4,200
5.5	860	12.0	7,170	5.5	842	12.0	7,100
						14.0	11,100

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	400	255	1,850	1,320	1,220	1,830	1,140	1,070	1,240	789	372	274
2	349	263	1,920	1,430	1,200	1,620	1,140	1,020	1,140	742	363	270
3	297	249	2,540	1,600	1,140	1,470	2,270	1,020	1,100	706	359	267
4	267	243	2,960	3,330	1,060	1,350	3,140	1,070	1,060	679	359	*267
5	249	249	3,450	5,040	*992	1,260	4,460	1,140	978	665	356	265
6	236	359	6,270	*4,120	994	1,210	4,320	1,200	978	642	354	261
7	228	387	3,900	3,350	897	1,160	3,080	1,360	996	636	347	261
8	219	349	2,960	2,930	858	2,360	3,010	1,630	956	610	341	267
9	217	326	8,380	2,420	834	4,950	2,920	1,760	928	613	339	259
10	255	321	7,210	2,040	815	4,920	2,540	1,680	893	745	334	259
11	257	335	4,050	1,750	804	3,230	2,180	1,660	858	731	330	274
12	234	333	4,780	1,540	1,310	2,500	2,090	1,560	850	649	328	282
13	225	321	3,540	1,410	3,290	2,080	3,140	1,380	827	607	326	282
14	217	342	2,720	1,770	3,140	1,710	*3,060	1,330	800	594	324	267
15	216	769	2,260	2,010	2,500	1,590	2,500	1,360	1,140	572	322	272
16	214	1,370	1,940	1,710	2,670	1,490	2,260	1,460	1,430	551	319	280
17	243	1,260	1,670	1,510	2,900	*1,370	2,460	1,530	1,340	533	315	276
18	407	930	1,570	1,400	2,840	1,260	2,380	1,590	1,210	513	311	270
19	423	910	4,640	1,240	3,480	1,200	2,170	1,580	1,140	499	313	263
20	384	925	8,050	1,120	5,680	1,140	1,900	*1,460	1,220	487	317	256
21	*357	1,170	5,190	1,080	8,070	1,100	1,720	1,310	1,150	485	315	252
22	382	*5,240	3,540	3,930	5,430	1,080	1,710	1,200	1,070	463	303	247
23	308	4,080	2,720	3,350	3,830	1,100	1,760	1,150	1,000	452	299	244
24	290	3,040	2,210	2,350	3,310	1,100	1,660	1,150	940	444	297	242
25	275	2,780	1,850	1,880	3,010	1,100	1,570	1,120	*904	431	309	239
26	265	2,510	1,620	1,620	2,830	1,220	1,450	1,210	881	426	309	237
27	255	2,570	1,440	1,460	2,420	1,960	1,400	1,140	881	*414	301	234
28	249	2,390	1,460	1,330	2,080	1,780	1,330	1,030	889	404	293	234
29	243	1,970	1,360	1,250	--------	1,410	1,240	1,030	812	394	289	235
30	259	1,800	1,250	1,200	--------	1,300	1,160	1,070	808	384	282	231
31	261	--------	1,180	1,170	--------	1,200	--------	1,170	--------	377	278	--------
Total	8,627	38,046	100,480	63,660	69,554	54,050	67,160	40,440	30,419	17,237	10,004	7,767
Mean	278	1,268	3,241	2,054	2,484	1,744	2,239	1,305	1,014	556	323	259
Cfsm	1.24	5.64	14.4	9.13	11.0	7.75	9.95	5.80	4.51	2.47	1.44	1.15
In.	1.43	6.29	16.61	10.52	11.50	8.93	11.10	6.68	5.03	2.85	1.65	1.28
Ac-ft	17,110	75,460	199,300	126,300	138,000	107,200	133,200	80,210	60,340	34,190	19,840	15,410

Calendar year 1953: Max 12,600 Min 181 Mean 1,575 Cfsm 7.00 In. 95.00 Ac-ft 1,140,000
Water year 1953-54: Max 8,380 Min 214 Mean 1,390 Cfsm 6.18 In. 83.87 Ac-ft 1,007,000

Peak discharge (base, 5,700 cfs).—Nov. 22 (5 p. m.) 6,580 cfs (11.63 ft); Dec. 6 (4:30 a. m.) 7,760 cfs (12.35 ft); Dec. 9 (6:45 p. m.) 14,600 cfs (15.42 ft); Dec. 19 (12 p. m.) 9,670 cfs (13.34 ft); Feb. 21 (10 a. m.) 9,630 cfs (13.32 ft); Mar. 9 (9 p. m.) 6,430 cfs (11.60 ft).

* Discharge measurement made on this day.

Salmon River near Government Camp, Oreg.

Location.—Lat 45°16'00", long 121°43'00", in sec. 31, T. 3 S., R. 9 E., on right bank near lower end of Red Top Meadows, 4 miles southeast of Government Camp.

Drainage area.—8.7 sq mi, approximately.

Records available.—May 1910 to May 1912, April 1926 to September 1954. Published as "near Rowe" 1910-12.

Gage.—Water-stage recorder. Datum of gage is 3,446.45 ft above mean sea level, datum of 1929. Prior to Nov. 21, 1910, staff gage at site a quarter of a mile upstream at different datum. Nov. 21, 1910, to May 31, 1912, and Apr. 21, 1926, to Sept. 30, 1933, water-stage recorder at site 75 ft upstream from former site at different datum.

Average discharge.—29 years (1910-11, 1926-54), 42.9 cfs (31,060 acre-ft per year).

Extremes.—Maximum discharge during year, 329 cfs Nov. 22 (gage height, 2.62 ft); minimum, 18 cfs Oct. 27-31, Nov. 3-5.

1910-12, 1926-54: Maximum discharge, 650 cfs Dec. 22, 1933 (gage height, 3.61 ft); minimum, 10 cfs Nov. 27, 1952.

Remarks.—Records good except those above 150 cfs, which are fair. No regulation or diversion above station.

Revisions.—WSP 769: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 21		Nov. 22 to May 17		May 18 to Sept. 30	
0.3	17	0.5	29	0.4	21
.6	33	.8	52	.7	38
.9	57	1.3	108	1.0	65
		1.9	195	1.6	140

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	21	55	47	37	40	29	50	109	92	39	29
2	24	20	77	46	37	38	29	50	93	77	39	28
3	27	18	65	43	36	37	42	62	95	74	39	29
4	21	18	50	63	36	*36	48	64	91	70	38	28
5	21	18	52	71	36	36	48	72	91	68	38	27
6	20	24	56	56	36	36	42	80	112	67	37	26
7	20	22	45	50	37	35	40	92	109	*65	36	26
8	*20	20	69	46	38	59	47	107	100	62	36	26
9	20	20	143	46	38	82	43	108	106	64	35	25
10	24	20	89	44	39	68	40	111	106	68	34	31
11	22	21	74	42	40	53	43	113	95	62	34	29
12	20	21	127	41	61	47	48	102	116	59	34	32
13	20	18	81	44	68	44	*90	95	99	58	34	28
14	20	20	69	45	55	42	75	97	93	58	34	26
15	20	20	62	42	47	41	64	108	124	56	33	33
16	20	31	57	39	44	39	73	114	111	53	*33	33
17	21	22	53	38	44	37	86	121	106	52	32	30
18	30	*20	52	38	42	35	83	126	92	51	31	28
19	26	26	176	35	42	35	72	125	94	51	35	26
20	27	23	136	32	57	34	69	109	103	52	44	26
21	24	49	91	*36	62	33	71	102	95	58	36	25
22	21	182	75	46	52	33	77	94	94	50	33	25
23	20	95	68	42	48	33	78	97	86	49	33	24
24	20	81	61	38	54	34	74	*94	85	46	34	24
25	19	61	57	36	52	32	70	97	84	45	33	24
26	19	52	59	35	47	33	69	108	84	44	31	23
27	18	68	56	33	43	32	66	92	94	44	30	23
28	18	50	68	36	42	31	60	82	91	42	30	23
29	18	51	56	37	-------	30	55	95	80	41	29	23
30	18	50	50	37	-------	29	53	104	83	40	30	22
31	18	-------	49	38	-------	29	-------	113	-------	40	30	-------
Total	662	1,162	2,278	1,322	1,270	1,223	1,784	2,984	2,921	1,758	1,064	802
Mean	21.4	38.7	73.5	42.6	45.4	39.5	59.5	96.3	97.4	56.7	34.3	26.7
Cfsm	2.46	4.45	8.45	4.90	5.22	4.54	6.84	11.1	11.2	6.52	3.94	3.07
In.	2.83	4.97	9.74	5.65	5.43	5.23	7.63	12.76	12.49	7.51	4.55	3.43
Ac-ft	1,310	2,300	4,520	2,620	2,520	2,430	3,540	5,920	5,790	3,490	2,110	1,590

Calendar year 1953: Max 352 Min 14 Mean 54.0 Cfsm 6.21 In. 84.29 Ac-ft 39,100
Water year 1953-54: Max 182 Min 18 Mean 52.7 Cfsm 6.06 In. 82.22 Ac-ft 38,140

Peak discharge (base, 150 cfs).--Nov. 22 (2:30 p. m.) 329 cfs (2.62 ft); Dec. 9 (1:30 to 3:30 p. m.) 184 cfs (1.83 ft); Dec. 12 (5 to 6 a. m.) 176 cfs (1.78 ft); Dec. 19 (6 to 7 p. m.) 260 cfs (2.27 ft); May 18 (6 p. m.) 150 cfs (1.66 ft).

* Discharge measurement made on this day.

Sandy River near Marmot, Oreg.

Location.—Lat 45°23'10", long 122°08'00", in NE¼ sec. 24, T. 2 S., R. 5 E., on right bank 1 mile southwest of Marmot, 1½ miles upstream from Sandy River Dam of Portland General Electric Co., and 6 miles downstream from Salmon River.

Drainage area.—262 sq mi.

Records available.—August 1911 to September 1954. Records for period January 1916 to June 1919 published as "at dam near Marmot", obtained by combining records for Sandy River below dam near Marmot with records for Sandy River Canal near Marmot.

Gage.—Water-stage recorder. Datum of gage is 742.4 ft above mean sea level (Portland General Electric Co.'s benchmark). Prior to Oct. 19, 1933, water-stage recorder (staff gage for short periods) at several sites ranging from 1¾ miles below to half a mile above present site at various datum.

Average discharge.—43 years, 1,336 cfs (967,200 acre-ft per year).

Extremes.—Maximum discharge during year, 13,300 cfs Nov. 22 (gage height, 11.86 ft); minimum, 329 cfs Oct. 7, 8, 16, 17 (gage height, 3.21 ft).

1911-54: Maximum discharge, 29,200 cfs Jan. 6, 1923 (gage height, 17.5 ft, site and datum then in use), by computation of peak flow over dam; minimum, 195 cfs Nov. 27, 28, 1952.

Remarks.—Records excellent. No regulation or diversion above station.

Cooperation.—Water-stage recorder inspected by employee of Portland General Electric Co.

Revisions (water years).—WSP 594: Drainage area. WSP 1288: 1912(M), 1915, 1922, 1924, 1934(M).

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

3.2	325	6.0	2,350
4.0	710	8.0	5,100
5.0	1,400	10.0	8,900

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	525	406	2,650	1,540	2,750	*1,530	884	1,120	3,090	1,750	633	530
2	473	432	3,330	1,440	2,790	1,390	896	1,080	2,350	1,600	644	515
3	392	374	4,330	1,400	2,670	1,290	1,540	1,130	2,010	1,410	611	500
4	357	357	3,810	2,950	2,600	1,210	2,230	1,300	1,780	1,300	600	496
5	345	361	4,340	4,020	2,470	1,140	3,090	1,300	1,830	1,230	595	478
6	337	437	4,640	3,020	2,280	1,100	2,880	1,410	2,220	*1,180	590	460
7	333	500	*3,120	2,360	2,120	1,060	2,150	1,640	2,700	1,150	575	455
8	333	428	3,500	1,970	2,030	1,990	2,130	2,020	2,240	1,080	570	455
9	341	396	7,500	1,700	1,970	3,140	2,020	2,150	2,330	1,070	560	446
10	442	388	6,130	1,540	1,780	3,110	1,770	1,960	2,210	1,310	545	464
11	419	396	3,810	1,390	1,620	2,300	1,620	2,060	2,010	1,190	540	515
12	357	392	6,580	1,260	2,350	1,840	1,650	1,860	2,210	1,100	*535	550
13	341	374	4,320	1,210	3,200	1,610	3,500	*1,650	2,140	1,070	535	515
14	337	388	3,220	1,620	2,720	1,460	*3,370	1,640	1,930	1,060	540	482
15	337	468	2,720	1,670	2,160	1,380	2,510	1,780	2,710	994	525	628
16	333	1,010	2,300	1,470	1,920	1,300	2,260	1,880	3,240	922	510	677
17	337	929	1,980	1,300	1,910	1,190	2,480	1,890	3,020	872	505	644
18	478	740	1,890	1,220	1,780	1,120	2,370	2,030	2,470	872	500	633
19	*570	818	6,540	1,110	1,880	1,060	2,080	2,000	2,140	866	565	570
20	535	903	8,320	994	3,510	1,020	1,830	1,770	2,120	830	746	535
21	525	1,420	5,270	1,060	4,440	968	1,730	1,600	1,880	922	677	505
22	437	8,570	3,590	*2,840	3,330	936	1,730	1,420	1,700	818	585	520
23	396	6,520	2,720	2,650	2,520	922	1,750	1,390	1,570	776	585	496
24	374	3,590	2,180	1,980	2,280	910	1,700	1,420	1,430	758	611	478
25	365	2,630	1,830	1,630	2,150	878	1,610	1,500	1,360	722	611	473
26	353	2,100	1,700	1,470	2,130	878	1,540	1,860	1,320	710	580	455
27	349	2,490	1,610	1,800	1,810	1,180	1,560	1,790	1,400	688	540	446
28	345	2,130	1,870	2,810	1,690	1,220	1,410	1,530	1,520	672	525	432
29	345	1,960	2,010	2,780	-------	1,010	1,280	1,610	1,290	672	530	424
30	357	1,880	1,690	2,610	-------	942	1,200	2,130	1,320	650	535	406
31	345	-------	1,540	2,550	-------	896	-------	2,480	-------	638	570	-------
Total	12,113	43,787	111,040	59,364	66,860	41,980	58,770	52,400	61,540	30,882	17,773	15,183
Mean	391	1,460	3,582	1,915	2,388	1,354	1,959	1,690	2,051	996	573	506
Cfsm	1.49	5.57	13.7	7.31	9.11	5.17	7.48	6.45	7.83	3.80	2.19	1.93
In.	1.72	6.22	15.76	8.43	9.49	5.96	8.34	7.44	8.74	4.38	2.52	2.16
Ac-ft	24,030	86,850	220,200	117,700	132,600	83,270	116,600	103,900	122,100	61,250	35,250	30,120

Calendar year 1953: Max 17,800 Min 325 Mean 1,771 Cfsm 6.76 In. 91.78 Ac-ft 1,282,000
Water year 1953-54: Max 8,570 Min 333 Mean 1,566 Cfsm 5.98 In. 81.16 Ac-ft 1,134,000

Peak discharge (base, 7,700 cfs).--Nov. 22 (6 p. m.) 13,300 cfs (11.86 ft); Dec. 9 (6 p. m.) 10,700 cfs (10.80 ft); Dec. 12 (8 a. m.) 8,400 cfs (9.77 ft); Dec. 19 (8:30 p. m.) 12,800 cfs (11.67 ft).

* Discharge measurement made on this day.

Lake Ben Morrow near Bull Run, Oreg.

Location. —Lat 45°29'00", long 122°04'50", in SW¼ sec. 16, T. 1 S., R. 6 E., in control house at Bear Creek Dam of city of Portland, 8½ miles northeast of Bull Run.
Drainage area. —74 sq mi, approximately.
Records available. —October 1928 to September 1954.
Gage. —Water-stage recorder. Datum of gage is at mean sea level (levels by Portland Water Bureau). Prior to Oct. 9, 1930, staff gage at same site and datum.
Extremes. —Maximum contents during year, 30,110 acre-ft Nov. 22 (elevation, 1,043.92 ft); minimum, 18,050 acre-ft Oct. 1 (elevation, 1,010.31 ft).
1928-54: Maximum contents, 31,600 acre-ft Mar. 31, 1931 (elevation, 1,047.40 ft); minimum after first filling, 10,170 acre-ft Dec. 2, 1952 (elevation, 980.52 ft).
Remarks. —Records excellent. Lake Ben Morrow is formed by concrete dam known as Bear Creek Dam on Bull Run River, completed in March 1929 for water supply of city of Portland. Capacity of reservoir, 26,930 acre-ft at crest of spillway (elevation, 1,036 ft); dead storage, 213 acre-ft at elevation 890 ft (center of outlet valves).
Cooperation. —Water-stage recorder inspected and capacity table furnished by Portland Water Bureau.
Revisions (water years). —WSP 814: 1935(M).

Monthly elevations and contents, water year October 1953 to September 1954

Date	Elevation (feet) †	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	1,010.31	18,050	-
Oct. 31	1,021.72	21,760	+3,710
Nov. 30	1,038.18	27,780	+6,020
Dec. 31	1,037.35	27,460	-320
Calendar year 1953	-	-	-30
Jan. 31	1,037.72	27,600	+140
Feb. 28	1,037.32	27,440	-160
Mar. 31	1,036.85	27,260	-180
Apr. 30	1,036.95	27,300	+40
May 31	1,038.37	27,850	+550
June 30	1,037.04	27,340	-510
July 31	1,035.09	26,580	-760
Aug. 31	1,034.06	26,190	-390
Sept. 30	1,026.05	23,270	-2,920
Water year 1953-54	-	-	+5,220

† Elevation at 12 p. m.

Bull Run River below Lake Ben Morrow, Oreg.

Location.—Lat 45°29'00", long 122°04'50", in SW¼ sec. 16, T. 1 S., R. 6 E., in gatehouse at Bear Creek Dam on Bull Run River, 500 ft downstream from Bear Creek, 1,000 ft upstream from Fivemile Creek, and 8½ miles northeast of Bull Run.

Drainage area.—74 sq mi, approximately.

Records available.—October 1929 to September 1954 (discontinued). Published as "below Bull Run Reservoir near Bull Run" in 1930, and as "below Bull Run Reservoir", 1931-37.

Gage.—Water-stage recorder above crest of spillway, and scales indicating number of turns outlet needle valves are open. Datum of gage is at mean sea level (levels by Portland Water Bureau). Prior to Oct. 1, 1934, at site half a mile downstream at different datum.

Average discharge.—25 years, 582 cfs, adjusted (421,400 acre-ft per year).

Extremes.—Maximum discharge during year, 8,920 cfs Nov. 22 (elevation, 1,043.92 ft); minimum daily, 96 cfs Oct. 4.

1929-54: Maximum discharge at dam, 16,100 cfs Mar. 31, 1931 (elevation, 1,047.40 ft with 1 valve open 30 turns, present datum); no flow Oct. 2, 1951, Dec. 11-13, 1952.

Remarks.—Records good. Daily discharge determined by combining discharge through valves near base of dam and discharge over crest of spillway (elevation, 1,036 ft). Leakage at dam is less than 1 cfs and is disregarded. Flow regulated by Bull Run Lake and Lake Ben Morrow (see p. 104); adjustment applied for storage in Lake Ben Morrow only; flow from Bull Run Lake is not artificially regulated but reaches river through surface and underground channels.

Cooperation.—Water-stage recorder inspected and record of valve openings furnished by Portland Water Bureau.

Revisions (water years).—WSP 904: Drainage area, 1931(M). WSP 1288: 1937.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	125	101	1,530	574	840	536	272	316	1,320	548	194	267
2	125	101	1,910	536	808	464	260	299	937	562	174	264
3	107	102	2,380	594	787	416	676	294	725	484	167	264
4	96	105	2,160	1,320	816	377	1,200	321	607	419	170	244
5	98	102	2,690	2,510	816	354	1,720	363	614	383	167	205
6	98	102	2,850	2,480	753	321	1,550	389	950	338	167	182
7	101	103	1,670	1,060	683	299	1,000	484	1,410	408	174	165
8	98	103	1,560	934	627	690	1,000	588	959	392	187	168
9	98	103	4,620	746	614	1,700	1,040	634	860	390	172	165
10	98	104	3,140	634	597	1,720	840	594	792	459	178	165
11	98	104	1,720	725	542	1,020	718	600	697	671	*188	165
12	98	107	3,780	551	1,250	718	676	630	648	602	176	165
13	98	104	1,910	133	1,680	568	2,150	529	634	468	165	165
14	101	104	1,300	732	1,470	484	1,870	490	568	349	165	165
15	98	105	1,030	942	1,020	425	1,140	490	976	*355	165	226
16	98	578	869	690	900	410	908	529	1,390	358	165	264
17	98	1,040	725	562	979	354	882	542	1,290	306	165	297
18	99	735	776	496	959	326	840	568	1,020	247	168	316
19	99	760	3,450	413	950	299	711	565	800	227	165	316
20	*99	857	4,510	346	2,340	282	634	503	800	284	165	313
21	103	1,280	2,820	338	3,100	272	584	438	739	*381	165	313
22	100	6,560	1,580	1,720	1,900	588	555	389	620	341	165	316
23	100	3,620	1,070	1,810	1,240	455	548	371	545	319	165	313
24	100	2,010	816	1,050	996	157	536	354	470	319	165	309
25	100	1,630	648	732	874	127	510	383	419	258	168	250
26	100	1,410	562	607	900	143	464	735	383	207	165	220
27	100	1,490	536	610	746	354	490	784	407	207	165	220
28	103	1,230	662	968	627	503	454	594	464	210	165	189
29	100	993	768	1,010	-------	383	401	548	389	207	165	141
30	101	984	623	916	-------	329	360	792	357	207	165	122
31	101	-------	574	874	-------	388	-------	1,140	-------	207	211	-------
Total	3,138	26,727	55,239	27,613	29,894	15,462	24,989	16,256	22,790	11,113	5,301	6,874
Mean	101	891	1,782	891	1,068	499	833	524	760	358	171	229
Ac-ft	6,220	53,010	109,600	54,770	59,290	30,670	49,560	32,240	45,200	22,040	10,510	13,630

Adjusted for change in contents in Lake Ben Morrow

Mean	161	992	1,778	893	1,065	496	834	533	751	346	165	180
Csm	2.18	13.4	24.0	12.1	14.4	6.70	11.3	7.20	10.1	4.68	2.23	2.43
In.	2.52	14.96	27.69	13.91	14.98	7.73	12.57	8.31	11.32	5.39	2.56	2.71
Ac-ft	9,930	59,030	109,300	54,910	59,130	30,490	49,600	32,790	44,690	21,280	10,120	10,710

Observed

Calendar year 1953: Max 8,040 Min 88 Mean 790 Ac-ft 572,100
Water year 1953-54: Max 6,560 Min 96 Mean 672 Ac-ft 486,700

Adjusted

Calendar year 1953: Mean 790 Csm 10.7 In. 144.95 Ac-ft 572,100
Water year 1953-54: Mean 679 Csm 9.18 In. 124.65 Ac-ft 491,900

Peak discharge (base, 4,800 cfs).--Nov. 22 (3:30 p. m.) 8,920 cfs (1,043.92 ft); Dec. 9 (5:30 to 6:30 p. m.) 6,470 cfs (1,042.42 ft); Dec. 12 (6 a. m.) 5,040 cfs (1,041.44 ft); Dec. 19 (8:30 p. m.) 7,210 cfs (1,042.89 ft).

* Discharge measurement made on this day.

Bull Run River near Bull Run, Oreg.

Location. —Lat 45°27'20", long 122°07'50", in SE¼ sec. 25, T. 1 S., R. 5 E., on left bank 1 mile upstream from intake of pipeline for water supply of city of Portland and 5 miles east of Bull Run.

Drainage area. —102 sq mi.

Records available. —January 1895 to September 1954.

Gage. —Water-stage recorder. Datum of gage is 759 ft above mean sea level (topographic survey of 1954). Prior to July 27, 1909, staff gage 1 mile downstream at different datum. July 27, 1909, to July 25, 1916, water-stage recorder at present site at datum 1.0 ft lower; July 26, 1916, to July 21, 1924, at datum 1.0 ft higher; July 22, 1924, to Aug. 24, 1928, at datum 0.5 ft higher. A supplementary staff gage 1 mile downstream on headwall of intake works is read in general 3 times a day (every half hour during floods) by employees of Portland Water Bureau.

Average discharge. —47 years (1907-54), 744 cfs, adjusted for storage since 1929 (538,600 acre-ft per year).

Extremes. —Maximum discharge during year, 10,400 cfs Nov. 22 (gage height, 9.18 ft); minimum, 124 cfs Oct. 9.

1895-1954: Maximum discharge, 20,600 cfs Mar. 31, 1931 (gage height, 13.8 ft), by computation of peak flow over dam; minimum, 63 cfs Aug. 13-16, 1926.

Remarks. —Records excellent except those for periods of no gage-height record, which are good. Flow regulated by Bull Run Lake and Lake Ben Morrow (see p. 104); adjustment applied only for storage in Lake Ben Morrow; flow from Bull Run Lake is not artificially regulated but reaches river through surface and underground channels. No diversions above station.

Cooperation. —Water-stage recorder inspected by Portland Water Bureau.

Revisions (water years). —WSP 1288: 1910-11, 1913, 1920-23, 1926, 1929.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	221	174	2,020	736	1,170	a700	430	427	1,500	718	231	284
2	191	180	2,480	700	1,100	a600	444	402	1,080	685	205	281
3	165	163	3,150	706	1,090	a550	944	427	838	585	194	278
4	142	159	2,870	1,470	1,130	a500	1,540	466	706	522	194	266
5	138	159	3,670	2,830	a1,100	*462	2,170	490	772	476	191	221
6	135	165	3,690	1,960	a1,050	438	1,950	504	1,200	434	191	205
7	131	169	2,210	1,420	a950	413	1,300	569	1,690	494	194	184
8	126	159	*2,120	1,230	a900	930	1,310	690	1,170	494	205	184
9	126	155	5,550	a1,000	a850	2,010	1,330	730	1,080	*500	194	*182
10	150	155	3,960	a850	a800	2,000	1,080	655	964	605	196	a180
11	144	155	2,240	a950	a750	1,230	943	706	844	778	*203	a175
12	135	157	4,640	a850	a1,600	901	887	700	796	700	196	a175
13	133	153	2,420	a600	a2,300	724	2,710	585	778	561	182	a180
14	133	155	1,630	a1,000	a2,000	623	2,200	*549	690	410	178	a220
15	133	215	1,300	a1,200	a1,500	573	*1,420	565	1,230	392	178	a280
16	131	815	1,090	a1,000	a1,300	541	1,130	593	1,660	392	178	a310
17	135	1,310	901	a800	a1,400	504	1,100	601	1,520	344	176	371
18	182	971	999	a700	a1,300	469	1,030	618	1,190	311	172	a370
19	176	1,030	3,750	a600	a1,300	441	868	601	957	293	176	a360
20	*176	1,180	5,500	a520	a3,500	a430	766	541	978	351	194	a360
21	167	1,580	3,620	a520	a4,000	a410	700	497	850	480	184	a360
22	155	7,660	2,060	a2,200	a2,700	850	675	448	706	402	176	a360
23	150	*4,780	1,390	a2,500	a1,800	570	665	424	614	341	180	357
24	146	2,630	1,070	a1,500	a1,300	250	632	427	549	338	198	a330
25	142	2,100	850	a1,000	1,130	203	597	490	497	311	200	a270
26	138	1,790	730	a900	a1,200	231	549	844	469	272	194	a250
27	138	1,900	695	a1,000	a1,000	584	614	862	525	266	191	a250
28	137	1,570	824	*1,500	a850	706	549	655	557	257	187	a210
29	140	1,300	1,010	1,500	--------	561	497	636	483	251	184	a150
30	148	1,340	808	1,340	--------	490	462	901	469	248	184	133
31	144	--------	706	1,230	--------	452	--------	1,300	--------	248	231	--------
Total	4,608	34,429	69,953	36,312	41,070	20,346	31,492	18,903	27,362	13,459	5,937	7,736
Mean	149	1,148	2,257	1,171	1,467	656	1,050	610	912	434	192	258
Ac-ft	9,140	68,290	138,700	72,020	81,460	40,360	62,460	37,490	54,270	26,700	11,780	15,340

Adjusted for change in contents in Lake Ben Morrow

Mean	209	1,249	2,251	1,174	1,464	653	1,050	619	903	422	185	209
Csm	2.05	12.2	22.1	11.5	14.4	6.40	10.3	6.07	8.85	4.14	1.81	2.05
In.	2.36	13.66	25.44	13.26	14.94	7.39	11.49	6.99	9.88	4.77	2.09	2.28
Ac-ft	12,850	74,310	138,400	72,160	81,300	40,180	62,500	38,040	53,760	25,940	11,390	12,420

Observed

Calendar year 1953: Max 9,580 Min 126 Mean 990 Ac-ft 717,000
Water year 1953-54: Max 7,660 Min 126 Mean 854 Ac-ft 618,000

Adjusted

Calendar year 1953: Mean 990 Csm 9.71 In. 131.79 Ac-ft 717,000
Water year 1953-54: Mean 861 Csm 8.44 In. 114.55 Ac-ft 623,200

Peak discharge (base, 5,400 cfs).--Nov. 22 (4 p. m.) 10,400 cfs (9.18 ft); Dec. 9 (6 p. m.) 7,620 cfs (7.81 ft); Dec. 12 (6:30 a. m.) 6,110 cfs (7.01 ft); Dec. 19 (10:30 p. m.) 8,200 cfs (8.10 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for station below Lake Ben Morrow, recorded range in stage when available, and weather records.

Little Sandy River near Bull Run, Oreg.

Location.—Lat 45°25'00", long 122°10'20", in NE¼ sec. 10, T. 2 S., R. 5 E., on right bank three-eighths of a mile upstream from Portland General Electric Co.'s dam and tunnel from Sandy River and 3 miles east of Bull Run.

Drainage area.—22.3 sq mi.

Records available.—May 1911 to April 1913 (fragmentary), July 1919 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 712 ft above mean sea level (topographic survey of 1954). May 23, 1911, to Apr. 29, 1913, staff gage at site seven-eighths of a mile downstream at different datum. July 1, 1919, to Sept. 30, 1931, water-stage recorder at present site at datum 0.28 ft higher.

Average discharge.—35 years (1919-54), 141 cfs (102,100 acre-ft per year).

Extremes.—Maximum discharge during year, 2,270 cfs Nov. 22 (gage height, 6.36 ft); minimum, 21 cfs Oct. 9.

1911-13, 1919-54: Maximum discharge, 5,320 cfs Nov. 20, 1921 (gage height, 9.18 ft, present datum), from rating curve extended above 2,200 cfs by logarithmic plotting; minimum, 8 cfs Aug. 20, Sept. 16, 17, 1940.

Remarks.—Records excellent. No regulation or diversion above station.

Cooperation.—Water-stage recorder graph furnished by Portland General Electric Co.

Revisions (water years).—WSP 1154: 1949. WSP 1248: Drainage area. WSP 1288: 1912, 1920-21(M), 1922-23, 1931, 1945.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

(Backwater from debris Apr. 13-20)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
2.0	18	3.5	265	2.1	20	3.5	252
2.3	36	4.0	445	2.3	33	4.0	440
2.6	66	5.0	1,030	2.6	62	4.5	675
3.0	132	6.0	1,900	3.0	126	5.5	1,400

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	67	73	440	172	310	*134	82	80	299	243	35	43
2	56	76	595	154	316	120	88	76	203	190	34	38
3	39	55	792	147	299	109	217	97	158	149	33	37
4	30	49	557	400	285	98	288	113	130	124	32	39
5	27	52	724	530	272	92	392	113	190	104	32	36
6	24	59	650	352	265	87	306	116	456	*90	31	33
7	22	66	*416	265	252	82	228	132	388	81	30	32
8	22	53	574	222	237	232	243	152	243	76	28	32
9	22	46	1,020	190	217	352	217	147	249	90	28	30
10	48	43	675	168	188	296	180	124	234	175	27	30
11	49	46	462	143	168	203	168	147	195	141	26	37
12	35	43	900	124	332	161	170	136	188	109	*26	63
13	30	40	444	130	348	134	631	*111	208	95	25	51
14	27	40	316	249	282	120	390	111	170	84	25	41
15	25	90	259	234	208	115	255	120	342	76	25	56
16	24	274	217	200	192	107	219	122	360	70	26	66
17	27	220	190	172	211	95	217	120	356	63	24	80
18	70	170	231	149	188	88	195	120	249	59	23	90
19	*73	235	997	128	192	84	*168	111	200	55	36	67
20	86	253	881	107	388	80	154	93	206	59	84	57
21	70	377	630	120	521	76	141	87	163	100	54	51
22	55	1,450	388	*488	344	74	139	75	132	72	40	51
23	48	838	275	416	243	72	136	72	115	60	42	47
24	42	472	219	275	231	71	126	74	100	54	76	42
25	38	376	180	208	206	67	118	134	90	51	82	38
26	35	299	168	175	219	67	113	262	84	48	65	36
27	33	336	163	262	168	118	130	200	136	45	53	34
28	31	278	269	440	152	126	109	132	124	43	47	32
29	32	255	237	436	-------	109	95	160	97	40	43	32
30	44	302	188	384	-------	95	86	208	111	39	40	30
31	41	-------	165	324	-------	87	-------	320	-------	37	50	-------
Total	1,272	6,966	14,222	7,764	7,234	3,751	6,001	4,065	6,176	2,722	1,222	1,351
Mean	41.0	232	459	250	258	121	200	131	206	87.8	39.4	45.0
Cfsm	1.84	10.4	20.6	11.2	11.6	5.43	8.97	5.87	9.24	3.94	1.77	2.02
In.	2.12	11.62	23.72	12.95	12.06	6.26	10.01	6.78	10.30	4.54	2.04	2.25
Ac-ft	2,520	13,820	28,210	15,400	14,350	7,440	11,900	8,060	12,250	5,400	2,420	2,680

Calendar year 1953: Max 2,130 Min 16 Mean 198 Cfsm 8.88 In. 120.61 Ac-ft 143,400
Water year 1953-54: Max 1,450 Min 22 Mean 172 Cfsm 7.71 In. 104.65 Ac-ft 124,400

Peak discharge (base, 1,400 cfs).--Nov. 22 (4 p. m.) 2,270 cfs (6.36 ft); Dec. 12 (6 a. m.) 1,400 cfs (5.50 ft); Dec. 19 (5 p. m.) 1,770 cfs (5.90 ft).

* Discharge measurement made on this day.

Bull Run River at Bull Run, Oreg.

Location.—Lat 45°26'00", long 122°14'05", in NE¼ sec. 6, T. 2 S., R. 5 E., on left bank at Bull Run, 450 ft downstream from tailrace of Portland General Electric Co.'s powerplant, 1.5 miles downstream from Little Sandy River, and 1.5 miles above mouth.

Drainage area.—136 sq mi.

Records available.—August 1949 to September 1954 (discontinued).

Gage.—Water-stage and water-temperature recorder. Datum of gage is 308 ft above mean sea level (topographic survey of 1954).

Average discharge.—5 years, 1,414 cfs (1,024,000 acre-ft per year).

Extremes.—Maximum discharge during year, 12,200 cfs Nov. 22 (gage height, 13.48 ft); minimum, 23 cfs Aug. 8; minimum daily, 57 cfs Oct. 4.

1949-54: Maximum discharge, 13,000 cfs Jan. 17, 1953 (gage height, 13.91 ft); minimum, 9.0 cfs Sept. 24, 1951, Oct. 20, 1952; minimum daily, 10 cfs Sept. 23, 1951.

Remarks.—Records good. About 80,000 acre-ft diverted during year above station by Portland Water Bureau. Low and medium flows largely regulated by Portland General Electric Co.'s powerplant but only slight regulation at extreme high flows. Water which passes through the powerplant is diverted from Sandy and Little Sandy Rivers. Records of water temperature for the water year 1954 are given in WSP 1353.

Revisions (water years).—WSP 1248: 1950(M). WSP 1288: 1950.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.6	55	3.5	265	7.0	2,240
2.0	80	4.0	390	9.0	4,500
2.5	120	5.0	780	11.0	7,600
3.0	178	6.0	1,410	13.0	11,200

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	692	476	2,770	1,480	2,020	1,460	1,060	868	2,350	1,480	204	798
2	600	536	3,290	1,420	1,980	1,280	1,080	903	1,840	1,460	664	768
3	558	466	4,070	1,420	1,940	1,210	1,640	927	1,570	1,290	624	780
4	57	452	3,850	2,510	1,970	1,150	2,280	974	1,410	1,000	664	535
5	426	432	4,640	3,850	1,890	*1,120	3,020	1,030	1,490	952	651	410
6	341	496	4,660	2,810	1,840	1,060	2,860	1,110	1,960	951	664	378
7	309	562	3,160	2,190	1,660	942	2,180	1,230	2,490	1,040	615	528
8	301	458	3,030	2,050	1,610	1,700	2,100	1,270	1,970	1,080	144	596
9	469	453	6,770	1,760	1,580	2,890	2,220	1,340	1,840	1,080	628	596
10	570	428	5,640	1,570	1,560	2,980	1,900	1,250	1,730	1,230	630	594
11	65	442	3,210	1,660	1,420	2,110	1,680	1,290	1,590	1,400	652	550
12	506	442	6,060	1,540	2,430	1,720	1,650	1,330	1,560	*1,360	*624	414
13	373	432	3,320	916	2,940	1,540	3,220	1,230	1,510	1,220	581	596
14	326	402	*2,550	1,640	2,580	1,220	3,140	*1,120	1,400	986	548	588
15	420	636	2,100	2,050	2,100	1,330	*2,230	1,080	1,990	890	86	684
16	411	1,450	1,910	1,770	1,970	1,260	2,140	1,070	2,500	930	658	784
17	370	2,040	1,740	1,510	2,050	1,200	1,870	1,160	2,340	792	602	902
18	322	1,670	1,800	1,430	2,020	1,090	1,740	1,130	2,010	659	536	884
19	638	1,780	4,870	1,290	2,010	1,040	1,610	1,180	1,760	765	534	791
20	620	1,870	6,690	1,180	3,610	1,060	1,570	1,100	1,710	862	622	748
21	560	2,360	4,460	1,150	4,610	932	1,390	1,050	1,590	1,110	614	726
22	*584	11,000	2,890	3,010	3,350	1,220	1,360	960	1,420	966	643	757
23	550	*5,660	2,190	3,270	2,340	1,240	1,320	747	1,240	852	632	758
24	435	3,320	1,870	2,220	2,020	859	1,290	906	1,170	776	646	748
25	93	2,860	1,590	1,810	1,910	801	1,130	1,020	1,100	736	764	720
26	392	2,570	1,430	1,680	1,940	755	1,170	1,520	1,020	734	722	588
27	400	2,630	1,460	1,810	1,740	1,260	1,250	1,620	1,040	746	704	654
28	361	2,290	1,600	*2,520	1,510	1,390	1,140	1,360	1,200	742	724	560
29	336	2,050	1,740	2,510	-------	1,230	1,030	1,280	1,040	786	556	484
30	396	2,070	1,530	2,270	-------	1,060	982	1,560	1,100	726	596	424
31	390	-------	1,430	2,070	-------	1,100	-------	2,040	-------	710	670	-------
Total	12,871	52,733	98,320	60,366	60,600	41,209	53,552	36,655	48,940	30,311	18,202	19,343
Mean	415	1,758	3,172	1,974	2,164	1,329	1,785	1,182	1,631	978	587	645
Ac-ft	25,530	104,600	195,000	119,700	120,200	81,740	106,200	72,700	97,070	60,120	36,100	38,370

Calendar year 1953: Max 11,100 Min 36 Mean 1,555 Ac-ft 1,126,000
Water year 1953-54: Max 11,000 Min 57 Mean 1,461 Ac-ft 1,057,000

14506

* Discharge measurement made on this day.

Sandy River below Bull Run River, near Bull Run, Oreg.

Location.—Lat 45°27'20", long 122°15'00", in NW¼ sec. 30, T. 1 S., R. 5 E., on left bank 1 mile downstream from Bull Run River and 2 miles northwest of Bull Run.

Drainage area.—440 sq mi.

Records available.—April 1910 to September 1914, October 1929 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 200 ft (from river-profile map). Prior to Oct. 31, 1929, staff gage at site three-quarters of a mile upstream at different datum.

Average discharge.—29 years, 2,299 cfs (1,664,000 acre-ft per year).

Extremes.—Maximum discharge during year, 26,400 cfs Nov. 22 (gage height, 13.85 ft); minimum, 77 cfs Oct. 9; minimum daily, 120 cfs Oct. 4.

1910-14, 1929-54: Maximum discharge, 58,000 cfs Mar. 31, 1931 (gage height, 20.6 ft), from rating curve extended above 18,000 cfs; minimum, 53 cfs Oct. 4, 1931 (gage height, 0.53 ft); minimum daily, 63 cfs Oct. 12, Nov. 9, 1952.

Remarks.—Records good. No diversion above station for irrigation during year; about 80,000 acre-ft was diverted from Bull Run River by Portland Water Bureau. Flow slightly regulated by Bull Run Lake and Lake Ben Morrow of Portland Water Bureau; considerable diurnal fluctuation by Bull Run powerplant of Portland General Electric Co.

Revisions (water years).—WSP 1288: 1910-12, 1914(M), 1948.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.0	115	5.0	2,840
1.5	255	7.0	5,960
2.0	445	9.0	10,200
3.0	1,010	12.0	19,400
4.0	1,810		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	813	548	5,300	2,610	4,660	2,530	1,420	1,550	5,080	2,750	402	892
2	674	664	6,560	2,450	4,690	2,230	1,450	1,500	3,770	2,650	750	858
3	614	544	8,630	2,460	4,510	2,020	2,620	1,600	3,130	2,270	724	872
4	120	520	7,920	5,080	4,420	1,890	4,060	1,840	2,760	1,840	728	655
5	480	505	9,310	7,980	4,170	1,770	5,900	1,830	2,820	1,720	734	506
6	394	578	9,880	5,760	3,850	1,680	5,710	1,980	3,670	1,650	748	474
7	354	682	6,610	4,390	3,510	1,540	4,030	2,270	4,990	1,680	690	604
8	349	545	6,200	3,700	3,350	3,040	3,880	2,700	3,780	1,660	250	650
9	502	514	15,100	3,120	3,230	5,630	3,820	3,000	3,780	1,620	692	678
10	634	514	12,400	2,750	2,980	5,990	3,230	2,680	3,460	2,000	684	672
11	185	521	7,300	2,630	2,660	3,920	2,870	2,820	3,180	2,100	722	678
12	560	522	12,700	2,370	4,280	3,130	2,820	2,690	3,230	1,940	679	523
13	418	498	7,760	1,730	5,940	2,660	6,920	2,400	3,260	1,750	*639	701
14	390	495	5,440	2,900	5,180	2,270	6,420	2,240	2,890	1,510	624	698
15	469	735	4,490	3,480	3,950	2,250	4,460	2,300	4,220	1,370	181	842
16	454	2,080	3,820	2,950	3,550	2,100	3,770	2,410	5,510	1,350	720	982
17	421	2,710	3,240	2,490	3,640	1,920	3,880	2,520	5,150	1,150	681	1,060
18	418	1,950	3,240	2,360	3,490	1,740	3,720	2,590	4,160	1,010	613	1,050
19	764	2,110	11,600	2,030	3,470	1,620	3,220	2,670	3,500	1,100	632	987
20	722	2,400	16,200	1,810	6,920	1,580	2,860	2,410	3,410	1,140	840	838
21	683	2,910	10,300	1,780	9,140	1,410	2,640	2,180	3,040	1,480	848	852
22	*746	18,100	6,650	5,680	6,690	1,670	2,620	1,900	2,690	1,260	742	881
23	628	13,400	4,780	6,150	4,700	1,660	2,610	1,640	2,360	*1,090	740	878
24	508	7,160	3,780	4,140	4,040	1,280	2,530	1,810	2,130	998	772	852
25	162	5,400	3,100	3,200	3,720	1,180	2,310	2,020	2,010	924	920	848
26	444	4,390	2,730	2,870	3,830	1,120	2,240	2,820	1,890	895	860	700
27	454	4,870	2,720	3,500	3,190	1,940	2,350	2,970	1,950	855	824	712
28	430	4,190	3,040	5,680	2,790	2,170	2,110	2,420	2,300	866	822	681
29	419	3,660	3,440	5,580	-------	1,780	1,940	2,350	1,880	902	689	584
30	467	3,590	2,850	5,100	-------	1,630	1,740	3,220	1,900	920	698	532
31	460	-------	2,560	4,690	-------	1,500	-------	4,000	-------	796	770	-------
Total	15,136	87,305	209,650	113,420	120,550	68,850	100,150	73,330	97,900	45,246	21,418	22,740
Mean	488	2,910	6,763	3,659	4,305	2,221	3,338	2,365	3,263	1,460	691	758
Cfsm	1.11	6.61	15.4	8.32	9.78	5.05	7.59	5.38	7.42	3.32	1.57	1.72
In.	1.28	7.38	17.72	9.59	10.19	5.82	8.46	6.20	8.27	3.82	1.81	1.92
Ac-ft	30,020	173,200	415,800	225,000	239,100	136,600	198,600	145,400	194,200	89,740	42,480	45,100

Calendar year 1953: Max 30,900 Min 87 Mean 3,063 Cfsm 6.96 In. 94.51 Ac-ft 2,218,000
Water year 1953-54: Max 18,100 Min 120 Mean 2,673 Cfsm 6.08 In. 82.46 Ac-ft 1,935,000

Peak discharge (base, 17,000 cfs).--Nov. 22 (7:30 p. m.) 26,400 cfs (13.85 ft); Dec. 9 (7 p. m.) 21,700 cfs (12.63 ft); Dec. 12 (8 a. m.) 17,200 cfs (11.35 ft); Dec. 19 (10 p. m.) 23,900 cfs (13.22 ft).

* Discharge measurement made on this day.

Washougal River near Washougal, Wash.

Location.—Lat 45°37'20", long 122°18'00", in SE¼ sec. 27, T. 2 N., R. 4 E., on right bank half a mile upstream from Cougar Creek and 5½ miles northeast of Washougal.
Drainage area.—108 sq mi.
Records available.—September 1944 to September 1954.
Gage.—Staff gage and crest-stage indicator; gage read twice daily. Altitude of gage is 175 ft (from topographic map).
Average discharge.—10 years, 899 cfs (650,800 acre-ft per year).
Extremes.—Maximum discharge during year, 17,700 cfs Dec. 9 (gage height, 15.56 ft), from rating curve extended above 12,000 cfs on basis of logarithmic plotting; minimum observed, 86 cfs Sept. 9, 10 (gage height, 1.62 ft).
1944-54: Maximum discharge, that of Dec. 9, 1953; minimum observed, 45 cfs Oct. 7, 1952 (gage height, 1.38 ft).
Remarks.—Records good except those for periods of no gage-height record, which are fair.
Revisions (water years).—WSP 1248: 1945-47, 1948(M), 1949-50, 1951(P).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
1.8	114	4.0	1,180	1.6	82	4.0	1,130
2.0	165	5.0	1,990	1.8	128	5.0	1,990
2.3	261	6.0	3,110	2.0	185	6.0	2,870
2.6	375	7.0	4,410	2.3	280	8.0	5,450
3.0	555	9.0	7,150	2.6	390	12.0	11,700
				3.0	560		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	545	347	2,040	900	1,450	844	506	322	934	402	155	102
2	391	339	2,270	850	1,510	750	497	298	542	366	150	95
3	275	297	3,670	950	1,260	680	2,310	329	479	346	150	*97
4	208	265	3,260	3,980	*1,120	640	2,120	322	438	332	150	100
5	168	268	5,050	4,120	988	620	2,820	322	533	301	150	93
6	154	316	5,500	3,200	928	610	2,300	315	880	290	144	91
7	138	530	2,760	2,100	880	740	1,400	354	1,210	280	136	95
8	126	415	2,310	1,500	856	2,120	1,340	350	928	284	133	109
9	121	343	11,300	1,240	844	2,870	1,260	326	784	336	131	91
10	211	312	4,740	988	814	2,460	1,050	301	610	690	126	89
11	192	297	4,000	868	760	1,320	904	312	546	655	123	106
12	165	308	4,310	778	1,400	1,000	856	294	515	479	123	176
13	*149	290	2,700	755	3,370	886	*2,650	259	454	406	123	167
14	138	297	1,900	1,220	2,470	796	1,750	248	426	358	121	144
15	131	1,940	1,500	1,680	1,530	715	1,200	245	1,090	329	118	206
16	124	2,660	1,200	1,160	1,550	*655	1,010	242	1,300	301	116	233
17	160	2,090	1,000	1,000	2,330	585	982	230	1,050	280	114	197
18	515	1,340	3,800	868	1,750	542	892	218	814	273	114	179
19	580	1,190	6,280	735	2,390	533	750	212	700	248	126	164
20	478	1,240	4,590	710	5,620	497	620	203	880	256	150	150
21	375	1,370	3,200	796	6,600	474	565	*200	838	294	142	139
22	316	6,420	*2,040	3,800	2,870	462	551	188	650	245	118	133
23	275	*3,500	1,600	2,230	1,810	462	546	167	565	224	116	123
24	244	2,220	1,300	1,460	1,530	479	506	164	*497	215	144	121
25	221	1,920	1,150	1,260	1,400	466	479	233	446	203	144	109
26	198	1,650	1,000	1,400	1,350	474	438	362	418	194	133	109
27	180	1,790	950	1,400	1,140	1,680	422	336	470	*182	118	109
28	165	1,450	1,600	1,130	916	1,020	398	294	462	179	109	106
29	180	1,210	1,350	1,150	-------	778	370	315	410	173	106	102
30	305	1,440	1,150	1,150	-------	590	346	350	406	164	104	93
31	351	-------	1,000	1,160	-------	542	-------	740	-------	158	114	-------
Total	7,779	38,054	90,520	46,538	51,436	27,290	31,838	9,051	20,275	9,443	4,001	3,828
Mean	251	1,268	2,920	1,501	1,837	880	1,061	292	676	305	129	128
Cfsm	2.32	11.7	27.0	13.9	17.0	8.15	9.82	2.70	6.26	2.82	1.19	1.19
In.	2.68	13.10	31.17	16.03	17.71	9.40	10.96	3.12	6.98	3.25	1.38	1.32
Ac-ft	15,430	75,480	179,500	92,310	102,000	54,130	63,150	17,950	40,210	18,730	7,940	7,590

Calendar year 1953 : Max 11,300 Min 70 Mean 1,174 Cfsm 10.9 In. 147.50 Ac-ft 849,600
Water year 1953-54 : Max 11,300 Min 89 Mean 932 Cfsm 8.63 In. 117.10 Ac-ft 674,400

Peak discharge (base, 5,000 cfs).--Nov. 22 (4:30 p. m.) 8,300 cfs (9.80 ft); Dec. 6 (about 6 a. m.) 7,020 cfs (about 9.05 ft); Dec. 9 (time unknown) 17,700 cfs (15.56 ft); Dec. 19 (time unknown) 9,410 cfs (10.58 ft); Jan. 22 (time unknown) 7,130 cfs (9.12 ft); Feb. 21 (time unknown) 8,860 cfs (10.24 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Dec. 11, 13-18, 21, Dec. 23 to Jan. 3, Jan. 6-8, Mar. 3-6; discharge estimated on basis of records for stations on nearby streams.

Little Washougal River near Washougal, Wash.

Location.—Lat 45°36'45", long 122°21'30", in SE¼ sec. 31, T. 2 N., R. 4 E., on right bank 20 ft downstream from road bridge, 1 mile upstream from mouth, and 2½ miles north of Washougal.

Drainage area.—23.8 sq mi.

Records available.—June 1951 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 115 ft (from topographic map).

Extremes.—Maximum discharge during year, 1,360 cfs Dec. 9 (gage height, 7.34 ft); minimum, 7.1 cfs Oct. 6; minimum gage height, 3.25 ft Sept. 10, 26-30.
1951-54: Maximum discharge, 1,620 cfs Jan. 18, 1953 (gage height, 7.73 ft); minimum, 4.1 cfs Nov. 28, 1952 (gage height, 3.16 ft).

Remarks.—Records fair except those for period of no gage-height record, which are poor. Some diversion for domestic use. No regulation.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 10-13, June 7 to Sept. 15)

3.3	6.8	4.6	175
3.5	16.0	5.0	290
3.7	30	5.5	495
4.0	61	6.0	720
4.3	110	6.5	970

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	27	165	108	329	101	40	35	92	62	18	11.5
2	24	27	272	94	304	89	46	34	69	53	17	10.5
3	15	24	523	97	260	80	74	38	57	48	18	*11.5
4	9.8	23	594	349	218	72	94	36	54	44	18.5	12
5	7.8	28	657	*441	188	67	150	34	96	41	18	11
6	7.8	30	765	304	162	62	160	30	152	39	18	10.5
7	8.2	31	585	233	144	59	136	30	209	38	16.5	10
8	8.2	29	562	175	*130	126	132	29	172	36	15.5	12
9	9.8	27	960	150	120	188	108	28	165	44	15.5	10
10	42	29	862	126	108	212	96	27	134	56	14	9.8
11	35	31	544	106	106	175	84	30	114	42	14	a14
12	22	31	486	90	180	144	84	27	101	36	15	a18
13	*17.5	29	345	94	269	126	*144	26	85	34	16	a16
14	15.5	34	251	122	260	112	124	24	80	33	15	a14
15	14	60	192	140	200	114	110	23	192	32	15	25
16	12.5	203	150	138	178	*106	97	22	206	32	13.5	20
17	21	212	124	120	185	92	87	21	165	30	13	15
18	60	150	108	114	172	84	78	20	134	29	12	13
19	48	138	348	96	224	75	74	19.5	124	28	13.5	11.5
20	41	140	522	82	365	71	68	20	118	32	21	10.5
21	35	157	446	89	423	65	62	*21	96	42	16	10
22	31	464	311	512	341	60	59	19.5	84	30	13	9.8
23	28	*418	233	423	263	57	54	18.5	75	28	13.5	9.8
24	25	275	178	290	212	55	53	19.5	*69	26	20	9.4
25	25	215	142	227	178	50	49	24	64	25	17	8.6
26	22	195	126	195	158	48	47	61	62	24	15.5	7.8
27	21	198	105	434	128	62	47	36	72	*21	13	7.4
28	19.5	172	182	436	116	51	41	28	62	20	12	7.4
29	21	150	170	393	--------	47	39	35	53	19	12	7.4
30	26	152	140	405	--------	44	38	39	65	18.5	12	7.4
31	22	--------	120	361	--------	42	--------	95	--------	18.5	14	--------
Total	730.6	3,699	11,168	6,944	5,921	2,736	2,475	950.0	3,221	1,061.0	475.0	350.8
Mean	23.6	123	360	224	211	88.3	82.5	30.6	107	34.2	15.3	11.7
Cfsm	0.992	5.17	15.1	9.41	8.87	3.71	3.47	1.29	4.50	1.44	0.643	0.492
In.	1.14	5.78	17.45	10.85	9.25	4.28	3.87	1.48	5.03	1.66	0.74	0.55
Ac-ft	1,450	7,340	22,150	13,770	11,740	5,430	4,910	1,880	6,390	2,100	942	696

Calendar year 1953: Max 1,220 Min 5.8 Mean 135 Cfsm 5.67 In. 77.12 Ac-ft 97,900
Water year 1953-54: Max 960 Min 7.4 Mean 109 Cfsm 4.58 In. 62.08 Ac-ft 78,800

Peak discharge (base, 1,100 cfs).--Dec. 9 (3:45 p. m.) 1,360 cfs (7.34 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for stations on nearby streams.

Middle Fork Willamette River above Salt Creek, near Oakridge, Oreg.

Location. —Lat 43°43'30", long 122°26'20", in SW¼ sec. 22, T. 21 S., R. 3 E., on left bank 400 ft upstream from Salt Creek and 2 miles southeast of Oakridge.
Drainage area. —392 sq mi.
Records available. —October 1913 to September 1914, September 1935 to September 1954.
Gage. —Water-stage recorder. Datum of gage is 1,202.8 ft above mean sea level (river-profile survey). October 1913 to September 1914 staff gage at site 600 ft upstream at different datum.
Average discharge. —20 years, 1,132 cfs (819,500 acre-ft per year).
Extremes. —Maximum discharge during year, 30,000 cfs Nov. 23 (gage height, 11.40 ft), from rating curve extended above 13,000 cfs by logarithmic plotting; minimum, 320 cfs Oct. 31, Nov. 1.

1913-14, 1935-54: Maximum discharge, 34,000 cfs Dec. 28, 1945 (gage height, 12.06 ft), from rating curve extended above 13,000 cfs by logarithmic plotting; minimum, 201 cfs Nov. 27 to Dec. 2, 1936 (gage height, 1.53 ft).

Remarks. —Records excellent.
Revisions (water years). —WSP 1248: 1914.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
2.5	320	5.0	2,900	2.4	345	5.0	3,010
3.0	540	6.0	5,260	3.0	650	6.0	5,300
3.5	880	7.0	8,370	3.5	1,010	8.0	12,200
4.0	1,350	8.5	14,400	4.0	1,520	10.0	22,000

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	455	324	1,800	1,160	3,490	1,270	890	1,090	1,200	836	426	381
2	431	352	2,060	1,120	3,620	1,180	858	1,010	1,050	780	426	376
3	383	330	2,770	1,190	3,700	1,100	1,030	978	1,010	717	422	372
4	359	324	3,920	1,420	3,640	1,040	2,190	1,050	1,060	692	417	368
5	352	327	3,270	1,780	3,410	1,000	4,050	1,080	1,020	674	412	363
6	341	540	4,620	1,680	3,110	*994	3,410	1,140	970	*662	412	363
7	341	535	3,580	1,620	3,050	1,000	2,450	1,300	898	638	408	358
8	334	436	3,330	1,500	2,970	1,620	2,160	1,550	1,060	620	404	358
9	334	400	5,470	1,370	2,820	2,710	2,080	1,690	1,130	614	399	354
10	485	391	*5,190	1,290	2,490	2,920	1,760	1,560	1,090	602	394	358
11	450	436	3,410	1,230	2,280	2,200	1,560	1,510	1,020	584	394	376
12	383	445	2,730	1,150	3,150	1,790	1,460	1,390	1,190	568	390	376
13	359	422	2,640	1,060	3,900	1,560	2,150	1,260	1,280	557	390	368
14	359	400	2,560	1,080	2,970	1,430	2,410	1,220	1,230	552	408	386
15	363	383	2,340	1,800	2,330	1,330	2,050	1,310	1,650	540	465	546
16	348	525	2,340	4,850	1,960	1,290	1,920	1,440	1,960	535	430	480
17	355	716	2,280	4,260	1,880	1,200	2,090	1,510	1,740	520	412	500
18	885	576	2,260	2,440	1,840	1,100	2,240	1,620	1,500	510	399	445
19	765	594	5,110	1,830	1,690	1,060	2,050	1,670	1,330	505	417	408
20	535	667	7,970	*1,540	2,260	978	1,790	1,560	1,250	500	470	390
21	465	924	5,160	1,390	2,770	938	1,650	1,360	1,180	505	435	376
22	418	12,300	3,600	2,500	2,540	890	1,580	1,180	1,130	485	417	372
23	391	22,100	2,620	3,720	2,120	850	1,600	1,090	1,090	475	399	368
24	375	8,710	2,080	2,390	1,940	836	1,530	1,100	1,030	470	*394	363
25	359	4,800	1,730	1,840	1,780	794	1,450	1,080	986	465	408	358
26	*352	3,170	1,580	1,630	1,640	773	*1,380	1,140	938	460	426	354
27	348	3,390	1,600	3,480	1,480	829	1,390	1,010	930	450	408	345
28	344	2,840	1,460	5,750	1,370	1,080	1,430	*946	874	445	399	345
29	334	2,200	1,370	5,360	--------	1,090	1,310	922	801	440	390	345
30	327	1,920	1,260	4,720	--------	1,020	1,210	938	787	435	390	345
31	320	--------	1,180	3,750	--------	946	--------	1,050	--------	430	390	--------
Total	12,650	71,477	93,290	71,900	72,200	38,818	55,128	38,754	34,384	17,266	12,751	11,497
Mean	408	2,383	3,009	2,319	2,579	1,252	1,838	1,250	1,146	557	411	383
Cfsm	1.04	6.08	7.68	5.92	6.58	3.19	4.69	3.19	2.92	1.42	1.05	0.977
In.	1.20	6.78	8.85	6.82	6.85	3.68	5.23	3.68	3.26	1.64	1.21	1.09
Ac-ft	25,090	141,800	185,000	142,600	143,200	76,990	109,300	76,870	68,200	34,250	25,290	22,800

Calendar year 1953: Max 22,100 Min 320 Mean 1,718 Cfsm 4.38 In. 59.47 Ac-ft 1,243,000
Water year 1953-54: Max 22,100 Min 320 Mean 1,452 Cfsm 3.70 In. 50.29 Ac-ft 1,051,000

Peak discharge (base, 4,800 cfs).--Nov. 23 (5 a. m.) 30,000 cfs (11.40 ft); Dec. 6 (3:30 p. m.) 6,160 cfs (6.30 ft); Dec. 9 (11:30 p. m.) 6,670 cfs (6.47 ft); Dec. 20 (2 a. m.) 9,350 cfs (7.28 ft); Jan. 16 (6 to 7 p. m.) 6,640 cfs (6.46 ft); Jan. 27 (12 p. m.) 7,010 cfs (6.58 ft).
* Discharge measurement made on this day.

Salmon Creek near Oakridge, Oreg.

Location.—Lat 43°45'20", long 122°23'00", in SW¼ sec. 7, T. 21 S., R. 4 E., on right bank a quarter of a mile upstream from Slide Creek and 4 miles east of Oakridge.

Drainage area.—117 sq mi, at cable a quarter of a mile above gage, where all discharge measurements are made.

Records available.—October to November 1909 (gage heights and one discharge measurement only), February 1913 to October 1919, October 1933 to September 1954. Published as Kelsey River near Hazeldell, 1909.

Gage.—Water-stage recorder. Datum of gage is 1,421.83 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1914, staff gages at several sites within 3 miles of present site at various datums. Oct. 1, 1914, to Oct. 14, 1919, water-stage recorder at site 1 mile downstream at different datum.

Average discharge.—25 years (1913-15, 1917-19, 1933-54), 403 cfs (291,800 acre-ft per year).

Extremes.—Maximum discharge during year, 5,760 cfs Nov. 23 (gage height, 7.19 ft); maximum gage height, 7.28 ft Nov. 23, momentary backwater from debris; minimum, 154 cfs Sept. 29, 30.

1913-19, 1933-54: Maximum discharge, 8,040 cfs Dec. 28, 1945 (gage height, 8.40 ft), from rating curve extended above 4,000 cfs by logarithmic plotting; minimum, 63 cfs Jan. 8, 1937 (gage height, 0.87 ft).

Remarks.—Records good. No regulation above station. Since 1936 village of Oakridge has diverted water around station in an 8-inch pipe. Tunnel and control gates that were built to divert part of outflow from Waldo Lake into Salmon Creek basin were not used during year but there is leakage under control gates; 13.0 cfs measured Oct. 7, 1953.

Revisions (water years).—WSP 794: 1934. WSP 814: Drainage area. WSP 1124: 1935, 1942(M), 1943, 1946(M). WSP 1248: 1915, 1918.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
1.3	158	3.0	820	1.4	148	3.5	1,150
1.5	195	3.5	1,150	2.0	340	5.0	2,590
2.0	333	4.5	2,050	2.5	550	6.5	4,630
2.5	540						

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	223	179	645	492	1,030	496	348	435	550	402	200	173
2	211	181	784	479	1,090	470	333	410	487	374	197	170
3	193	175	1,130	474	1,120	448	370	402	470	351	197	170
4	185	172	1,280	487	1,100	422	541	422	474	336	197	170
5	181	177	1,040	505	1,060	406	922	435	457	329	194	168
6	179	216	1,130	496	996	*398	880	452	431	*318	191	165
7	177	206	928	492	968	390	748	505	406	304	188	165
8	177	191	1,020	470	928	496	700	577	452	297	188	162
9	177	185	1,710	452	886	640	656	600	474	297	185	162
10	226	185	*1,580	440	814	694	595	554	483	290	185	170
11	202	187	1,190	418	742	610	559	550	470	280	182	170
12	187	200	1,100	398	820	541	550	505	528	273	182	176
13	181	187	1,070	382	868	502	868	479	546	267	182	165
14	181	183	1,020	398	772	470	982	470	532	264	191	212
15	183	181	961	448	672	461	832	496	700	257	212	248
16	179	226	934	724	610	444	772	523	778	251	194	225
17	181	251	916	736	600	422	820	532	700	244	182	238
18	282	228	904	590	572	402	856	564	610	238	179	206
19	265	251	1,560	518	546	386	790	568	559	235	182	191
20	223	259	2,170	*470	760	378	*684	528	523	232	200	179
21	209	340	1,580	440	922	367	635	470	496	238	194	173
22	197	2,000	1,210	577	844	348	610	427	465	228	182	170
23	189	4,500	968	730	754	336	605	410	448	222	179	168
24	185	2,340	814	620	700	333	586	410	427	219	*182	165
25	181	1,430	706	550	650	318	554	406	406	216	188	162
26	*179	1,010	650	518	615	315	532	461	398	216	191	159
27	177	1,070	635	672	564	367	564	410	422	212	185	156
28	175	892	595	1,020	528	452	559	*394	398	209	179	156
29	173	724	564	1,120	-------	427	514	398	370	206	176	154
30	173	645	532	1,130	-------	398	474	422	367	206	179	154
31	172	-------	501	1,040	-------	370	-------	505	-------	203	179	-------
Total	6,003	18,971	31,827	18,286	22,531	13,507	19,439	14,720	14,827	8,214	5,822	5,302
Mean	194	632	1,027	590	805	436	648	475	494	265	188	177
Cfsm	1.66	5.40	8.78	5.04	6.88	3.73	5.54	4.06	4.22	2.26	1.61	1.51
In.	1.91	6.03	10.12	5.81	7.16	4.29	6.18	4.68	4.71	2.61	1.85	1.69
Ac-ft	11,910	37,630	63,130	36,270	44,690	26,790	38,560	29,200	29,410	16,290	11,550	10,520

Calendar year 1953: Max 4,680 Min 172 Mean 580 Cfsm 4.96 In. 67.30 Ac-ft 419,900
Water year 1953-54: Max 4,500 Min 154 Mean 492 Cfsm 4.21 In. 57.04 Ac-ft 356,000

Peak discharge (base, 1,500 cfs).--Nov. 23 (7 a. m.) 5,760 cfs (7.19 ft); Dec. 3 (7 to 8 p. m.) 1,620 cfs (4.06 ft); Dec. 9 (9 p. m.) 1,880 cfs (4.33 ft); Dec. 20 (2 a. m.) 2,390 cfs (4.82 ft).

* Discharge measurement made on this day.

North Fork of Middle Fork Willamette River near Oakridge, Oreg.

Location.--Lat 43°45'30", long 122°30'20", in SW¼ sec. 7, T. 21 S., R. 3 E., on left bank 1 mile upstream from mouth and 2½ miles northwest of Oakridge.

Drainage area.--246 sq mi.

Records available.--October 1909 to February 1916 (fragmentary), September 1935 to September 1954. October 1909 to September 1912 published as "near Hazeldell."

Gage.--Water-stage recorder. Datum of gage is 1,029.6 ft above mean sea level (river-profile survey). Prior to Feb. 26, 1916, water-stage recorder or staff gages at several sites within three-quarters of a mile of present site at various datums. Sept. 16, 1935, to Oct. 3, 1938, staff gage at present site and datum.

Average discharge.--19 years (1935-54), 784 cfs (567,600 acre-ft per year).

Extremes.--Maximum discharge during year, 12,600 cfs Nov. 23 (gage height, 14.17 ft), from rating curve extended above 8,000 cfs by logarithmic plotting; minimum, 105 cfs Oct. 20 (gage height, 2.44 ft), caused by filling of log pond.

1909-16, 1935-54: Maximum discharge, 17,000 cfs Dec. 28, 1945 (gage height, 16.6 ft), from rating curve extended above 8,000 cfs by logarithmic plotting; minimum, 26 cfs Oct. 14, 1939.

Remarks.--Records good except those for period of shifting-control, which are fair. Tunnel and control gates built to divert part of outflow from Waldo Lake into Salmon Creek basin not used during year. Occasional diurnal fluctuations during low-water periods caused by log ponds above station.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).--WSP 1248: 1914-16.

Rating table, water year 1953-54, except period of shifting control
(gage height, in feet, and discharge, in cubic feet per second)

2.7	142	5.0	1,120
3.0	202	7.0	2,800
3.5	335	10.0	6,270
4.0	540	13.0	10,700

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	230	160	1,360	874	2,080	940	535	650	940	463	218	184
2	232	170	1,780	826	2,150	874	520	595	778	441	216	187
3	187	162	2,560	832	2,180	802	600	556	*688	405	214	184
4	172	160	2,840	910	2,160	738	988	584	666	388	211	182
5	164	164	2,250	976	2,080	705	1,750	600	661	370	211	178
6	160	245	2,720	940	1,940	678	1,690	628	612	*352	211	176
7	156	252	2,160	928	1,880	666	1,380	694	562	335	209	176
8	156	209	2,210	904	1,820	*1,070	1,320	808	612	325	204	176
9	156	193	*3,540	862	1,760	1,520	1,250	868	700	329	202	174
10	202	191	3,450	844	1,590	1,660	1,110	790	694	325	202	176
11	214	193	2,460	796	1,440	1,340	1,020	772	661	313	200	195
12	180	202	2,200	744	1,610	1,130	1,000	727	727	297	200	200
13	164	193	2,140	694	1,850	1,010	1,630	650	744	281	200	191
14	160	189	1,930	749	1,610	916	1,840	622	705	281	200	184
15	164	180	1,800	976	1,370	856	1,500	650	1,030	281	238	268
16	160	240	1,730	1,420	1,220	820	1,360	688	1,260	275	220	260
17	162	346	1,700	1,410	1,160	749	1,410	700	1,110	270	207	275
18	353	278	1,720	1,110	1,130	694	1,450	727	952	265	202	235
19	356	332	4,050	952	1,070	661	1,340	727	844	260	202	211
20	250	352	5,970	*850	1,710	622	*1,160	694	760	258	214	198
21	235	515	3,820	796	2,240	595	1,050	622	678	260	223	193
22	207	5,760	2,700	1,160	1,960	551	1,010	540	628	260	211	191
23	193	10,300	2,060	1,560	1,640	520	994	490	573	250	202	184
24	182	5,280	1,660	1,270	1,470	510	952	481	530	245	*200	184
25	180	3,130	1,380	1,090	1,360	486	892	490	500	240	200	180
26	*176	2,100	1,270	1,040	1,260	472	832	688	472	240	202	178
27	172	2,110	1,250	1,260	1,120	584	874	595	490	230	202	176
28	168	1,730	1,110	2,210	1,030	820	880	535	476	230	195	176
29	164	1,390	1,050	2,410	-------	722	778	510	437	228	193	170
30	160	1,270	964	2,420	-------	644	716	578	425	223	184	172
31	160	-------	880	2,150	-------	584	-------	700	-------	223	189	-------
Total	5,975	37,996	68,714	35,963	45,890	24,939	33,831	19,959	20,915	9,143	6,382	5,814
Mean	193	1,267	2,217	1,160	1,639	804	1,128	644	697	295	206	194
Cfsm	0.785	5.15	9.01	4.72	6.66	3.27	4.59	2.62	2.83	1.20	0.837	0.789
In.	0.90	5.74	10.39	5.44	6.94	3.77	5.11	3.02	3.16	1.38	0.96	0.88
Ac-ft	11,850	75,360	136,300	71,330	91,020	49,470	67,100	39,590	41,480	18,130	12,660	11,530

Calendar year 1953: Max 12,700 Min 155 Mean 1,132 Cfsm 4.60 In. 62.46 Ac-ft 819,600
Water year 1953-54: Max 10,300 Min 156 Mean 864 Cfsm 3.51 In. 47.69 Ac-ft 625,800

Peak discharge (base, 3,500 cfs).--Nov. 23 (7 a. m.) 12,600 cfs (14.17 ft); Dec. 3 (7:30 p. m.) 3,810 cfs (7.96 ft); Dec. 9 (10:30 p. m.) 4,350 cfs (8.44 ft); Dec. 19 (12 p. m.) 7,090 cfs (about 10.6 ft).

* Discharge measurement made on this day.

Note.--Shifting-control method used July 13 to Sept. 30.

Middle Fork Willamette River below North Fork, near Oakridge, Oreg.

Location.—Lat 43°48'10", long 122°33'30", in SW¼ sec. 27, T. 20 S., R. 2 E., on left bank half a mile below Whitehead Creek, 4 miles below North Fork of Middle Fork Willamette River, and 7 miles northwest of Oakridge.

Drainage area.—924 sq mi.

Records available.—March 1911 to September 1912 (fragmentary), July 1923 to September 1954. Published as "near Hazeldell" 1911-12 and as "at Eula" 1923-50.

Gage.—Water-stage recorder. Datum of gage is 934.76 ft above mean sea level, datum of 1929, supplementary adjustment of 1947, Mar. 22, 1911, to Sept. 30, 1912, staff gage at site 4 miles upstream just below North Fork, at different datum. July 1, 1923, to Aug. 11, 1935, staff gage, and Aug. 12, 1935, to Sept. 30, 1950, water-stage recorder; at site 4 miles downstream at different datum.

Average discharge.—30 years (1923-26, 1927-54), 2,655 cfs (1,922,000 acre-ft per year).

Extremes.—Maximum discharge during year, 60,100 cfs Nov. 23 (gage height, 12.23 ft); minimum, 810 cfs Oct. 7.

1911-12, 1923-54: Maximum discharge, 82,200 cfs Feb. 20, 1927 (gage height, 19.7 ft, from graph based on gage readings, site and datum then in use), from rating curve extended above 39,000 cfs by logarithmic plotting; minimum observed, 450 cfs Nov. 24, 25, Dec. 5, 6, 1929, Sept. 4-6, 16, 17, 1931.

Remarks.—Records excellent. No diversion; slight regulation above station by log ponds. Records of water temperature for the water year 1954 are given in WSP 1353.

Revisions (water years).—WSP 694: 1925-28. WSP 814: Drainage area for site at Eula. WSP 1248: 1924, 1925(M), 1926-28, 1929(M), 1930, 1933, 1946(M).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,100	870	4,550	3,100	8,020	3,230	2,200	2,680	3,280	2,180	1,060	951
2	1,100	930	5,750	2,970	8,380	2,970	2,130	2,460	2,860	2,080	1,060	951
3	962	880	8,400	3,100	8,380	2,820	2,350	2,400	*2,680	1,930	1,050	940
4	900	850	10,200	3,390	8,230	2,660	4,010	2,540	2,720	1,840	1,050	940
5	860	860	8,060	3,980	7,780	2,540	8,090	2,580	2,640	1,780	1,040	930
6	850	1,220	10,600	3,800	7,220	2,480	7,360	2,700	2,480	*1,730	1,050	920
7	830	1,310	8,620	3,650	6,970	2,460	5,630	2,970	2,270	1,700	1,040	910
8	820	1,090	8,240	3,430	6,720	*3,430	5,090	3,550	2,560	1,640	1,030	910
9	820	1,020	*13,300	3,260	6,380	5,450	4,880	3,850	2,820	1,640	1,030	900
10	1,050	995	13,000	3,150	5,780	6,200	4,220	3,530	2,780	1,620	1,020	910
11	1,100	1,060	8,940	2,990	5,240	5,060	3,780	3,460	2,660	1,560	1,020	973
12	940	1,080	7,560	2,800	6,340	4,220	3,550	3,190	2,950	1,510	1,010	984
13	900	1,030	7,250	2,620	7,670	3,720	5,480	2,950	3,170	1,450	1,010	962
14	880	984	6,800	2,760	6,300	3,390	6,340	2,840	3,010	1,440	1,040	984
15	890	962	6,380	4,200	5,300	3,190	5,330	2,990	4,120	1,410	1,220	1,420
16	870	1,240	6,080	8,120	4,550	3,150	4,820	3,280	5,060	1,380	1,120	1,310
17	860	1,730	5,930	8,380	4,380	2,910	5,240	3,370	4,380	1,360	1,050	1,360
18	1,620	1,410	5,840	5,540	4,320	2,700	5,480	3,580	3,720	1,310	1,020	1,210
19	1,790	1,450	11,600	4,320	4,000	2,560	5,060	3,720	3,320	1,290	1,030	1,090
20	1,290	1,640	19,100	*3,650	5,690	2,440	*4,380	3,530	3,100	1,270	1,130	1,030
21	1,180	2,030	12,500	3,300	7,110	2,340	4,020	3,100	2,910	1,290	1,130	1,010
22	1,070	21,600	8,940	5,140	6,520	2,220	3,850	2,720	2,700	1,270	1,070	984
23	1,010	*47,200	6,900	7,700	5,450	2,150	3,880	2,520	2,580	1,220	1,030	962
24	962	20,000	5,600	5,540	4,940	2,100	3,680	2,520	2,480	1,200	*995	940
25	920	*11,100	4,730	4,400	4,490	2,010	3,430	2,520	2,320	1,170	1,010	930
26	920	7,530	4,220	4,020	4,150	1,960	3,280	2,860	2,270	1,160	1,050	920
27	*890	8,020	4,320	6,370	3,780	2,110	3,390	2,560	2,320	1,140	1,030	910
28	880	6,660	3,920	11,000	3,460	2,820	3,410	2,360	2,250	1,130	1,020	900
29	870	5,210	3,680	10,800	--------	2,760	3,150	2,290	2,080	1,100	984	890
30	860	4,520	3,370	10,400	--------	2,520	2,930	2,460	2,030	1,080	962	890
31	850	--------	3,150	8,620	--------	2,340	--------	2,720	--------	1,080	973	--------
Total	30,844	156,481	237,530	156,500	167,550	92,910	130,440	90,800	86,520	44,960	32,334	29,921
Mean	995	5,216	7,662	5,048	5,984	2,997	4,348	2,929	2,884	1,450	1,043	997
Cfsm	1.08	5.65	8.29	5.46	6.48	3.24	4.71	3.17	3.12	1.57	1.13	1.08
In.	1.24	6.30	9.56	6.30	6.74	3.74	5.25	3.65	3.48	1.81	1.30	1.20
Ac-ft	61,180	310,400	471,100	310,400	332,300	184,300	258,700	180,100	171,600	89,180	64,130	59,350

Calendar year 1953: Max 47,200 Min 820 Mean 4,101 Cfsm 4.44 In. 60.25 Ac-ft 2,969,000
Water year 1953-54: Max 47,200 Min 820 Mean 3,443 Cfsm 3.73 In. 50.57 Ac-ft 2,493,000

Peak discharge (base, 11,000 cfs).--Nov. 23 (8 a. m.) 60,100 cfs (12.23 ft); Dec. 3 (10 p. m.) 12,800 cfs (6.10 ft); Dec. 6 (11:30 a. m.) 12,600 cfs (6.04 ft); Dec. 9 (11:30 p. m.) 15,800 cfs (6.71 ft); Dec. 20 (3:30 a. m.) 22,200 cfs (7.85 ft); Jan. 16 (8 p. m.) 11,400 cfs (5.77 ft); Jan. 28 (2:30 a. m.) 12,000 cfs (5.92 ft).

* Discharge measurement made on this day.

Lookout Point Reservoir near Lowell, Oreg.

Location. —Lat 43°54'50", long 122°45'00", in SE¼ sec. 13, T. 19 S., R. 1 W., in elevator house at right of spillway section of dam across Middle Fork Willamette River, 1½ miles east of Lowell.
Drainage area. —991 sq mi.
Records available. —November 1953 to September 1954.
Gage. —Elevations are interpolations between construction joints of known elevation. Datum is at mean sea level (levels by Corps of Engineers).
Extremes. —Maximum contents observed during year, 267,800 acre-ft June 19 to July 3 (elevation, 880 ft); negligible contents prior to November.
Remarks. —Reservoir is formed by earth-fill dam with concrete gate and spillway section, completed in 1954 by Corps of Engineers. Planned storage began in November 1953. Total capacity is 456,000 cfs and usable capacity is 349,400 acre-ft between elevations 819 (proposed lower limit of operation) and 929 ft (top of spillway gates). Reservoir used for flood control, improvement of navigation, power generation, pollution abatement, and other purposes. Daily contents computed from elevations at 8 a. m. Capacity table computed by Corps of Engineers. Figures shown herein are for total storage.

Contents, at 8 a. m., in acre-feet, November 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		-	24,200	26,100	25,100	15,200	23,300	108,600	214,400	267,800	241,800	200,000
2		-	26,100	26,100	26,100	12,500	21,500	110,600	217,400	267,800	241,800	200,000
3		-	25,100	25,100	29,100	11,300	19,800	112,600	220,400	267,800	235,600	200,000
4		-	28,100	25,100	31,100	12,500	19,000	112,600	223,400	264,500	235,600	197,200
5		-	27,100	25,100	31,100	13,800	23,300	116,700	226,400	261,200	235,600	194,400
6		-	23,300	25,100	27,100	16,600	31,100	120,900	229,400	261,200	235,600	188,800
7		5,800	28,100	24,200	22,400	17,400	31,100	123,000	235,600	261,200	235,600	188,800
8		5,800	24,200	23,300	19,000	21,500	27,100	127,400	235,600	261,200	235,600	188,800
9		4,600	26,100	23,300	17,400	26,100	24,200	129,600	235,600	261,200	235,600	188,800
10		4,300	34,400	23,300	15,900	25,100	24,200	131,800	238,700	261,200	235,600	188,800
11		4,300	29,100	23,300	13,800	19,800	25,100	140,800	241,800	261,200	232,500	191,600
12		4,600	25,100	22,400	12,500	16,600	25,100	147,800	241,800	257,900	229,400	183,400
13		4,600	22,400	21,500	15,200	14,500	22,400	147,800	245,000	257,900	223,400	183,400
14		4,600	19,800	21,500	17,400	14,500	21,500	152,600	248,200	254,600	223,400	180,700
15		4,600	24,200	20,600	16,600	14,500	21,500	152,600	251,400	254,600	223,400	183,400
16		4,600	30,100	25,100	14,500	15,900	20,600	157,500	251,400	254,600	220,400	180,700
17		5,200	28,100	24,200	12,500	16,600	26,100	162,500	261,200	254,600	220,400	180,700
18		5,500	25,100	24,200	10,200	16,600	34,400	165,000	264,500	254,600	220,400	180,700
19		5,200	29,100	23,300	8,200	16,600	42,600	170,200	267,800	254,600	217,400	180,700
20		5,200	40,200	23,300	7,400	16,600	50,500	175,400	267,800	251,400	217,400	178,000
21		5,200	51,900	23,300	9,700	16,600	56,100	178,000	267,800	251,400	217,400	178,000
22		8,200	45,200	21,500	10,200	16,600	63,700	186,100	267,800	251,400	217,400	178,000
23		59,100	37,800	24,200	9,700	16,600	68,500	188,800	267,800	251,400	217,400	175,400
24		98,800	27,100	25,100	8,700	14,500	76,900	188,800	267,800	251,400	211,500	172,800
25		91,200	23,300	23,300	8,200	13,800	80,300	191,600	267,800	248,200	211,500	172,800
26		66,900	25,100	19,000	7,800	15,200	85,700	194,400	267,800	248,200	205,700	172,800
27		50,500	26,100	21,500	10,200	16,600	89,300	200,000	267,800	248,200	205,700	167,600
28		33,300	28,100	31,100	13,800	19,000	96,900	200,000	267,800	248,200	205,700	167,600
29		27,100	29,100	30,100	--------	23,300	100,700	205,700	267,800	245,000	205,700	165,000
30		22,400	29,100	31,100	--------	26,100	104,600	205,700	267,800	241,800	202,800	162,500
31		--------	27,100	30,100	--------	26,100	--------	211,500	--------	241,800	202,800	--------

Elevation and contents, water year October 1953 to September 1954

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Oct. 31	-	0	0
Nov. 30	761	22,400	+22,400
Dec. 31	766	27,100	+4,700
Calendar year 1953	-	-	+27,100
Jan. 31	769	30,100	+3,000
Feb. 28	750	13,800	-16,300
Mar. 31	765	86,100	+12,300
Apr. 30	818	104,600	+78,500
May 31	862	211,500	+106,900
June 30	880	267,800	+56,300
July 31	872	241,800	-26,000
Aug. 31	859	202,800	-39,000
Sept. 30	844	162,500	-40,300
Water year 1953-54	-	-	+162,500

†Elevation at 8 a. m.

Middle Fork Willamette River at Lowell, Oreg.

Location.—Lat 43°54'30", long 122°46'40", in NW¼ sec. 23, T. 19 S., R. 1 W., on left bank at bridge three-quarters of a mile south of Lowell and 4½ miles upstream from Lost Creek.

Drainage area.—994 sq mi.

Records available.—October 1946 to September 1954 (discontinued).

Gage.—Water-stage recorder. Datum of gage is 668.00 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Aug. 23, 1950, staff gage at same site and datum.

Average discharge.—8 years, 3,576 cfs, adjusted for storage (2,589,000 acre-ft per year).

Extremes.—Maximum discharge during year, 23,700 cfs Nov. 23 (gage height, 7.80 ft); minimum, about 100 cfs Feb. 28 (regulated by Lookout Point Reservoir); minimum daily, 765 cfs Oct. 9.

1946-54: Maximum discharge, 62,600 cfs Jan. 18, 1953 (gage height, 12.46 ft), from rating curve extended above 33,000 cfs by logarithmic plotting; minimum, about 50 cfs May 1, 1953 (caused by construction operations at Lookout Point Dam).

Maximum stage known, 13.9 ft Dec. 28, 1945.

Remarks.—Records good. No large diversion above station. Flow regulated since November 1953 by Lookout Point Reservoir (see preceding page). Records of water temperatures for the water year 1954 are given in WSP 1353.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Apr. 16				Apr. 17 to Sept. 30	
1.3	720	4.0	4,870	1.3	1,260	5.0	10,500	1.0	860
2.0	1,470	5.0	7,700	2.0	2,240	8.0	24,900	1.9	1,840
3.0	2,920			3.0	4,290			2.9	3,590

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	990	850	4,390	3,800	9,680	5,330	3,710	1,320	1,270	2,370	1,800	1,710
2	1,160	900	6,390	3,800	7,450	4,000	3,520	1,320	1,210	2,900	1,800	1,710
3	1,100	910	8,250	3,730	7,640	2,840	3,390	1,330	860	2,860	1,800	1,710
4	990	890	*11,600	3,690	8,220	2,100	3,410	1,340	1,170	2,840	1,630	1,710
5	900	870	11,100	4,420	9,710	1,420	4,190	1,350	1,430	2,820	1,060	1,710
6	850	1,010	10,800	4,560	10,400	*1,650	6,930	1,380	1,420	2,310	1,080	1,710
7	820	1,450	11,000	4,810	9,400	1,700	7,880	1,420	1,430	1,880	1,130	1,640
8	801	1,350	10,400	3,600	8,020	1,780	7,540	1,470	1,510	1,880	1,280	1,620
9	765	1,210	11,000	3,620	7,160	5,250	6,130	1,480	1,510	1,880	1,520	1,500
10	930	1,130	13,800	3,620	6,840	8,420	4,930	1,500	1,510	1,880	1,790	1,570
11	1,180	1,120	13,000	3,600	6,480	7,710	3,910	1,510	1,710	1,900	1,840	1,560
12	1,100	1,150	9,820	3,560	6,280	6,160	4,790	1,520	1,910	1,900	1,840	1,560
13	990	1,160	9,290	3,500	6,750	4,460	7,120	1,520	2,130	1,800	1,870	1,560
14	930	1,120	6,020	3,470	6,970	3,670	5,960	1,530	2,210	1,800	1,920	1,560
15	910	1,080	*3,890	3,840	6,690	3,240	6,270	1,540	2,320	1,740	1,920	1,560
16	900	1,140	6,330	7,440	6,160	3,020	4,730	1,540	3,590	1,670	1,840	1,560
17	890	1,730	7,810	11,300	6,160	3,000	1,270	1,560	2,860	1,620	1,710	1,560
18	1,210	1,820	5,280	8,460	5,940	2,940	1,270	1,570	2,800	1,540	1,710	1,540
19	2,050	1,750	8,660	4,950	4,960	2,920	1,310	1,370	2,780	1,480	1,740	1,540
20	1,820	1,930	13,200	3,690	5,380	2,840	1,320	1,240	2,760	1,570	1,760	1,540
21	1,530	2,070	13,800	4,820	7,120	2,780	1,310	1,200	*2,730	1,720	1,760	1,540
22	1,310	7,510	13,300	6,130	7,450	2,940	1,230	1,220	2,620	1,830	1,760	1,590
23	1,180	20,200	12,200	*7,380	6,690	2,980	1,240	1,220	2,750	1,840	1,710	1,620
24	1,090	21,800	9,660	7,450	5,250	2,880	1,240	1,130	2,450	1,840	1,780	1,710
25	1,020	*21,900	5,290	7,060	5,200	1,990	1,240	1,130	2,450	1,840	*1,760	1,740
26	980	17,700	3,750	4,590	3,840	1,290	*1,250	1,230	2,930	1,840	1,750	1,740
27	*940	17,600	3,840	4,930	2,440	1,340	1,260	1,210	2,910	1,870	1,740	1,740
28	910	12,600	3,940	10,300	1,700	1,420	1,300	1,240	*2,880	1,870	1,740	1,720
29	890	8,050	3,980	11,600	-------	1,480	1,320	1,250	*1,980	1,830	1,720	1,710
30	870	5,410	4,750	11,700	-------	2,320	1,320	1,260	*2,380	1,800	1,720	1,710
31	860	-------	3,870	11,400	-------	3,820	-------	1,270	-------	1,800	1,720	-------
Total	32,876	159,410	260,410	180,820	185,980	99,690	102,290	42,170	64,470	60,720	52,200	48,950
Mean	1,061	5,314	8,400	5,833	6,642	3,216	3,410	1,360	2,149	1,959	1,684	1,632
Ac-ft	65,210	316,200	516,500	358,700	368,900	197,700	202,900	83,640	127,900	120,400	103,500	97,090

Adjusted for change in contents in Lookout Point Reservoir

Mean	1,061	5,690	8,477	5,882	6,349	3,415	4,729	3,098	3,096	1,535	1,049	954
Cfsm	1.07	5.72	8.53	5.92	6.39	3.44	4.76	3.12	3.11	1.54	1.06	0.960
In.	1.23	6.39	9.83	6.82	6.65	3.96	5.31	3.59	3.47	1.78	1.22	1.07
Ac-ft	65,210	338,600	521,200	361,700	352,600	210,000	281,400	190,500	184,200	94,400	64,500	56,790

Observed

Calendar year 1953: Max 43,200 Min 765 Mean 4,357 Ac-ft 3,154,000
Water year 1953-54: Max 21,900 Min 765 Mean 3,534 Ac-ft 2,559,000

Adjusted

Calendar year 1954: Mean 4,394 Cfsm 4.42 In. 60.00 Ac-ft 3,181,000
Water year 1953-54: Mean 3,760 Cfsm 3.78 In. 51.35 Ac-ft 2,722,000

* Discharge measurement made on this day.

Fall Creek below Winberry Creek, near Fall Creek, Oreg.

Location.—Lat 43°56'40", long 122°46'30", near center of sec. 2, T. 19 S., R. 1 W., on left bank 10 ft upstream from highway bridge, 1½ miles downstream from Winberry Creek, 2½ miles southeast of Fall Creek, and 5 miles above mouth.

Drainage area.—186 sq mi.

Records available.—October to December 1911 (gage heights only), September 1935 to September 1954. Published as "Big Fall Creek near Fall Creek" 1911.

Gage.—Water-stage recorder. Datum of gage is 637.80 ft above mean sea level, datum of 1929. Oct. 1 to Dec. 31, 1911, staff gage at site a quarter of a mile downstream at different datum. Sept. 9, 1935, to Aug. 2, 1950, staff gage at present site and datum.

Average discharge.—19 years, 567 cfs (410,500 acre-ft per year).

Extremes.—Maximum discharge during year, 15,300 cfs Nov. 23 (gage height, 14.96 ft, from floodmark), from rating curve extended above 6,500 cfs by logarithmic plotting; minimum, 50 cfs Oct. 9 (gage height, 1.20 ft).

1935-54: Maximum discharge, 22,500 cfs Dec. 28, 1945 (gage height, 18.0 ft, from floodmark), from rating curve extended above 6,500 cfs by logarithmic plotting; minimum observed, 19 cfs Dec. 1, 1936.

Remarks.—Records good. No diversion above station.

Revisions (water years).—WSP 1094: 1946(M). WSP 1248: Drainage area.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	258	66	g1,150	518	2,280	434	430	208	582	295	68	71
2	207	82	g2,260	486	2,180	392	382	201	*386	292	65	64
3	110	71	3,190	522	1,990	358	446	193	286	243	64	62
4	82	68	*3,670	680	1,740	326	921	188	248	211	62	64
5	66	71	3,580	795	1,450	*307	1,650	183	266	186	60	58
6	61	210	4,240	695	1,240	295	1,620	173	248	171	60	56
7	56	255	2,980	625	1,090	280	1,220	171	219	159	59	55
8	53	157	4,120	635	940	438	1,140	168	266	*152	58	53
9	52	121	5,320	606	835	598	*1,150	166	396	152	58	52
10	128	106	g4,000	602	700	835	928	159	382	155	56	53
11	134	113	g2,340	558	635	620	770	155	350	142	55	72
12	89	155	1,990	494	740	522	640	150	375	131	55	95
13	72	128	1,890	454	934	482	1,160	144	474	123	55	89
14	66	115	1,650	569	765	454	1,140	137	430	119	58	71
15	63	106	1,370	1,380	675	482	880	133	900	113	105	201
16	61	401	1,170	3,190	594	574	710	129	1,010	109	89	246
17	61	710	988	2,610	685	510	610	127	775	105	64	277
18	392	458	865	1,630	785	450	538	121	590	100	59	176
19	430	574	2,520	*1,190	755	414	470	117	470	98	58	125
20	230	715	3,380	900	1,740	375	414	115	396	96	71	98
21	178	1,040	2,380	755	2,170	375	372	115	331	96	113	86
22	136	7,940	1,620	2,020	1,600	337	340	111	286	89	86	79
23	115	g11,200	1,190	2,810	1,180	313	322	107	257	86	68	74
24	99	g4,000	910	1,660	916	304	301	105	232	82	64	70
25	87	g2,180	745	1,190	755	283	283	111	211	81	*65	65
26	82	g1,390	670	1,020	650	263	266	277	203	77	71	60
27	*76	g1,450	730	2,100	546	474	274	274	274	74	66	59
28	72	g1,090	650	3,790	486	1,190	254	178	232	72	65	58
29	69	g860	620	3,630	-------	830	232	164	198	72	60	56
30	66	g760	566	3,130	-------	630	227	307	190	71	60	55
31	64	-------	518	2,530	-------	506	-------	354	-------	70	100	-------
Total	3,715	36,596	63,272	43,794	31,056	14,653	20,090	5,241	11,463	4,022	2,097	2,702
Mean	120	1,220	2,041	1,431	1,109	473	670	169	382	130	67.6	90.1
Cfsm	0.645	6.56	11.0	7.60	5.96	2.54	3.60	0.909	2.05	0.699	0.363	0.484
In.	0.74	7.32	12.65	8.76	6.21	2.93	4.02	1.05	2.29	0.80	0.42	0.54
Ac-ft	7,370	72,590	125,500	86,860	61,600	29,060	39,850	10,400	22,740	7,980	4,160	5,360

Calendar year 1953: Max 11,200 Min 40 Mean 864 Cfsm 4.65 In. 63.07 Ac-ft 625,500
Water year 1953-54: Max 11,200 Min 52 Mean 654 Cfsm 3.52 In. 47.73 Ac-ft 473,500

Peak discharge (base, 3,100 cfs).--Nov. 23 (about 6 a. m.) 15,300 cfs (14.96 ft); Dec. 3 (8:30 p. m.) 5,210 cfs (8.84 ft); Dec. 6 (10 a. m.) 5,400 cfs (9.00 ft); Dec. 8 (9:30 p. m.) 7,040 cfs (10.24 ft); Dec. 19 (10 p. m.) 4,120 cfs (7.91 ft); Jan. 16 (4 p. m.) 4,460 cfs (8.22 ft); Jan. 22 (8:30 p. m.) 4,540 cfs (8.28 ft); Jan. 28 (1 a. m.) 4,520 cfs (8.27 ft).

* Discharge measurement made on this day.

g Computed from graph based on once-daily staff-gage readings.

Middle Fork Willamette River at Jasper, Oreg.

Location.—Lat 43°59'50", long 122°54'20", in SW¼SW¼ sec. 14, T. 18 S., R. 2 W., on right bank 25 ft downstream from highway bridge at Jasper, 650 ft downstream from Hills Creek, and 7½ miles southeast of Springfield.

Drainage area.—1,340 sq mi.

Records available.—September 1905 to February 1912, July 1913 to March 1917, October 1952 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 513.45 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. September 1905 to February 1912 and July 1913 to March 1917, staff gages at approximately same site at different datum. Oct. 22, 1952, to Oct. 1, 1953, wire-weight gage at site 25 ft upstream at same datum.

Average discharge.—11 years (1905-11, 1913-16, 1952-54), 3,925 cfs (2,842,000 acre-ft per year).

Extremes.—Maximum discharge during year, 40,900 cfs Nov. 23 (gage height, 12.49 ft); minimum, 672 cfs June 29.

1905-12, 1913-17, 1952-54: Maximum discharge, 94,000 cfs Nov. 23, 1909 (gage height, 17.4 ft, datum then in use, from graph based on gage readings), from rating curve extended above 10,000 cfs by logarithmic plotting; minimum observed, 530 cfs Sept. 11-16, 21-27, Oct. 10-29, Nov. 9-13, 1907.

Remarks.—Records good. Flow regulated since November 1953 by Lookout Point Reservoir (see p. 116). Records of water temperatures for the water year 1954 are given in WSP 1353.

Revisions (water years).—WSP 1288: Drainage area, 1907-8, 1910-12, 1914-16.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,500	920	6,580	5,220	14,500	6,600	4,740	1,730	2,100	2,960	2,020	1,920
2	1,540	980	9,540	5,150	11,400	5,750	4,540	1,700	*1,810	3,480	2,010	1,910
3	1,300	990	12,900	5,280	11,300	4,040	4,500	1,700	1,260	3,420	2,010	1,900
4	1,230	960	18,400	5,520	11,500	3,180	5,180	1,700	1,270	3,320	1,910	1,880
5	990	930	18,100	6,280	12,300	*1,980	7,030	1,700	1,870	3,280	1,000	1,880
6	910	1,290	19,400	6,350	13,200	2,230	9,500	1,700	1,810	2,670	1,020	1,870
7	870	1,990	17,700	6,320	11,800	2,260	10,400	1,770	1,780	2,170	1,030	1,810
8	840	1,720	17,700	5,280	10,400	2,670	9,820	1,810	1,980	*2,120	1,290	1,760
9	791	1,460	20,400	5,220	9,040	5,770	*8,830	1,830	2,200	2,120	1,510	1,630
10	1,080	1,340	21,300	5,200	8,680	10,100	7,300	1,840	2,170	2,120	1,940	1,680
11	1,410	1,320	*18,800	5,050	8,200	9,400	5,780	1,840	2,240	2,120	2,010	1,720
12	1,240	1,400	14,300	4,860	8,170	7,930	5,820	1,850	2,620	2,100	2,020	1,760
13	1,090	1,400	13,100	4,720	8,860	6,080	9,820	1,850	3,020	1,980	2,040	1,770
14	1,000	1,330	9,890	5,000	8,890	4,860	8,320	1,840	3,020	1,940	2,110	1,720
15	940	1,260	6,720	7,570	8,530	4,520	8,260	1,840	3,900	1,900	2,180	1,850
16	930	1,680	8,260	14,000	7,810	4,320	6,950	1,840	4,400	1,780	2,160	1,970
17	930	3,150	9,750	17,200	7,900	4,220	2,840	1,840	4,420	1,690	1,940	1,980
18	1,660	2,790	7,720	12,800	8,290	4,000	2,290	1,840	4,080	1,610	1,910	1,880
19	2,670	2,840	12,200	8,380	7,120	3,900	2,220	1,640	3,840	1,540	1,920	1,780
20	2,280	3,320	20,600	6,200	8,560	3,760	2,170	1,390	3,700	1,670	1,990	1,740
21	1,880	3,680	19,000	6,720	11,300	3,640	2,080	1,320	3,500	1,880	2,040	1,730
22	1,580	17,700	17,200	*9,850	10,900	3,720	1,940	1,370	3,300	1,940	2,010	1,760
23	*1,360	37,600	15,400	13,300	9,440	3,780	1,900	1,350	3,320	2,060	1,940	1,800
24	1,230	31,100	12,400	11,100	7,600	3,640	1,900	1,270	3,060	2,040	1,970	1,870
25	1,140	27,300	7,690	9,860	7,000	2,880	1,810	1,160	2,810	2,040	*1,970	1,920
26	1,080	20,300	5,700	7,750	5,730	1,680	1,800	1,590	3,400	2,020	1,970	1,920
27	1,010	20,600	5,880	9,970	4,120	2,010	1,850	1,640	3,500	2,080	1,970	1,920
28	990	15,800	5,720	18,400	3,070	3,600	1,810	1,510	3,380	2,080	1,950	1,910
29	970	9,720	5,700	19,300	-------	3,000	1,770	1,490	2,350	2,080	1,920	1,900
30	930	7,630	6,250	18,300	-------	3,090	1,760	1,640	2,760	2,040	1,920	1,880
31	910	-------	5,280	16,600	-------	4,960	-------	1,700	-------	2,020	1,940	-------
Total	38,281	224,500	389,580	282,750	255,610	133,570	144,930	51,290	84,870	68,270	57,620	55,020
Mean	1,235	7,483	12,570	9,121	9,129	4,309	4,831	1,655	2,829	2,202	1,859	1,834
Ac-ft	75,930	445,300	772,700	560,800	507,000	264,900	287,500	101,700	168,300	135,400	114,300	109,100

Adjusted for storage in Lookout Point Reservoir

Mean	1,235	7,860	12,640	9,169	8,836	4,508	6,151	3,393	3,775	1,779	1,225	1,156
Csm	0.922	5.87	9.43	6.84	6.59	3.36	4.59	2.53	2.82	1.33	0.914	0.863
In.	1.06	6.54	10.88	7.89	6.87	3.88	5.12	2.92	3.14	1.53	1.05	0.96
Ac-ft	75,930	467,700	777,400	563,800	490,700	277,200	366,000	208,600	224,600	109,400	75,300	68,800

Observed

Calendar year 1953:	Max	50,800	Min	750	Mean	6,188	Ac-ft	4,480,000
Water year 1953-54:	Max	37,600	Min	791	Mean	4,894	Ac-ft	3,543,000

Adjusted

Calendar year 1953:	Mean	6,225	Csm	4.65	In.	63.06	Ac-ft	4,507,000
Water year 1953-54:	Mean	5,119	Csm	3.82	In.	51.86	Ac-ft	3,706,000

* Discharge measurement made on this day.

Coast Fork Willamette River at London, Oreg.

Location.—Lat 43°38'30", long 123°05'10", in SW¼ sec. 20, T. 22 S., R. 3 W., on left bank 0.6 mile north of London and 11 miles south of Cottage Grove.

Drainage area.—69 sq mi, approximately.

Records available.—September 1935 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 852.58 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 17, 1935, staff gage at same site and datum.

Average discharge.—19 years, 206 cfs (149,100 acre-ft per year).

Extremes.—Maximum discharge during year, 6,630 cfs Nov. 23 (gage height, 11.28 ft); minimum, 20 cfs Oct. 8, 9.

1935-54: Maximum discharge, 8,800 cfs Dec. 28, 1945 (gage height, 13.25 ft), from rating curve extended above 4,000 cfs; minimum, 10 cfs for several days in 1936, 1938-40.

Remarks.—Records good. No diversion above station; millpond 3 miles above station may cause slight regulation at times.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.2	18	3.0	490
1.3	26	4.0	975
1.5	45	5.0	1,530
1.7	73	7.0	2,830
2.0	135	9.0	4,400
2.5	290		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	107	30	376	252	850	214	193	99	91	73	31	30
2	55	34	504	255	770	199	175	97	75	62	31	26
3	32	29	806	314	695	181	205	95	68	54	*31	27
4	27	28	1,080	372	616	169	434	91	67	50	26	26
5	23	33	1,010	368	530	160	710	89	77	48	23	24
6	21	306	1,790	322	458	152	690	*87	73	46	23	23
7	21	187	1,300	314	409	150	504	87	66	45	23	23
8	21	106	1,160	290	356	214	508	86	82	45	23	23
9	21	78	1,270	276	318	381	517	82	87	46	23	22
10	97	68	1,240	258	283	476	409	80	80	45	22	26
11	61	68	855	241	269	350	336	77	77	43	21	31
12	38	64	655	220	422	294	286	77	80	41	21	42
13	*31	57	544	202	620	262	468	73	84	40	23	*31
14	31	53	458	331	472	241	409	72	82	38	25	44
15	28	52	388	1,210	380	241	336	68	178	37	25	53
16	26	211	332	1,950	332	244	283	67	160	37	28	68
17	29	*325	314	1,180	585	227	248	64	128	36	24	82
18	237	190	300	855	650	202	217	62	104	34	23	55
19	140	240	935	625	553	187	193	61	89	34	26	43
20	80	308	1,340	499	855	172	175	61	78	34	31	36
21	60	360	905	445	820	158	160	60	70	33	33	33
22	48	3,640	635	800	655	148	150	58	*66	32	28	32
23	42	*3,990	486	1,300	508	145	145	57	62	31	25	31
24	37	1,320	388	825	409	142	140	55	60	31	25	30
25	34	*785	332	640	342	*133	135	60	57	30	28	29
26	32	562	322	635	304	126	126	80	55	29	53	28
27	31	522	339	1,880	262	163	128	72	66	30	35	27
28	30	422	304	1,910	238	432	121	62	57	31	34	26
29	29	342	280	1,550	-------	336	110	61	52	31	31	25
30	28	353	*255	1,230	-------	269	104	68	52	31	29	24
31	26	-------	241	965	-------	224	-------	82	-------	30	37	-------
Total	1,523	14,763	21,144	22,514	13,961	6,992	8,615	2,290	2,423	1,227	861	1,020
Mean	49.1	492	682	726	499	226	287	73.9	80.8	39.6	27.8	34.0
Cfsm	0.712	7.13	9.88	10.5	7.23	3.28	4.16	1.07	1.17	0.574	0.403	0.493
In.	0.82	7.96	11.40	12.13	7.52	3.77	4.64	1.23	1.31	0.66	0.46	0.55
Ac-ft	3,020	29,280	41,940	44,660	27,690	13,870	17,090	4,540	4,810	2,430	1,710	2,020

Calendar year 1953: Max 4,700 Min 16 Mean 319 Cfsm 4.62 In. 62.81 Ac-ft 231,100
Water year 1953-54: Max 3,990 Min 21 Mean 267 Cfsm 3.87 In. 52.45 Ac-ft 193,100

Peak discharge (base, 1,900 cfs).--Nov. 23 (3:30 a. m.) 6,630 cfs (11.28 ft); Dec. 6 (9:30 a. m.) 2,210 cfs (6.11 ft); Jan. 16 (12 m.) 2,340 cfs (6.30 ft); Jan. 22 (time and discharge unknown); Jan. 27 (8 p. m.) 3,050 cfs (7.32 ft).

* Discharge measurement made on this day.

Cottage Grove Reservoir near Cottage Grove, Oreg.

Location. —Lat 43°43', long 123°03', in NE¼ sec. 28, T. 21, S., R. 3 W., in east abutment of dam on Coast Fork Willamette River, 5½ miles south of Cottage Grove.
Drainage area. —104 sq mi.
Records available. —October 1942 to September 1954.
Gage. —Water-stage recorder. Datum of gage is at mean sea level (surveys by Corps of Engineers).
Extremes. —Maximum contents during year, 26,810 acre-ft June 20 (elevation, 785.46 ft); minimum, 2,500 acre-ft Feb. 3 (elevation, 748.64 ft).
1942-54: Maximum contents, 34,750 acre-ft May 3, 1949 (elevation, 792.42 ft); minimum since first filling, about 580 acre-ft Nov. 13, 1950 (elevation, about 738.2 ft), from graph based on records of inflow and outflow.
Remarks. —Reservoir is formed by earth-fill dam with concrete spillway completed by Corps of Engineers in 1942; storage began Oct. 31, 1942 (slight pondage at times in water year 1941-42, when inflow temporarily exceeded 2,600 cfs, capacity of outlets). Capacity, 32,940 acre-ft between elevations 719.0 ft (outlet conduit) and 791.0 ft (crest of spillway). Dead storage negligible. Reservoir used for flood control and improvement of navigation below Albany.
Cooperation. —Gage readings furnished and recorder inspected by Corps of Engineers.
Revisions (water years). —WSP 1218: 1950.

Contents at 12 p. m., in acre-feet, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12,100	3,190	2,890	2,870	5,660	10,630	18,910	25,800	26,000	26,440	25,060	23,460
2	11,720	3,130	2,940	2,950	3,080	10,830	19,230	25,890	25,990	26,450	25,010	23,400
3	11,310	3,060	2,900	2,950	2,940	11,090	19,610	25,970	25,980	26,450	24,930	23,220
4	10,880	2,980	2,880	2,880	3,590	11,340	20,160	26,030	25,990	26,420	24,840	22,920
5	10,430	2,960	2,950	2,910	3,970	11,560	20,630	26,070	26,010	26,400	24,780	22,640
6	9,980	2,900	4,340	2,930	4,360	11,770	20,740	26,100	26,000	26,360	24,720	22,350
7	9,550	2,870	4,800	2,940	4,720	11,980	20,780	26,150	25,980	26,350	24,640	21,990
8	9,100	2,900	5,860	2,920	4,940	12,360	21,080	26,180	26,030	26,330	24,570	21,490
9	8,680	2,970	7,170	2,870	5,290	12,940	21,330	26,210	26,060	26,320	24,510	21,000
10	8,470	3,050	8,470	2,860	5,660	13,330	21,460	26,230	26,070	26,300	24,420	20,540
11	8,150	3,110	7,170	2,930	6,050	13,220	21,660	26,240	26,070	26,260	24,350	20,070
12	7,770	2,880	3,550	2,990	6,520	13,320	21,960	26,250	26,080	26,220	24,270	19,650
13	7,480	2,820	2,900	2,950	6,850	12,650	22,480	26,240	26,100	26,180	24,200	19,200
14	7,130	2,840	2,890	3,060	6,910	14,020	22,570	26,240	26,140	26,120	24,140	18,800
15	6,770	2,860	2,900	3,980	6,930	14,360	22,770	26,240	26,410	26,090	24,070	18,410
16	6,410	2,870	2,920	7,550	7,100	14,730	23,010	26,230	26,600	26,070	24,020	18,030
17	6,080	2,770	2,950	8,890	7,500	15,020	23,340	26,210	26,710	25,990	23,950	17,730
18	6,220	2,790	2,910	7,700	7,500	15,270	23,690	26,190	26,760	25,960	23,880	17,340
19	6,130	2,930	4,320	5,240	7,770	15,490	23,950	26,150	26,790	25,910	23,870	16,900
20	5,940	2,910	8,100	3,120	8,360	15,710	24,190	26,110	26,800	25,840	23,840	16,440
21	5,660	2,920	7,890	2,880	8,470	15,930	24,440	26,090	26,780	25,780	23,790	16,000
22	5,370	10,830	4,630	4,080	8,720	16,110	24,630	26,060	26,760	25,720	23,740	15,560
23	5,070	21,480	2,900	4,830	9,000	16,290	24,830	26,030	26,720	25,670	23,690	15,090
24	4,750	21,840	2,930	4,030	9,240	16,470	24,990	25,990	26,680	25,600	23,640	14,640
25	4,450	18,630	2,950	3,280	9,550	16,600	25,120	25,970	26,620	25,540	23,660	14,180
26	4,140	14,260	2,910	3,270	9,940	16,740	25,260	25,990	26,580	25,470	23,670	13,730
27	3,850	9,910	2,980	7,210	10,240	17,020	25,420	25,980	26,570	25,410	23,650	13,290
28	3,570	5,080	2,970	5,730	10,460	17,900	25,540	25,950	26,510	25,340	23,630	12,830
29	3,410	2,910	2,880	12,010	-------	18,270	25,640	25,940	25,440	25,260	23,600	12,350
30	3,340	2,930	2,850	10,850	-------	18,530	25,720	25,940	26,420	25,200	23,560	11,900
31	3,260	-------	2,890	8,480	-------	18,690	-------	25,970	-------	25,130	23,530	-------

Monthly elevation and contents, water year October 1953 to September 1954

Date	Elevation (feet) †	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	768.88	12,480	-
Oct. 31	751.26	3,260	-9,220
Nov. 30	750.17	2,930	-330
Dec. 31	750.05	2,890	-40
Calendar year 1953	-	-	-210
Jan. 31	762.75	8,480	+5,590
Feb. 28	766.02	10,460	+1,980
Mar. 31	777.03	18,690	+8,230
Apr. 30	784.41	25,720	+7,030
May 31	784.65	25,970	+250
June 30	785.08	26,420	+450
July 31	783.83	25,130	-1,290
Aug. 31	782.23	23,530	-1,600
Sept. 30	768.23	11,900	-11,630
Water year 1953-54	-	-	-580

†Elevation at 12 p. m.

Coast Fork Willamette River below Cottage Grove Dam, Oreg.

Location.—Lat 43°43'00", long 123°03'10", in NE¼ sec. 28, T. 21 S., R. 3 W., on right bank at bridge a quarter of a mile downstream from Cottage Grove Dam and 5¼ miles south of Cottage Grove.

Drainage area.—104 sq mi.

Records available.—January 1939 to September 1954. Prior to October 1944, published as "near Cottage Grove."

Gage.—Water-stage recorder. Datum of gage is 711.00 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Jan. 1 to Feb. 13, 1939, staff gage at site three-quarters of a mile downstream at different datum. Feb. 14 to Oct. 12, 1939, staff gage at site 0.8 mile downstream at datum 15.82 ft lower. Oct. 13, 1939, to Sept. 30, 1944, water-stage recorder at site 0.8 mile downstream at datum 15.93 ft lower.

Average discharge.—15 years, 285 cfs, adjusted for storage (206,300 acre-ft per year).

Extremes.—Maximum discharge during year, 2,920 cfs Nov. 25 (gage height, 8.87 ft); minimum, 32 cfs July 1 (gage height, 2.66 ft).

1939-54: Maximum discharge recorded, 3,340 cfs Jan. 4, 1943 (gage height, 10.06 ft, site and datum then in use); practically no flow July 5-7, 1945, Aug. 24, 1947.

Remarks.—Records excellent. No diversion above station. Flow regulated since Oct. 31, 1942, by Cottage Grove Reservoir (see preceding page).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	260	76	422	302	2,410	161	109	67	67	54	50	49
2	260	76	490	276	2,210	134	74	67	67	51	50	49
3	257	76	880	399	880	89	74	67	67	51	*50	86
4	254	76	1,390	486	348	74	254	67	67	50	51	146
5	251	63	1,370	422	380	74	609	67	67	50	51	146
6	251	403	1,740	369	313	73	800	*67	67	50	50	146
7	248	238	1,730	369	267	73	604	67	67	50	50	176
8	245	114	1,000	369	270	73	462	67	67	50	49	246
9	248	65	970	352	166	161	458	67	67	50	49	246
10	254	50	1,010	310	125	380	398	67	67	50	49	243
11	251	50	1,660	240	*121	486	282	67	67	50	49	243
12	220	194	2,600	210	246	308	201	68	67	50	49	243
13	*198	102	990	249	514	134	333	68	68	50	49	*243
14	200	53	555	328	510	109	462	68	69	50	50	240
15	205	53	450	1,410	430	109	316	67	70	50	50	240
16	205	244	369	1,070	288	109	201	67	70	50	50	240
17	205	*458	341	1,270	492	109	125	67	72	50	50	237
18	202	230	358	1,930	855	109	92	67	72	50	50	240
19	200	210	349	2,090	591	109	92	67	72	50	51	246
20	200	366	109	1,740	760	89	86	67	72	50	51	246
21	202	424	1,320	705	1,010	74	73	67	72	50	50	243
22	198	551	2,400	1,020	690	74	73	67	72	50	48	243
23	198	172	1,540	1,550	482	73	73	67	72	50	48	243
24	195	1,690	474	1,510	386	73	72	67	72	51	48	243
25	195	*2,580	394	1,280	255	*73	72	67	72	51	49	240
26	192	2,780	398	905	161	73	72	67	72	51	50	240
27	190	2,800	369	723	161	74	72	67	72	50	50	237
28	188	2,800	369	729	161	126	68	67	72	50	50	240
29	127	1,600	369	1,970	--------	213	67	67	72	50	50	246
30	80	372	296	2,180	--------	168	67	67	72	49	50	246
31	78	--------	246	2,390	--------	168	--------	67	--------	49	50	--------
Total	6,457	18,966	26,958	29,153	15,482	4,152	6,741	2,080	2,089	1,557	1,541	6,372
Mean	208	632	870	940	553	134	225	67.1	69.6	50.2	49.7	212
Ac-ft	12,810	37,620	53,470	57,820	30,710	8,240	13,370	4,130	4,140	3,090	3,060	12,640

Adjusted for change in contents in Cottage Grove Reservoir

Mean	58.4	627	869	1,031	589	268	343	71.2	77.1	29.3	23.7	17.0
Cam	0.562	6.03	8.36	9.91	5.68	2.58	3.30	0.685	0.741	0.282	0.228	0.163
In.	0.65	6.72	9.63	11.43	5.89	2.97	3.68	0.79	0.83	0.32	0.26	0.18
Ac-ft	3,590	37,290	53,430	63,410	32,690	16,470	20,400	4,380	4,590	1,800	1,460	1,010

Observed

Calendar year 1953: Max 2,800 Min 41 Mean 415 Ac-ft 300,400
Water year 1953-54: Max 2,800 Min 48 Mean 333 Ac-ft 241,100

Adjusted

Calendar year 1953: Mean 415 Csm 3.99 In. 54.12 Ac-ft 300,200
Water year 1953-54: Mean 332 Csm 3.19 In. 43.36 Ac-ft 240,500

* Discharge measurement made on this day.

Row River above Pitcher Creek, near Dorena, Oreg.

Location.—Lat 43°44'10", long 122°52'20", in NE¼ sec. 24, T. 21 S., R. 2 W., on right bank half a mile above Pitcher Creek and 1½ miles northwest of Dorena.
Drainage area.—211 sq mi.
Records available.—September 1935 to September 1954. Prior to October 1949, published as "at Star."
Gage.—Water-stage recorder. Datum of gage is 856.16 ft above mean sea level, datum of 1929. Prior to Oct. 18, 1938, staff gage read once or twice daily at site 450 ft upstream at datum 1 ft higher.
Average discharge.—19 years, 593 cfs (429,300 acre-ft per year).
Extremes.—Maximum discharge during year, 18,100 cfs Nov. 23 (gage height, 13.34 ft), from rating curve extended above 9,300 cfs by logarithmic plotting; minimum, 30 cfs Sept. 9, 10.
1935-54: Maximum discharge, 19,600 cfs Dec. 28, 1945 (gage height, 14.33 ft), from rating curve extended above 9,300 cfs by logarithmic plotting; minimum, 10 cfs Sept. 24, 25, 1951.
Remarks.—Records good. Possibly slight regulation at times by log ponds; no diversion above station.
Cooperation.—Gage-height record collected in cooperation with U. S. Weather Bureau and Corps of Engineers.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.6	22	2.5	110	4.0	520	7.0	3,000
1.9	43	3.0	195	5.0	1,080	9.0	6,170
2.2	71	3.5	330	6.0	1,880	12.0	13,500

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	179	46	1,030	550	2,740	435	395	202	411	193	43	45
2	165	63	2,140	*525	2,770	392	351	191	270	182	42	38
3	88	53	3,260	635	2,620	354	439	178	213	156	*41	38
4	59	47	3,550	924	2,240	324	1,270	187	178	145	41	38
5	46	50	2,610	1,090	1,830	318	2,180	*193	182	130	40	37
6	39	497	4,530	912	1,590	312	1,940	193	174	122	40	35
7	36	394	3,050	798	1,470	291	1,270	211	156	113	40	34
8	*34	211	3,540	685	1,270	525	1,220	243	213	109	37	33
9	34	153	5,200	615	1,090	1,040	1,350	238	330	106	37	32
10	96	130	4,160	615	*900	1,250	1,000	204	312	103	36	32
11	124	142	2,290	560	756	804	798	195	288	93	34	42
12	71	197	1,810	488	1,460	640	680	176	333	87	34	45
13	54	154	1,770	427	2,310	550	1,200	160	455	87	35	43
14	48	130	1,600	533	1,490	488	1,210	154	392	79	37	40
15	45	109	1,350	1,900	1,080	516	900	161	*739	71	68	51
16	41	346	1,170	4,390	858	585	732	170	984	71	67	113
17	41	695	1,030	2,920	972	506	710	165	786	69	49	128
18	446	*411	954	1,610	1,130	435	650	165	555	64	41	104
19	483	551	2,980	1,110	972	388	516	160	411	62	41	71
20	223	750	4,770	864	1,950	345	423	148	333	61	51	56
21	160	1,080	2,760	720	2,310	318	370	137	273	65	62	49
22	120	9,760	1,700	2,370	1,740	279	345	120	233	62	54	45
23	96	12,300	1,210	3,130	1,230	270	336	113	202	58	44	42
24	79	4,120	912	1,660	1,010	*273	309	112	180	56	41	41
25	69	2,060	720	1,150	828	251	282	116	170	53	45	39
26	62	1,270	640	978	710	233	259	180	160	51	63	37
27	56	1,440	864	3,140	585	256	279	184	180	50	55	34
28	53	1,090	780	*4,790	493	670	273	148	161	49	50	33
29	50	798	705	4,480	-------	660	240	137	145	48	45	32
30	47	705	620	3,700	-------	570	223	178	137	45	42	31
31	44	-------	535	2,870	-------	463	-------	238	-------	44	55	-------
Total	3,188	39,752	64,240	51,139	40,404	14,741	22,150	5,357	9,556	2,684	1,410	1,438
Mean	103	1,325	2,072	1,650	1,443	476	738	173	319	86.6	45.5	47.9
Cfsm	0.488	6.28	9.82	7.82	6.84	2.26	3.50	0.820	1.51	0.410	0.216	0.227
In.	0.56	7.01	11.32	9.11	7.12	2.60	3.90	0.94	1.68	0.47	0.25	0.25
Ac-ft	6,320	78,850	127,400	101,400	80,140	29,240	43,930	10,630	18,950	5,320	2,800	2,850

Calendar year 1953: Max 12,300 Min 26 Mean 907 Cfsm 4.30 In. 58.37 Ac-ft 656,900
Water year 1953-54: Max 12,300 Min 31 Mean 702 Cfsm 3.33 In. 45.11 Ac-ft 507,800

Peak discharge (base, 4,800 cfs).--Nov. 23 (4 a. m.) 18,100 cfs (13.34 ft); Dec. 3 (8 p. m.) 5,720 cfs (8.75 ft); Dec. 6 (10:30 a. m.) 6,380 cfs (9.11 ft); Dec. 8 (10:30 p. m.) 6,100 cfs (8.96 ft); Dec. 19 (12 p. m.) 6,470 cfs (9.16 ft); Jan. 16 (1 p. m.) 6,010 cfs (8.91 ft); Jan. 22 (8:30 p. m.) 5,630 cfs (8.70 ft); Jan. 27 (10 p. m.) 6,380 cfs (9.11 ft).
* Discharge measurement made on this day.

Dorena Reservoir near Cottage Grove, Oreg.

Location.—Lat 43°47', long 122°57', in SE¼ sec. 32, T. 20 S., R. 2 W., on left side of dam on Row River, 5 miles east of Cottage Grove.
Drainage area.—265 sq mi.
Records available.—October 1949 to September 1954.
Gage.—Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).
Extremes.—Maximum contents during year, 69,360 acre-ft July 10 (elevation, 830.59 ft); minimum, 6,860 acre-ft Nov. 19 (elevation, 770.26 ft).
1949-54: Maximum contents, 76,210 acre-ft May 27, 1953 (elevation, 834.31 ft); minimum since first filling, 5,660 acre ft Dec. 20, 1951 (elevation, 767.75 ft).
Remarks.—Reservoir is formed by earth-fill dam with concrete outlet and spillway, completed in 1949 by Corps of Engineers; storage began Oct. 11, 1949; capacity, 77,510 acre-ft between elevations 739.0 ft (sill of outlet gates) and 835.0 ft (crest of spillway). Dead storage, 8 acre-ft below elevation 739.0 ft. Reservoir used for flood control and improvement of navigation. Capacity table computed by Corps of Engineers.
Cooperation.—Water-stage recorder inspected by Corps of Engineers.

Contents at 12 p. m., in acre-feet, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18,860	10,220	15,180	7,160	20,800	24,020	42,160	57,390	58,180	68,710	64,940	37,350
2	18,740	9,710	10,870	7,480	17,630	24,600	42,650	57,480	58,450	68,880	64,380	36,510
3	18,440	9,160	9,370	7,640	14,090	25,100	43,390	57,530	58,540	69,030	63,820	35,670
4	18,110	8,640	11,100	7,610	10,200	25,530	45,060	57,590	59,640	69,120	63,170	34,850
5	17,720	8,120	10,800	7,330	9,870	25,930	46,320	57,670	58,690	69,150	61,870	33,990
6	17,340	8,170	20,170	7,280	10,890	26,300	46,840	57,730	58,700	69,200	60,450	33,150
7	16,930	7,960	23,890	7,260	11,600	26,680	46,800	57,860	58,700	69,220	59,190	32,400
8	16,500	7,580	25,190	7,080	11,970	27,630	47,190	58,010	58,890	69,260	57,900	31,800
9	16,090	7,260	29,910	7,010	12,200	29,590	47,710	58,170	59,300	69,310	56,760	31,220
10	15,910	7,240	31,790	6,980	12,490	30,140	48,350	58,260	59,650	69,330	55,850	30,650
11	15,710	7,220	28,480	7,020	12,930	29,450	48,920	58,290	59,970	69,330	54,960	30,100
12	15,380	7,160	23,230	7,060	14,280	29,980	49,440	58,310	60,360	69,310	54,090	29,560
13	15,030	7,060	18,100	7,100	15,460	30,860	50,580	58,290	61,020	69,290	53,230	29,000
14	14,650	7,020	12,850	7,360	15,200	31,710	50,810	58,250	61,590	69,260	52,380	28,480
15	14,280	6,980	8,650	10,250	15,630	32,580	50,970	58,210	62,910	69,190	51,620	28,000
16	13,910	7,620	7,470	18,550	16,360	33,510	51,510	58,200	64,750	69,150	50,930	27,650
17	13,560	7,760	7,310	22,520	17,270	34,160	52,250	58,170	66,050	69,060	50,060	27,270
18	14,230	7,110	7,080	21,640	17,670	34,600	53,070	58,150	66,970	68,970	49,150	26,870
19	14,810	7,150	12,440	17,190	18,350	34,960	53,600	58,100	67,540	68,880	48,240	26,410
20	14,840	7,550	23,320	10,390	19,950	35,340	54,140	58,010	67,930	68,830	47,400	25,950
21	14,710	8,050	26,200	7,280	19,790	35,720	54,660	57,920	68,160	68,740	46,580	25,470
22	14,500	30,020	21,510	10,740	19,900	36,040	55,100	57,760	68,320	68,670	45,690	25,010
23	14,220	58,730	15,130	13,620	20,750	36,320	55,540	57,610	68,410	68,560	44,780	24,520
24	13,930	61,170	8,980	12,210	21,390	36,600	55,870	57,450	68,460	68,440	43,900	24,030
25	13,620	56,510	7,160	9,620	21,960	36,800	56,170	57,360	68,480	68,300	43,090	23,550
26	13,280	50,010	7,230	7,520	22,380	36,990	56,430	57,400	68,510	68,140	42,280	23,080
27	12,950	43,980	7,400	13,240	22,820	37,300	56,740	57,420	68,600	67,750	41,500	22,570
28	12,470	37,190	7,260	22,620	23,400	38,670	56,990	57,370	68,620	67,210	40,680	22,070
29	11,930	29,660	7,260	26,670	--------	39,840	57,160	57,330	68,580	66,600	39,840	21,570
30	11,340	22,100	7,170	27,160	--------	40,830	57,330	57,370	68,530	66,030	39,060	21,070
31	10,770	--------	7,220	24,190	--------	41,570	--------	57,620	--------	65,520	38,220	--------

Monthly elevation and contents, water year October 1953 to September 1954

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	789.29	18,890	-
Oct. 31	777.34	10,770	-8,120
Nov. 30	793.21	22,100	+11,330
Dec. 31	770.98	7,220	-14,880
Calendar year 1953	-	-	+120
Jan. 31	795.58	24,190	+16,970
Feb. 28	794.69	23,400	-790
Mar. 31	811.87	41,570	+18,170
Apr. 30	823.36	57,330	+15,760
May 31	823.55	57,620	+290
June 30	830.12	68,530	+10,910
July 31	828.39	65,520	-3,010
Aug. 31	809.07	38,220	-27,300
Sept. 30	791.99	21,070	-17,150
Water year 1953-54	-	-	+2,180

† Elevation at 12 p. m.

Row River near Cottage Grove, Oreg.

Location. —Lat 43°47'40", long 122°59'40", in NE¼ sec. 36, T. 20 S., R. 3 W., on right bank 1½ miles upstream from Mosby Creek, 2 miles downstream from Dorena Dam, and 3 miles east of Cottage Grove.

Drainage area. —270 sq mi.

Records available. —January 1939 to September 1954. Prior to October 1947, published as "near Dorena."

Gage. —Water-stage recorder. Datum of gage is 685.24 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 13, 1939, staff gage at site 180 ft upstream at datum 1.00 ft higher.

Average discharge. —15 years, 756 cfs, adjusted for storage (547,300 acre-ft per year).

Extremes. —Maximum discharge during year, 5,150 cfs Dec. 1 (gage height, 8.37 ft); minimum, 108 cfs July 21 (gage height, 1.91 ft).

1939-54: Maximum discharge, 21,400 cfs Dec. 28, 1945 (gage height, 18.20 ft); minimum, 6.7 cfs Oct. 1, 1949; minimum daily, 14 cfs Aug. 29 to Sept. 1, 1940.

Remarks. —Records excellent. No diversion above station. Flow regulated since October 1949 by Dorena Reservoir (see preceding page).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	262	358	4,980	762	4,890	244	220	212	192	150	314	500
2	258	354	4,930	*610	4,820	212	220	209	206	132	314	495
3	258	349	4,650	768	4,770	202	223	209	206	132	*314	490
4	258	340	3,730	1,140	4,520	195	663	206	206	132	341	486
5	258	340	3,600	1,510	2,330	195	1,960	206	206	132	706	486
6	258	550	1,260	1,160	1,330	195	2,070	206	206	132	750	486
7	262	616	2,170	1,030	1,300	195	1,560	206	206	132	700	441
8	*272	440	4,000	970	1,300	198	1,350	206	206	120	700	341
9	272	344	4,150	859	1,140	202	1,360	206	206	117	625	341
10	272	186	4,300	812	*850	1,090	886	206	206	117	490	341
11	272	186	4,640	734	674	1,360	702	206	206	114	486	337
12	272	240	4,940	620	888	535	575	202	206	114	486	337
13	268	237	4,860	560	1,890	244	940	202	206	114	482	333
14	268	183	4,800	680	1,800	206	1,440	206	206	114	482	337
15	265	165	3,920	1,350	1,030	206	1,070	206	*209	114	477	333
16	265	240	2,010	1,680	615	244	646	206	209	114	477	333
17	265	916	1,380	1,970	736	320	510	206	209	114	472	329
18	265	*904	1,250	2,740	1,190	324	372	206	209	114	515	325
19	265	759	1,060	3,840	886	324	372	206	209	114	535	314
20	265	898	209	4,770	1,500	254	265	209	209	114	535	300
21	265	1,220	1,960	2,790	2,780	212	220	212	209	114	530	300
22	265	1,120	4,560	1,440	2,100	212	220	212	209	111	525	297
23	265	465	4,930	2,690	1,090	212	220	212	206	114	525	297
24	265	3,850	4,330	3,000	910	*216	216	212	198	126	520	297
25	265	4,950	1,810	2,860	740	216	220	212	198	129	520	297
26	265	4,960	850	2,440	658	216	220	212	198	129	520	297
27	262	*4,950	1,020	1,350	495	216	220	212	198	231	515	297
28	328	5,000	1,110	1,260	336	220	216	212	198	314	515	297
29	372	4,980	940	3,560	-------	220	212	212	202	314	510	294
30	372	4,950	850	4,230	-------	220	212	212	202	314	505	294
31	367	-------	707	4,930	-------	220	-------	212	-------	314	500	-------
Total	8,591	45,050	89,906	59,095	47,568	9,325	19,580	6,459	6,142	4,646	15,886	10,652
Mean	277	1,502	2,900	1,906	1,699	301	653	208	205	150	512	355
Ac-ft	17,040	89,360	178,300	117,200	94,350	18,500	38,840	12,810	12,180	9,220	31,510	21,130

Adjusted for change in contents in Dorena Reservoir

Mean	145	1,692	2,657	2,183	1,685	596	918	213	388	101	68.5	66.9
Cfsm	0.537	6.27	9.84	8.09	6.24	2.21	3.40	0.789	1.44	0.374	0.254	0.248
In.	0.62	6.99	11.35	9.32	6.50	2.55	3.79	0.91	1.60	0.43	0.29	0.28
Ac-ft	8,920	100,700	163,400	134,200	93,560	36,670	54,600	13,100	23,090	6,210	4,210	3,980

Observed

Calendar year 1953: Max	5,000	Min	120	Mean	1,144	Ac-ft	827,900
Water year 1953-54: Max	5,000	Min	111	Mean	885	Ac-ft	640,400

Adjusted

Calendar year 1953: Mean	1,144	Csm	4.24	In.	57.50	Ac-ft	828,000
Water year 1953-54: Mean	888	Csm	3.29	In.	44.63	Ac-ft	642,600

* Discharge measurement made on this day.

Mosby Creek at mouth, near Cottage Grove, Oreg.

Location. —Lat 43°46'40", long 123°00'10", in sec. 1, T. 21 S., R. 3 W., on left bank two-thirds of a mile upstream from mouth and 3½ miles southeast of Cottage Grove.
Drainage area. —96 sq mi, approximately.
Records available. —September 1946 to September 1954.
Gage. —Water-stage recorder. Datum of gage is 676.62 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.
Average discharge. —8 years, 265 cfs (191,900 acre-ft per year).
Extremes. —Maximum discharge during year, 6,760 cfs Nov. 23 (gage height, 10.48 ft), from rating curve extended above 4,000 cfs by logarithmic plotting; minimum, 12 cfs Aug. 7-12, Sept. 9, 10.
1946-54: Maximum discharge, 7,160 cfs Oct. 28, 1950 (gage height, 10.82 ft), from rating curve extended above 4,100 cfs by logarithmic plotting; minimum, 4 cfs Sept. 13-15, 1951.
Remarks. —Records excellent. Small diversions for irrigation above station.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
1.2	12	2.5	365	1.1	10	1.9	133
1.3	18	3.0	635	1.2	15	2.4	320
1.4	28	5.0	2,060	1.3	22	3.0	635
1.7	79	7.5	4,080	1.4	33	5.5	2,460
2.1	193			1.6	64	8.5	4,980

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	18	306	216	833	151	163	61	76	46	14	17
2	56	22	465	205	755	133	139	59	56	44	14	15
3	32	21	822	335	665	125	180	56	47	39	*14	15
4	23	19	1,360	435	569	110	470	52	46	34	14	15
5	19	21	1,140	470	460	102	872	*54	52	31	13	14
6	18	280	2,100	355	380	98	878	54	50	30	13	14
7	16	212	1,710	293	335	91	564	52	44	29	12	14
8	*15	98	1,360	263	284	157	514	50	54	28	12	13
9	14	65	1,520	235	251	406	525	50	80	29	12	12
10	56	54	1,450	227	*212	596	405	49	70	30	12	12
11	61	56	911	208	190	380	306	47	64	28	12	14
12	36	57	613	194	423	284	239	44	64	26	12	16
13	26	52	492	170	937	243	410	43	70	23	13	*18
14	23	45	415	239	574	220	405	43	68	22	14	18
15	21	41	335	1,620	410	216	311	43	*151	22	14	20
16	19	159	267	2,770	316	231	243	40	201	22	16	27
17	19	375	235	1,700	492	201	201	37	142	21	16	36
18	238	*212	227	1,020	671	170	170	36	107	20	14	34
19	163	215	966	707	558	157	145	34	86	19	14	23
20	84	370	2,030	503	944	133	128	34	74	19	16	20
21	56	400	1,240	395	937	115	110	34	61	18	18	18
22	41	3,850	725	1,140	695	107	102	33	54	18	18	17
23	32	*4,850	508	1,740	492	100	93	33	47	17	16	16
24	28	1,650	355	885	375	*102	89	32	44	17	15	15
25	25	840	275	586	288	91	82	32	41	16	15	15
26	23	530	239	574	243	82	78	47	37	16	25	14
27	21	520	330	2,080	197	100	80	49	40	16	21	14
28	20	435	311	2,700	166	365	78	37	39	16	19	14
29	18	325	275	1,940	-------	320	68	36	32	14	17	13
30	18	280	*235	1,460	-------	259	64	46	33	14	16	13
31	18	-------	205	1,020	-------	201	-------	50	-------	14	18	-------
Total	1,314	16,072	23,422	26,685	13,652	6,046	8,112	1,367	2,030	738	469	516
Mean	42.4	536	756	861	488	195	270	44.1	67.7	23.8	15.1	17.2
Cfsm	0.442	5.58	7.87	8.97	5.08	2.03	2.81	0.459	0.705	0.248	0.157	0.179
In.	0.51	6.23	9.07	10.34	5.29	2.34	3.14	0.53	0.79	0.29	0.18	0.20
Ac-ft	2,610	31,880	46,460	52,930	27,080	11,990	16,090	2,710	4,030	1,460	930	1,020

Calendar year 1953: Max 5,120 Min 11 Mean 357 Cfsm 3.72 In. 50.48 Ac-ft 258,600
Water year 1953-54: Max 4,850 Min 12 Mean 275 Cfsm 2.86 In. 38.91 Ac-ft 199,200

Peak discharge (base, 2,500 cfs).-- Nov. 23 (4 a. m.) 6,760 cfs (10.48 ft); Dec. 6 (1 p. m.) 2,830 cfs (5.96 ft); Jan. 16 (3 p. m.) 3,440 cfs (6.72 ft); Jan. 22 (10:30 p. m.) 2,830 cfs (5.96 ft); Jan. 27 (10 p. m.) 4,070 cfs (7.49 ft).
* Discharge measurement made on this day.

Coast Fork Willamette River near Goshen, Oreg.

Location.—Lat 43°58'40", long 122°58'00", in NW¼ sec. 29, T. 18 S., R. 2 W., on right bank at downstream side of highway bridge, 2.5 miles east of Goshen and 6½ miles above confluence with Middle Fork Willamette River.

Drainage area.—642 sq mi.

Records available.—August 1905 to February 1912, October 1950 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 473.80 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Feb. 7, 1912, staff gage at site 600 ft upstream at different datum.

Average discharge.—10 years (1905-11, 1950-54), 1,806 cfs (1,307,000 acre-ft per year).

Extremes.—Maximum discharge during year, 17,000 cfs Nov. 23 (gage height, 13.55 ft); minimum, 140 cfs July 20 (gage height, 2.23 ft).

1905-12, 1950-54: Maximum discharge, 58,500 cfs Nov. 22, 1909 (gage height, 19.5 ft, from graph based on gage readings), from rating curve extended above 15,000 cfs by logarithmic plotting, site and datum then in use; minimum, 36 cfs Sept. 29, 30, Oct. 11, 12, 1908.

Remarks.—Records excellent. Flow regulated by Cottage Grove Reservoir (see p. 121) and Dorena Reservoir (see p. 124). Only small diversions above station.

Revisions (water years).—WSP 1218: Drainage area. WSP 1248: 1905-12.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 23				Nov. 24 to Sept. 30			
2.5	275	6.0	3,400	2.2	130	6.0	3,150
3.0	600	9.0	7,610	2.5	240	8.0	5,750
4.0	1,450	12.5	14,400	3.0	545	10.0	9,110
				4.0	1,310	11.5	12,200

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	736	492	6,060	1,810	9,400	942	785	399	363	280	318	517
2	720	485	6,340	1,680	8,940	800	657	393	*363	224	318	510
3	664	485	6,720	2,220	7,380	699	854	393	363	204	318	510
4	632	478	8,080	2,760	6,180	*622	1,670	387	369	196	318	615
5	608	471	7,300	3,120	4,280	580	4,070	381	387	193	545	615
6	584	941	8,280	2,650	2,690	559	4,920	369	393	*186	755	615
7	576	1,620	8,670	2,370	2,440	531	3,760	363	393	182	706	608
8	584	880	8,240	2,440	2,340	830	3,000	357	405	182	699	587
9	584	712	8,190	2,150	2,110	1,250	2,980	351	475	179	685	580
10	720	396	8,670	2,000	1,660	2,700	2,590	345	454	179	503	580
11	728	366	7,940	1,820	1,460	3,270	1,860	340	440	176	489	587
12	640	457	9,280	1,600	2,140	2,120	1,590	334	440	176	475	580
13	552	568	7,570	1,470	4,310	1,380	2,060	328	468	172	468	580
14	528	384	6,300	1,590	3,800	1,110	2,770	328	468	168	468	594
15	536	324	5,690	6,040	2,590	1,040	2,310	323	566	165	475	594
16	528	558	3,300	9,700	1,930	1,030	1,630	318	720	165	482	594
17	536	2,170	2,590	8,690	2,620	1,070	1,310	312	622	162	475	594
18	776	1,880	2,360	8,330	4,090	990	1,010	306	545	154	489	601
19	904	1,580	4,360	*7,970	3,130	934	902	301	517	154	531	587
20	712	2,170	6,560	8,560	4,180	822	*792	306	503	148	538	559
21	640	2,300	5,020	5,670	6,040	650	615	312	475	151	538	552
22	600	8,990	8,670	4,320	4,840	608	573	312	461	154	531	552
23	584	13,900	8,370	8,840	3,040	573	531	306	433	154	524	538
24	560	8,620	6,280	7,220	2,390	566	517	312	399	151	*524	538
25	544	9,260	3,650	6,220	2,000	531	496	318	369	154	538	531
26	528	9,070	2,270	6,180	1,610	503	468	345	345	154	552	524
27	520	*9,170	2,490	8,460	1,400	552	468	345	340	172	545	517
28	*536	8,880	2,500	*10,300	1,140	1,080	461	334	318	312	538	510
29	616	8,010	2,200	11,400	-------	1,220	426	334	296	323	531	517
30	506	6,040	2,060	9,960	-------	990	419	357	285	323	524	517.
31	485	-------	1,680	9,940	-------	886	-------	363	-------	323	524	-------
Total	18,967	101,657	177,690	167,480	100,130	31,438	46,494	10,572	12,975	6,016	15,924	16,903
Mean	612	3,389	5,732	5,403	3,576	1,014	1,550	341	432	194	514	563
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-
Ac-ft	37,620	201,600	352,400	332,200	198,600	62,360	92,220	20,970	25,740	11,930	31,580	33,530

Calendar year 1953: Max 15,100 Min 159 Mean 2,511 Cfsm 3.91 In. 53.10 Ac-ft 1,818,000
Water year 1953-54: Max 13,900 Min 148 Mean 1,927 Cfsm 3.00 In. 40.74 Ac-ft 1,401,000

* Discharge measurement made on this day.

Willamette River at Springfield, Oreg.

Location.—Lat 44°02'45", long 123°01'40", in SE¼ sec. 34, T. 17 S., R. 3 W., near center of span on downstream side of highway bridge at Springfield, at mile 185.6.

Drainage area.—2,030 sq mi, approximately.

Records available.—November 1911 to December 1913, June 1919 to September 1954. Published as "at Eugene" June 1919 to September 1928; gage-height records collected at site at Eugene since 1878 are contained in reports of U. S. Weather Bureau.

Gage.—Water-stage recorder. Datum of gage is 423.77 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Nov. 27, 1911, to Dec. 31, 1913, chain gages on bridge a quarter of a mile upstream at different datum. June 1, 1919, to Nov. 24, 1928, staff gage at site 4 miles downstream at different datum.

Average discharge.—36 years (1912-13, 1919-54), 5,311 cfs (3,845,000 acre-ft per year).

Extremes.—Maximum discharge during year, 59,000 cfs Nov. 23 (gage height, 11.50 ft); minimum, 1,380 cfs Oct. 9.

1911-13, 1919-54: Maximum discharge, 140,000 cfs Dec. 29, 1945 (gage height, 20.9 ft), from rating curve extended above 93,000 cfs; minimum, 500 cfs Aug. 11, 1926.

Maximum stage recorded by U. S. Weather Bureau, 22.0 ft Jan. 25, 1903, at Eugene.

Floods in December 1861 and February 1890 reached about the same stage.

Remarks.—Records good except those for periods of no gage-height record, which are fair. Small diversions above station. Flow regulated by Cottage Grove Reservoir (see p. 121), Dorena Reservoir (see p. 124); and since November 1953, by Lookout Point Reservoir (see p. 116).

Revisions (water years).—WSP 694: Drainage area. WSP 984: 1921, 1923, 1927. WSP 1248: 1912-13, 1926, 1928, 1930.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
1.9	1,300	5.0	9,250	1.8	1,400	5.0	11,400
2.5	2,090	6.0	14,200	2.5	2,720	8.0	29,200
3.0	2,980	8.0	26,800	3.5	5,410	11.0	54,000
4.0	5,600						

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,040	1,400	12,800	6,610	24,000	6,930	a6,000	1,990	2,190	3,010	2,290	2,230
2	2,270	1,420	15,900	6,540	20,400	6,090	a6,000	1,960	2,030	3,420	2,290	2,210
3	2,020	1,470	19,800	7,150	18,900	4,510	a6,000	1,940	1,680	3,420	2,270	2,210
4	1,740	1,420	26,500	7,900	17,600	*3,800	a7,000	1,920	*1,580	3,400	2,270	2,230
5	1,600	1,410	25,700	9,250	17,000	2,450	a12,000	1,900	1,990	3,350	1,740	2,230
6	1,510	1,780	27,700	8,780	16,200	2,580	a15,000	1,880	2,010	2,940	1,860	2,230
7	1,460	3,990	27,300	8,570	14,400	2,630	a15,000	1,880	1,960	2,340	1,850	2,210
8	1,430	2,760	25,800	7,560	12,800	3,250	*12,900	1,960	2,050	2,230	1,960	2,110
9	1,410	2,250	28,800	7,150	11,100	6,320	11,800	1,980	2,290	2,230	2,110	2,070
10	1,700	1,760	29,800	7,000	9,960	12,900	10,100	1,980	2,360	2,230	2,470	1,980
11	2,140	1,630	27,200	6,680	9,160	13,000	7,330	1,980	2,340	2,190	2,490	2,030
12	1,930	1,740	23,400	6,230	9,780	10,100	7,000	1,960	2,630	2,150	2,490	2,070
13	1,690	2,030	21,200	5,800	13,000	7,260	11,800	1,960	3,080	2,050	2,490	2,110
14	1,570	1,660	17,200	6,090	13,000	5,630	11,000	1,940	3,180	1,980	2,510	2,110
15	1,510	1,530	12,800	*13,300	11,000	5,220	10,600	1,940	3,700	1,990	2,560	2,170
16	1,490	1,900	11,400	22,500	9,420	4,950	a9,000	1,940	4,450	1,880	2,560	2,290
17	1,510	5,630	12,600	26,200	10,000	4,920	a4,600	1,940	4,450	1,800	2,290	2,290
18	2,250	5,240	10,200	21,900	12,400	4,630	a3,600	1,940	4,150	1,710	2,250	2,290
19	3,910	4,580	16,400	17,300	10,100	4,450	a3,200	1,810	3,930	1,630	2,250	2,210
20	3,290	5,840	27,400	15,000	12,400	4,260	a3,000	1,580	3,830	1,630	2,270	2,150
21	2,710	6,240	24,300	12,900	17,400	3,990	a2,900	1,570	3,650	1,810	2,340	2,090
22	2,250	23,900	25,900	13,200	16,300	3,960	a2,800	1,540	3,420	1,850	2,340	2,070
23	*2,030	52,700	24,200	22,000	12,800	4,010	a2,600	1,520	3,350	*2,050	2,290	2,090
24	1,790	*40,300	19,400	18,900	9,640	a4,400	a2,500	1,500	3,280	2,110	2,230	2,090
25	1,670	36,200	11,900	16,600	8,900	a3,600	a2,400	1,480	2,840	2,130	2,230	2,210
26	1,620	30,100	7,780	14,800	7,110	a2,300	a2,300	1,710	3,500	2,310	2,310	2,230
27	1,520	30,000	8,060	18,100	5,220	a2,800	a2,400	1,800	3,500	2,190	*2,290	2,230
28	1,510	25,400	8,020	29,300	3,960	a5,000	2,090	1,660	3,450	2,400	2,270	2,230
29	1,560	18,600	7,600	30,500	---	a4,600	2,030	1,660	2,580	2,340	2,270	2,210
30	1,470	*14,500	7,900	28,100	---	a4,400	2,010	1,740	2,840	2,250	2,250	2,210
31	1,410	---	6,720	26,300	---	a6,500	---	1,860	---	2,290	2,250	---
Total	58,010	392,380	571,680	448,210	353,950	161,440	196,960	56,420	88,290	71,310	70,340	65,090
Mean	1,871	10,980	18,440	14,460	12,640	5,208	6,565	1,820	2,943	2,300	2,269	2,170
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-
Ac-ft	115,100	653,300	1,134,000	889,000	702,000	320,200	390,700	111,900	175,100	141,400	139,500	129,100

Calendar year 1953: Max 65,700 Min 1,390 Mean 8,698 Cfsm 4.28 In. 58.16 Ac-ft 6,297,000
Water year 1953-54: Max 52,700 Min 1,400 Mean 6,770 Cfsm 3.33 In. 45.27 Ac-ft 4,901,000

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for Middle Fork Willamette River at Jasper and Coast Fork Willamette River near Goshen.

McKenzie River at outlet of Clear Lake, Oreg.

Location.—Lat 44°21'40", long 121°59'40", in SE¼ sec. 8, T. 14 S., R. 7 E., on west bank of Clear Lake in narrow channel, 150 ft above outlet and at mile 85.9 (river-profile survey).
Drainage area.—101 sq mi.
Records available.—June 1912 to July 1915, October 1947 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 3,015.32 ft above mean sea level (levels by Eugene Water and Electric Board). June 20, 1912, to July 31, 1915, float gage at site 1 mile north at different datum.
Average discharge.—9 years (1912-14, 1947-54), 515 cfs (372,800 acre-ft per year).
Extremes.—Maximum discharge during year, 1,640 cfs Dec. 20 (gage height, 5.49 ft); minimum, 238 cfs Nov. 8-10.

1912-15, 1947-54: Maximum discharge, 2,600 cfs Jan. 18, 1953 (gage height, 7.21 ft), from rating curve extended above 1,400 cfs by logarithmic plotting; minimum daily, 201 cfs July 31, 1915.

A discharge of 165 cfs was measured on Sept. 28, 1915.

Remarks.—Records excellent. Flow regulated by natural storage in lake. At high stages an undetermined flow enters numerous sinkholes in lava rock along south edge of lake above station.
Revisions (water years).—WSP 1124: Drainage area. WSP 1288: 1949.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.5	220
2.0	333
3.5	790
5.5	1,650

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	285	249	846	620	590	575	428	702	641	542	417	326
2	*283	247	832	587	*593	560	428	671	635	533	414	326
3	280	244	850	566	599	545	443	657	629	521	411	323
4	280	242	842	551	611	530	458	657	641	515	403	321
5	280	244	800	539	623	515	470	650	641	506	403	316
6	280	249	825	521	623	506	509	650	638	500	400	314
7	278	242	783	509	614	494	539	660	632	494	395	314
8	276	238	734	500	611	518	554	696	641	491	389	311
9	274	238	846	491	614	614	569	730	647	494	387	309
10	278	242	980	485	614	744	569	734	641	491	384	307
11	271	242	860	479	611	710	569	734	629	479	379	309
12	269	242	825	467	692	660	575	730	641	476	376	309
13	269	242	850	461	814	641	668	720	641	*467	374	304
14	267	244	814	458	783	641	776	713	632	461	368	307
15	264	247	780	452	730	644	755	730	657	458	366	316
16	262	*255	755	449	696	641	744	744	699	455	363	309
17	262	255	734	440	685	623	797	755	685	452	361	314
18	271	258	730	434	674	602	853	766	664	449	356	316
19	264	271	952	426	657	581	860	766	657	449	358	316
20	264	274	1,540	420	657	566	836	744	657	449	356	316
21	269	287	1,150	423	696	542	818	*713	654	449	348	314
22	269	395	968	449	696	524	814	688	644	446	346	311
23	271	966	912	449	664	509	828	668	635	443	346	307
24	269	1,080	872	443	644	*500	828	657	626	440	343	304
25	269	860	842	449	635	488	814	650	608	431	343	302
26	267	780	814	464	626	479	800	657	596	431	340	299
27	262	836	790	476	611	479	797	641	581	428	336	295
28	260	880	758	494	590	461	783	617	572	428	336	292
29	258	868	730	572	--------	446	755	614	554	426	333	290
30	253	853	688	611	--------	440	730	617	551	420	*331	287
31	251	--------	644	599	--------	434	--------	629	--------	417	328	--------
Total	8,355	12,770	26,346	15,284	18,253	17,212	20,367	21,360	18,969	14,441	11,390	9,284
Mean	270	426	850	493	652	555	679	689	632	466	367	309
Cfsm	2.67	4.22	8.42	4.88	6.46	5.50	6.72	6.82	6.26	4.61	3.63	3.06
In.	3.08	4.70	9.70	5.63	6.72	6.34	7.50	7.87	6.98	5.32	4.19	3.42
Ac-ft	16,570	25,330	52,260	30,320	36,200	34,140	40,400	42,370	37,620	28,640	22,590	18,410

Calendar year 1953 : Max 2,180 Min 216 Mean 589 Cfsm 5.83 In. 79.19 Ac-ft 426,600
Water year 1953-54 : Max 1,540 Min 238 Mean 532 Cfsm 5.27 In. 71.45 Ac-ft 384,800

Peak discharge (base, 750 cfs).--Nov. 23 (10:30 p.m.) 1,190 cfs (4.51 ft); Dec. 10 (7 a.m.) 1,010 cfs (4.08 ft); Dec. 20 (6 a.m.) 1,640 cfs (5.49 ft); Feb. 13 (12 m. to 5 p.m.) 828 cfs (3.61 ft); Mar. 10 (12 m. to 4 p.m.) 762 cfs (3.42 ft); Apr. 19 (2 to 3 a.m.) 872 cfs (3.73 ft).
* Discharge measurement made on this day.

McKenzie River at McKenzie Bridge, Oreg.

Location.—Lat 44°10'50", long 122°07'20", in NE¼ sec. 18, T. 16 S., R. 6 E., on left bank 1.7 miles east of village of McKenzie Bridge, 2¾ miles upstream from Horse Creek, and at mile 66.4 (river-profile survey).

Drainage area.—345 sq mi at measuring section three-quarters of a mile upstream from gage.

Records available.—August 1910 to September 1954. Published as "near McKenzie Bridge" August 1910 to September 1911 and October 1914 to September 1916.

Gage.—Water stage recorder. Datum of gage is 1,419.04 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to June 12, 1932, staff gage at several sites within 2 miles of present site at various datums.

Average discharge.—38 years (1910-14, 1915-16, 1918-21, 1923-25, 1926-54), 1,642 cfs (1,189,000 acre ft per year).

Extremes.—Maximum discharge during year, 8,020 cfs Dec. 19 (gage height, 5.56 ft); minimum, 1,170 cfs Nov. 3-5.

1910-54: Maximum discharge, 16,500 cfs Jan. 6, 1923 (gage height, 8.3 ft, from floodmarks, site and datum then in use), from rating curve extended above 6,300 cfs; minimum, 805 cfs Oct. 20, 1931.

Remarks.—Records excellent. No regulation or diversion above station.

Revisions (water years).—WSP 814: Drainage area. WSP 1248: 1911-16, 1919(M), 1920-25.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22		Nov. 23 to Sept. 30	
1.1	1,130	1.2	1,210
2.0	2,010	2.0	2,120
3.0	3,260	3.0	3,500
5.0	6,620	5.0	6,950

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*1,290	1,190	2,390	2,100	2,820	2,160	1,660	2,080	2,100	1,840	1,570	1,390
2	1,270	1,180	2,480	2,040	2,750	2,080	1,670	2,020	2,040	1,820	1,560	1,390
3	1,260	1,170	2,760	2,000	*2,730	2,040	1,900	2,040	2,010	1,800	1,550	1,390
4	1,250	1,170	2,870	2,180	2,730	1,980	2,290	2,050	2,020	1,780	1,540	1,380
5	1,240	1,170	2,720	2,320	2,710	1,940	2,620	2,050	2,010	1,770	1,530	1,380
6	1,240	1,260	3,170	2,220	2,620	1,920	2,510	2,070	1,990	1,760	1,520	1,360
7	1,230	1,220	2,920	2,200	2,580	1,890	2,340	2,120	1,980	1,750	1,520	1,360
8	1,230	1,190	2,760	2,120	2,570	2,290	2,370	2,250	2,020	1,740	1,510	*1,350
9	1,220	1,190	3,900	2,060	2,550	2,920	2,340	2,300	2,050	1,750	1,510	1,350
10	1,250	1,190	4,060	2,010	2,470	2,990	2,250	2,240	2,040	1,750	1,510	1,350
11	1,230	1,190	3,350	1,960	2,420	2,640	2,170	2,250	2,020	1,740	1,500	1,360
12	1,220	1,190	3,310	1,920	2,830	2,410	2,170	2,180	2,100	1,720	1,480	1,400
13	1,210	*1,190	3,180	1,880	3,130	2,280	2,790	2,120	2,070	1,700	1,480	1,350
14	1,210	1,190	2,960	1,920	2,900	2,210	2,830	2,120	2,060	*1,700	1,480	1,400
15	1,200	1,200	2,790	1,920	2,650	2,170	2,620	2,170	2,350	1,700	1,480	1,460
16	1,200	1,330	2,660	1,980	2,500	2,130	2,580	2,210	*2,380	1,690	1,470	1,430
17	1,220	1,330	2,580	2,020	2,430	*2,070	2,710	2,250	2,290	1,680	1,460	1,400
18	1,320	1,280	2,640	1,990	2,350	2,020	2,760	2,280	2,200	1,670	1,450	1,390
19	1,260	1,300	*5,170	1,930	2,320	1,980	2,680	2,260	2,150	1,670	1,460	1,360
20	1,250	1,290	6,230	1,880	2,550	1,930	2,540	2,170	2,120	1,670	1,470	1,350
21	1,250	1,460	4,590	1,860	3,040	1,880	2,470	2,100	2,080	1,670	1,460	1,340
22	1,230	5,430	3,760	2,280	2,940	1,840	2,470	2,020	2,050	1,650	1,430	1,340
23	1,220	5,960	3,280	2,540	2,720	1,810	2,470	1,990	2,010	1,640	1,430	1,330
24	1,210	4,090	2,990	2,330	2,590	1,780	2,440	1,980	1,980	1,630	1,430	1,320
25	1,200	3,220	2,750	2,180	2,500	1,750	2,410	1,960	1,950	1,630	1,430	1,320
26	1,200	2,750	2,620	2,110	2,420	1,730	2,350	2,060	1,930	1,620	1,430	1,310
27	1,190	2,710	2,510	2,280	2,320	1,780	2,350	1,990	1,920	1,620	1,420	1,300
28	1,190	2,520	2,410	3,210	2,240	1,770	2,320	1,940	1,890	1,610	1,410	1,290
29	1,190	2,390	2,330	3,310	-------	1,730	2,240	1,940	1,860	1,600	1,410	1,290
30	1,190	2,370	2,240	3,180	-------	1,690	*2,180	1,960	1,860	1,600	1,400	1,280
31	1,180	-------	2,150	2,940	-------	1,670	-------	2,060	-------	1,570	1,400	-------
Total	38,050	57,320	96,530	68,870	73,380	63,480	71,500	65,230	61,530	52,540	45,700	40,720
Mean	1,227	1,911	3,114	2,222	2,621	2,048	2,383	2,104	2,051	1,695	1,474	1,357
Cfsm	3.56	5.54	9.03	6.44	7.60	5.94	6.91	6.10	5.94	4.91	4.27	3.93
In.	4.10	6.18	10.41	7.42	7.91	6.84	7.71	7.03	6.63	5.66	4.93	4.39
Ac-ft	75,470	113,700	191,500	136,600	145,500	125,900	141,800	129,400	122,000	104,200	90,640	80,770

Calendar year 1954: Max 10,800 Min 1,170 Mean 2,133 Cfsm 6.18 In. 83.94 Ac-ft 1,544,000
Water year 1953-54: Max 6,230 Min 1,170 Mean 2,013 Cfsm 5.83 In. 79.21 Ac-ft 1,457,000

Peak discharge (base, 3,000 cfs).--Nov. 22 (7 p. m.) 7,000 cfs (5.19 ft); Dec. 9 (8 p. m.) 4,880 cfs (3.87 ft); Dec. 19 (9:30 p. m.) 8,020 cfs (5.56 ft); Jan. 29 (2 to 6 p. m.) 3,340 cfs (2.89 ft); Feb. 13 (4 a. m.) 3,180 cfs (2.78 ft); Feb. 21 (2 p. m.) 3,180 cfs (2.78 ft); Mar. 9 (7:30 p. m.) 3,240 cfs (2.82 ft).

* Discharge measurement made on this day.

South Fork McKenzie River near Rainbow, Oreg.

Location.—Lat 44°08'10", long 122°14'40", in NE¼ sec. 31, T. 16 S., R. 5 E., on right bank 0.2 mile upstream from Cougar Creek, 2 miles south of Rainbow, and 5 miles southeast of town of Blue River.

Drainage area.—211 sq mi.

Records available.—October 1947 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 1,236.42 ft above mean sea level (U. S. Public Roads Administration benchmark).

Average discharge.—7 years, 973 cfs (704,400 acre-ft per year).

Extremes.—Maximum discharge during year, 14,600 cfs Nov. 23 (gage height, 7.91 ft), from rating curve extended above 8,200 cfs by logarithmic plotting; minimum, 264 cfs Oct. 31, Nov. 1 (gage height, 1.26 ft).

1947-54: Maximum discharge, 16,400 cfs Jan. 18, 1953 (gage height, 8.34 ft), from rating curve extended above 8,200 cfs by logarithmic plotting; minimum, about 210 cfs Oct. 1, 1947.

Maximum discharge known, 24,500 cfs Dec. 28, 1945 (gage height, 8.8 ft, from flood-marks, at Corps of Engineers gage at site 40 ft upstream; corresponding gage height at present site and datum, about 9.3 ft), computed by Corps of Engineers.

Remarks.—Records excellent except those for period of no gage-height record, which are fair. No regulation or diversion above station.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
1.2	240	3.0	1,770	1.3	265	3.0	1,700
1.5	370	4.0	3,330	1.5	350	4.0	3,200
2.0	720	6.0	7,900	2.0	680	5.0	5,200
						7.0	11,200

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	345	272	1,270	868	2,140	a950	593	769	1,100	616	314	293
2	325	280	1,570	805	*2,220	a900	579	728	950	572	310	285
3	300	280	2,120	823	2,220	a860	712	728	886	537	305	285
4	288	280	2,200	1,070	2,190	a840	1,160	778	886	516	305	285
5	284	292	1,920	1,190	2,090	a800	1,950	814	859	481	305	285
6	280	370	2,310	1,150	1,930	a780	1,750	841	814	467	305	281
7	276	355	1,870	1,120	1,840	a750	1,390	950	744	454	305	277
8	276	335	2,150	1,080	1,790	a950	1,320	1,100	850	442	301	*277
9	272	320	3,820	1,000	1,740	a1,200	1,250	1,120	970	448	297	281
10	330	320	3,390	970	1,580	a1,500	1,100	1,040	950	442	297	289
11	308	325	2,310	913	a1,400	a1,300	1,010	1,040	913	424	297	301
12	296	345	2,090	877	a1,500	a1,100	990	940	1,040	412	293	318
13	292	*292	2,060	796	a1,700	a1,000	1,690	868	1,010	400	293	301
14	292	284	1,970	850	a1,600	a900	1,730	850	960	*385	293	341
15	288	288	1,860	1,040	a1,400	a850	1,460	904	1,580	375	310	467
16	276	444	1,800	1,350	a1,200	a900	1,380	950	*1,750	370	305	400
17	284	479	1,780	1,350	a1,150	*787	1,510	960	1,540	360	297	400
18	486	412	1,830	1,160	a1,100	728	1,560	1,000	1,280	360	297	360
19	430	479	*4,960	1,010	a1,100	704	1,390	980	1,120	355	301	341
20	370	479	5,780	913	a1,500	672	1,200	913	1,000	346	318	328
21	345	755	3,420	832	a2,000	640	1,120	823	895	360	323	318
22	330	6,730	2,460	1,570	a1,800	616	1,080	712	814	350	310	314
23	316	10,600	1,910	1,880	a1,500	593	1,090	672	744	346	301	310
24	312	4,730	1,580	1,420	a1,400	593	1,050	672	688	346	297	305
25	308	2,740	1,360	1,160	a1,300	572	990	680	648	336	301	301
26	304	1,880	1,240	1,100	a1,200	558	950	913	616	332	310	301
27	296	1,950	1,170	1,680	a1,100	632	990	769	664	332	301	297
28	292	1,630	1,060	3,010	a1,050	712	980	736	624	328	297	293
29	292	1,350	1,020	2,850	--------	664	*895	704	579	323	297	293
30	288	1,240	960	2,680	--------	624	841	769	558	318	289	297
31	272	--------	913	2,220	--------	600	--------	960	--------	314	301	--------
Total	9,653	40,536	66,153	40,737	44,740	25,275	35,710	26,683	28,032	12,447	9,375	9,424
Mean	311	1,351	2,134	1,314	1,598	815	1,190	861	934	402	302	314
Cfsm	1.47	6.40	10.1	6.23	7.57	3.86	5.64	4.08	4.43	1.91	1.43	1.49
In.	1.70	7.14	11.66	7.18	7.89	4.45	6.29	4.70	4.94	2.19	1.65	1.66
Ac-ft	19,150	80,400	131,200	80,800	88,740	50,130	70,830	52,920	55,600	24,690	18,600	18,690

Calendar year 1953: Max 13,600 Min 264 Mean 1,185 Cfsm 5.62 In. 76.25 Ac-ft 858,100
Water year 1953-54: Max 10,600 Min 272 Mean 956 Cfsm 4.53 In. 61.45 Ac-ft 691,800

Peak discharge (base, 3,500 cfs).--Nov. 23 (7 a. m.) 14,600 cfs (7.91 ft); Dec. 9 (8 p. m.) 4,400 cfs (4.65 ft); Dec. 19 (10 p. m.) 8,410 cfs (6.17 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for McKenzie River near Vida and at McKenzie Bridge and Blue River near Blue River.

Blue River above Quentin Creek, Oreg.

Location.—Lat 44°16'00", long 122°12'00", in T. 15 S., R. 5 E. (unsurveyed), on left bank about 1⅛ miles upstream from Quentin Creek, 7 miles north of town of McKenzie Bridge, and 11 miles northeast of town of Blue River.

Drainage area.—11.5 sq mi.

Records available.—October 1947 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 1,980 ft (barometric levels by U. S. Forest Service). Prior to Nov. 20, 1947, staff gage at site 15 ft upstream at same datum.

Average discharge.—7 years, 75.0 cfs (54,300 acre-ft per year).

Extremes.—Maximum discharge during year, 1,310 cfs Nov. 22 (gage height, 3.86 ft), from rating curve extended above 530 cfs by logarithmic plotting; minimum, 3.1 cfs Oct. 8-10 (gage height, 0.65 ft).

1947-54: Maximum discharge, 1,630 cfs Jan. 18, 1953 (gage height, 4.18 ft), from rating curve extended above 530 cfs by logarithmic plotting; maximum gage height, 4.54 ft Jan. 18, 1953, momentary backwater from debris; minimum discharge, 2.1 cfs Sept. 19-25, 1951, Oct. 7-30, 1952 (gage height, 0.62 ft).

Remarks.—Records good. No regulation or diversion above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.6	1.6	1.5	100
.7	5.2	2.0	215
.8	11	2.5	380
1.0	26	3.0	630
1.2	51	3.5	990

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	5.2	108	52	142	66	23	38	52	24	8.0	5.2
2	12	5.7	138	48	142	60	24	35	43	23	7.4	4.7
3	6.8	4.7	176	48	144	54	67	37	40	21	7.4	4.7
4	5.2	4.3	171	95	147	47	140	41	43	20	7.4	4.7
5	4.3	5.2	147	122	144	44	168	41	41	19	*6.8	4.7
6	3.9	37	221	110	140	43	138	44	40	18	6.8	4.7
7	*3.5	20	161	104	138	41	112	54	38	17	6.8	4.3
8	3.1	14	149	96	140	132	108	69	54	17	6.8	4.3
9	3.1	13	310	87	140	218	104	71	57	19	6.8	4.3
10	12	*13	286	79	129	190	89	66	54	18	6.2	5.7
11	8.0	14	190	69	122	140	80	63	51	17	6.2	12
12	5.2	14	185	63	168	110	77	56	57	15	6.2	17
13	4.3	12	171	57	190	89	152	50	52	14	5.7	9.2
14	3.9	12	152	63	156	74	144	48	50	14	6.2	19
15	3.9	14	142	60	131	68	120	52	82	14	10	35
16	3.5	48	140	69	110	60	114	56	80	13	8.6	21
17	12	40	138	66	102	52	124	58	*74	12	6.8	17
18	38	28	*147	58	89	45	122	62	64	12	6.2	14
19	21	40	723	51	86	41	*106	56	57	12	6.8	12
20	15	40	542	43	122	37	89	47	52	12	9.8	10
21	13	84	261	45	198	34	79	43	45	12	10	9.8
22	10	965	176	152	171	32	77	34	41	11	7.4	9.2
23	9.2	706	131	168	140	29	77	33	37	10	6.2	8.6
24	7.4	292	108	124	*122	28	74	32	34	10	6.2	8.0
25	6.2	190	89	96	110	27	68	32	32	9.8	6.8	7.4
26	5.7	144	79	80	102	26	63	45	29	9.8	8.6	6.8
27	5.2	142	69	99	87	38	64	36	30	9.2	7.4	6.8
28	5.2	120	66	223	77	34	62	30	28	9.2	6.8	6.2
29	4.7	100	64	221	-------	28	52	30	25	8.6	5.7	6.2
30	4.7	98	58	185	-------	25	45	33	26	8.6	5.2	*5.7
31	4.7	-------	52	156	-------	24	-------	52	-------	8.0	5.7	-------
Total	260.7	3,225.1	5,550	2,989	3,689	1,936	2,762	1,444	1,408	437.2	218.9	288.2
Mean	8.41	108	179	96.4	132	62.5	92.1	46.6	46.9	14.1	7.06	9.61
Cfsm	0.731	9.39	15.6	8.38	11.5	5.43	8.01	4.05	4.08	1.23	0.614	0.836
In.	0.84	10.43	17.95	9.67	11.93	6.26	8.93	4.67	4.55	1.41	0.71	0.93
Ac-ft	517	6,400	11,010	5,930	7,320	3,840	5,480	2,860	2,790	867	434	572

Calendar year 1953: Max 1,250 Min 3.1 Mean 90.5 Cfsm 7.87 In. 106.82 Ac-ft 65,520
Water year 1953-54: Max 965 Min 3.1 Mean 66.3 Cfsm 5.77 In. 78.28 Ac-ft 48,020

Peak discharge (base, 400 cfs).-- Nov. 22 (2:30 p. m.) 1,310 cfs (3.86 ft); Dec. 9 (6 p. m.) 434 cfs (2.60 ft); Dec. 19 (3 p. m.) 1,200 cfs (3.73 ft).

* Discharge measurement made on this day.

Lookout Creek near Blue River, Oreg.

Location. —Lat 44°12'40", long 122°15'20", in T. 15 or 16 S., R. 5 E. (unsurveyed), on left bank 0.4 mile upstream from mouth and 6 miles northeast of town of Blue River.
Drainage area. —24.1 sq mi.
Records available. —August 1949 to September 1954.
Gage. —Water-stage recorder. Altitude of gage is about 1,370 ft (from topographic map).
Average discharge. —5 years, 146 cfs (105,700 acre-ft per year).
Extremes. —Maximum discharge during year, 2,490 cfs Nov. 22 (gage height, 6.39 ft), from rating curve extended above 700 cfs by logarithmic plotting; minimum, 13 cfs Oct. 6-10, 15-17, Nov. 5, Sept. 5-10.
1949-54: Maximum discharge, 3,620 cfs Jan. 18, 1953 (gage height, 7.18 ft), from rating curve extended above 700 cfs by logarithmic plotting; minimum, 6.4 cfs Nov. 25-30, 1952.
Remarks. —Records excellent. No regulation or diversion above station.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 21		Nov. 22 to Sept. 30			
1.9	12	1.9	13	3.0	127
2.2	24	2.1	19	3.5	260
2.4	36	2.3	29	4.0	445
2.7	66	2.5	47	5.0	1,030
3.1	135	2.7	73	6.0	2,000
3.5	243				

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	15	168	102	360	136	60	63	98	38	17	14
2	*22	15	218	98	360	123	59	60	76	35	17	14
3	17	14	350	100	*364	111	114	62	67	32	16	14
4	15	14	372	304	356	102	245	67	72	31	16	14
5	14	15	318	325	339	94	339	67	72	29	16	14
6	14	62	506	245	322	91	290	70	67	28	16	13
7	13	48	342	215	318	89	230	86	65	27	16	13
8	13	32	324	198	311	228	221	102	84	26	16	*13
9	13	28	763	178	297	356	203	98	96	30	16	13
10	22	*26	680	162	263	322	175	91	*96	28	15	14
11	18	24	422	143	245	239	155	89	91	27	15	16
12	15	24	450	127	311	190	158	75	107	25	15	25
13	14	21	392	115	342	162	284	69	109	24	15	17
14	14	21	325	134	284	141	263	70	103	*23	16	21
15	14	22	284	155	236	132	215	78	193	22	16	57
16	13	59	260	219	198	*123	200	78	180	22	16	35
17	15	67	251	215	192	109	215	79	155	21	15	35
18	53	53	*278	168	175	100	200	79	127	21	15	28
19	35	64	1,110	138	180	93	170	69	109	20	16	23
20	26	69	1,090	117	377	86	143	59	100	20	17	21
21	22	193	650	111	520	78	127	51	86	20	17	20
22	20	1,840	422	302	396	72	125	44	73	20	16	19
23	18	1,340	290	332	297	69	121	43	65	19	15	18
24	17	661	227	236	251	66	113	43	59	19	15	18
25	16	400	182	188	221	62	103	44	53	19	16	17
26	16	272	162	165	200	59	98	72	48	18	16	17
27	15	251	148	279	172	96	103	57	48	18	16	16
28	15	195	132	*710	155	113	93	51	44	18	15	16
29	15	160	119	612	-------	91	*81	52	40	18	14	15
30	14	160	109	495	-------	76	72	58	40	18	14	15
31	14	-------	102	392	-------	67	-------	95	-------	17	15	-------
Total	571	6,165	11,450	7,280	8,042	3,876	4,975	2,121	2,623	733	486	585
Mean	18.4	206	369	235	287	125	166	68.4	87.4	23.6	15.7	19.5
Cfsm	0.763	8.55	15.3	9.75	11.9	5.19	6.89	2.84	3.63	0.979	0.651	0.809
In.	0.88	9.51	17.67	11.23	12.41	5.98	7.68	3.27	4.05	1.13	0.75	0.90
Ac-ft	1,130	12,230	22,710	14,440	15,950	7,690	9,870	4,210	5,200	1,450	964	1,160

Calendar year 1953: Max 2,830 Min 12 Mean 184 Cfsm 7.63 In. 103.93 Ac-ft 133,600
Water year 1953-54: Max 1,840 Min 13 Mean 134 Cfsm 5.56 In. 75.46 Ac-ft 97,000

Peak discharge (base, 800 cfs).--Nov. 22 (12 m.) 2,490 cfs (6.39 ft); Dec. 9 (6:30 p. m.) 1,010 cfs (4.97 ft); Dec. 19 (9 p. m.) 1,750 cfs (5.78 ft).
* Discharge measurement made on this day.

Blue River near Blue River, Oreg.

Location.—Lat 44°11'00", long 122°16'50", near line between secs. 13 and 14, T. 16 S., R. 4 E., on right bank 3 miles upstream from Quartz Creek and 3½ miles northeast of town of Blue River.
Drainage area.—75 sq mi, approximately.
Records available.—September 1935 to September 1954.
Gage.—Water stage recorder. Altitude of gage is about 1,225 ft (from profile map of McKenzie River).
Average discharge.—19 years, 387 cfs (280,200 acre-ft per year).
Extremes.—Maximum discharge during year, 9,380 cfs Nov. 22 (gage height, 7.64 ft), from rating curve extended above 2,500 cfs on basis of shape of previous curve defined to 7,500 cfs; minimum, 34 cfs Oct. 8-10.
1935-54: Maximum discharge, 13,300 cfs Dec. 28, 1945 (gage height, 9.80 ft), from rating curve extended above 6,500 cfs; minimum, 13 cfs Sept. 27, 28, Oct. 1, 2, 1938.
Remarks.—Records excellent.

Rating table, water year 1953-54 (gage height, in feet and discharge, in cubic feet per second)

1.1	36	2.5	860
1.3	90	3.0	1,350
1.5	175	4.0	2,650
2.0	465	5.5	5,230
		7.0	8,100

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	118	43	640	328	1,160	432	215	210	328	122	53	48
2	*81	43	923	304	1,180	382	220	195	242	114	53	46
3	55	41	1,380	310	*1,190	346	624	205	215	102	50	46
4	46	38	1,350	1,050	1,160	316	1,320	215	215	94	53	43
5	38	41	1,040	1,180	1,100	304	1,370	220	215	90	48	43
6	36	186	2,010	842	1,020	310	1,060	225	205	90	50	43
7	36	180	1,180	716	1,010	304	788	252	200	87	48	43
8	34	122	1,070	632	1,000	1,080	779	298	264	87	48	*46
9	34	98	2,830	551	959	1,680	716	286	298	98	46	43
10	58	*90	2,350	510	806	1,330	593	264	*286	90	46	46
11	60	98	1,300	452	716	860	504	258	269	87	46	60
12	46	94	1,390	394	1,280	632	530	225	280	84	48	110
13	41	84	1,240	352	1,400	517	1,180	210	274	78	50	66
14	38	78	1,040	420	1,030	452	950	210	264	*72	50	69
15	36	90	932	478	779	432	716	225	510	72	60	298
16	36	324	860	672	632	413	648	225	504	69	58	220
17	38	340	*833	624	616	*376	707	225	413	66	53	152
18	242	236	950	510	572	340	632	225	340	63	50	122
19	175	322	4,560	406	558	316	530	205	292	63	55	94
20	118	316	3,750	340	1,250	292	432	185	274	60	63	81
21	94	787	1,960	340	1,900	264	406	166	236	63	66	69
22	78	7,380	1,210	1,340	1,320	252	400	139	215	60	58	63
23	66	5,190	842	1,330	950	247	382	134	185	60	53	60
24	60	2,210	624	824	806	242	352	134	170	60	53	60
25	55	1,260	517	593	698	220	334	144	157	58	55	58
26	53	860	458	504	632	215	310	230	148	58	60	55
27	50	878	446	903	530	298	310	190	144	55	55	53
28	46	672	400	2,600	491	352	286	162	139	55	53	50
29	43	530	388	*2,120	-------	298	*258	152	126	55	48	48
30	43	524	346	1,620	-------	258	230	180	126	55	48	46
31	41	-------	328	1,230	-------	236	-------	298	-------	52	50	-------
Total	1,995	23,155	39,147	24,475	26,745	13,996	17,782	6,492	7,534	2,320	1,627	2,281
Mean	64.4	772	1,263	790	955	451	593	209	251	74.8	52.5	76.0
Cfsm	0.859	10.3	16.8	10.5	12.7	6.01	7.91	2.79	3.35	0.997	0.700	1.01
In.	0.99	11.48	19.41	12.14	13.26	6.94	8.82	3.22	3.74	1.15	0.81	1.13
Ac-ft	3,960	45,930	77,650	48,550	53,050	27,760	35,270	12,880	14,940	4,600	3,230	4,520

Calendar year 1953: Max 8,690 Min 28 Mean 588 Cfsm 7.84 In. 106.41 Ac-ft 425,600
Water year 1953-54: Max 7,380 Min 34 Mean 459 Cfsm 6.12 In. 83.09 Ac-ft 332,300

Peak discharge (base, 2,600 cfs).--Nov. 22 (2:30 p. m.) 9,380 cfs (7.64 ft); Dec. 6 (7 a. m.) 2,770 cfs (4.08 ft); Dec. 9 (6:30 p. m.) 4,100 cfs (4.90 ft); Dec. 19 (4 p. m.) 7,320 cfs (6.60 ft); Jan. 28 (6 to 9 a. m.) 2,940 cfs (4.19 ft).
* Discharge measurement made on this day.

McKenzie River near Vida, Oreg.

Location.—Lat 44°07'30", long 122°28'10", in NE¼ sec. 5, T. 17 S., R. 3 E., on left bank 1 mile upstream from head of Martin Rapids, 5 miles east of Vida, and at mile 44.3 (river-profile survey).

Drainage area.—930 sq mi, approximately.

Records available.—June 1910 to March 1911 (gage heights only), September 1924 to September 1954. Published as "at Martin Rapids, near Vida" 1910-11.

Gage.—Water-stage recorder. Datum of gage is 855.56 ft above mean sea level, datum of 1929. June 25, 1910, to Mar. 31, 1911, staff gage at site of Martin Rapids 3 miles downstream, at different datum. Sept. 22, 1924, to Nov. 16, 1928, staff gage at site 20 ft upstream at present datum.

Average discharge.—30 years, 3,893 cfs (2,818,000 acre-ft per year).

Extremes.—Maximum discharge during year, 39,400 cfs Nov. 23 (gage height, 12.22 ft); minimum, 1,900 cfs Nov. 4 (gage height, 0.96 ft).

1924-54: Maximum discharge, 64,400 cfs Dec. 28, 1945 (gage height, 17.70 ft), from rating curve extended above 32,000 cfs by logarithmic plotting; minimum, 1,260 cfs Nov. 7, 1930, Sept. 17, Oct. 4, 8, 9, 1931 (gage height, 0.36 ft).

Remarks.—Records excellent except those for periods of no gage-height record or shifting control, which are good.

Revisions (water years).—WSP 1124: 1943.

Rating tables, water year 1953-54, except period of shifting control
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
0.9	1,820	7.0	16,200	1.0	1,970	7.0	18,600
2.0	3,650	10.0	30,200	2.0	3,800	11.0	34,300
4.0	8,250			4.0	9,000		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,520	1,980	6,550	4,680	9,690	4,900	3,420	4,200	5,180	3,440	2,330	2,160
2	2,360	1,960	7,900	4,500	9,780	4,570	3,400	4,020	4,590	3,320	*2,330	2,150
3	2,140	a1,950	10,100	4,590	9,600	4,350	4,240	3,950	4,330	3,180	2,320	2,150
4	2,050	a1,950	10,800	6,390	*9,390	4,150	6,720	4,130	4,350	3,080	2,300	2,130
5	2,020	a2,000	9,720	7,200	9,000	4,020	9,330	4,200	4,330	3,000	2,300	2,110
6	1,990	a2,700	12,300	6,210	8,430	3,930	8,550	4,240	4,170	2,980	2,300	2,110
7	2,000	a2,500	10,100	5,770	8,180	3,840	7,030	4,480	4,000	2,910	2,280	*2,110
8	2,000	a2,300	10,000	5,530	7,950	5,450	6,750	4,940	4,280	2,870	2,280	2,080
9	1,990	a2,110	16,300	5,230	7,700	8,370	6,660	5,180	4,870	2,910	2,270	2,070
10	2,240	2,110	15,800	4,990	7,140	8,700	5,920	4,900	4,660	2,910	2,270	2,070
11	2,170	2,140	11,100	4,700	6,610	6,940	5,430	4,920	4,460	2,860	2,250	2,200
12	2,050	2,180	10,600	4,440	8,010	5,920	5,300	4,660	4,870	2,800	2,250	2,380
13	2,020	2,120	9,750	4,220	9,090	5,380	8,120	4,440	4,800	2,750	2,250	2,220
14	2,000	a2,150	a9,000	4,570	7,950	5,020	8,340	4,350	4,640	2,730	2,250	2,230
15	1,980	a2,200	a8,400	5,330	6,970	4,870	7,060	4,460	6,390	2,710	2,330	3,180
16	1,960	a2,500	a7,800	6,830	6,180	*4,920	6,550	4,640	*7,030	2,680	2,280	2,860
17	1,980	a3,900	*7,480	6,720	6,050	4,660	6,940	4,700	6,230	2,640	2,230	2,690
18	2,890	a3,500	7,730	5,530	5,920	4,420	7,060	4,850	5,430	2,610	2,220	2,470
19	2,650	a3,300	18,700	5,020	5,640	4,240	6,580	4,800	4,940	2,610	2,250	2,350
20	2,320	a3,800	23,100	4,570	8,670	4,090	5,920	4,550	4,680	2,590	2,370	2,270
21	2,240	4,500	15,000	4,370	10,800	3,930	5,580	4,240	4,390	2,620	2,370	2,230
22	2,120	28,500	11,200	7,800	9,300	3,780	5,480	3,950	4,170	2,590	2,250	2,200
23	2,080	31,600	9,090	9,510	7,730	3,680	5,480	3,800	4,000	2,560	2,230	2,180
24	2,040	16,800	7,780	7,110	7,000	3,640	5,330	3,800	3,800	2,540	2,230	2,130
25	2,020	11,300	6,780	5,920	6,470	3,540	5,160	3,800	3,680	2,500	2,250	2,110
26	2,000	8,520	6,230	5,560	6,050	3,440	4,920	4,480	3,600	2,500	2,270	2,100
27	2,000	8,550	6,050	7,520	5,560	3,930	5,060	4,150	3,680	2,490	2,250	2,070
28	1,960	7,480	5,560	14,200	5,180	4,460	4,970	3,910	3,560	2,450	2,220	2,030
29	1,950	6,440	5,430	13,200	-------	3,980	4,660	3,840	3,380	2,400	2,180	2,020
30	1,930	6,130	5,040	11,900	-------	3,700	*4,420	4,060	3,380	2,370	2,160	2,000
31	1,920	-------	4,750	10,200	-------	3,580	-------	4,590	-------	2,350	2,220	-------
Total	65,590	179,150	306,140	204,310	216,040	144,400	180,380	135,230	135,870	84,950	70,290	67,060
Mean	2,116	5,972	9,875	6,591	7,716	4,658	6,013	4,362	4,529	2,740	2,267	2,235
Cfsm	2.28	6.42	10.6	7.09	8.30	5.01	6.47	4.69	4.87	2.95	2.44	2.40
In.	2.62	7.16	12.24	8.17	8.64	5.77	7.21	5.41	5.43	3.40	2.81	2.68
Ac-ft	130,100	355,300	607,200	405,200	428,500	286,400	357,800	268,200	269,500	168,500	139,400	133,000

Calendar year 1953: Max 44,200 Min 1,920 Mean 5,694 Csm 6.12 In. 83.09 Ac-ft 4,122,000
Water year 1953-54: Max 31,600 Min 1,920 Mean 4,902 Csm 5.27 In. 71.54 Ac-ft 3,549,000

Peak discharge (base, 16,000 cfs).—Nov. 23 (6 a. m.) 39,400 cfs (12.22 ft); Dec. 9 (9 p. m.) 20,000 cfs (7.39 ft); Dec. 19 (11:30 p. m.) 30,300 cfs (10.03 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for station at Coburg and South Fork McKenzie River near Rainbow, and recorded range in stage.

Note.--Shifting-control method used June 15 to Sept. 1.

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Gate Creek at Vida, Oreg.

Location.—Lat 44°08'45", long 122°34'15", in sec. 28, T. 16 S., R. 2 E., on right bank at Vida, 300 ft downstream from bridge on U. S. Highway 126 and 1,000 ft upstream from mouth.

Drainage area.—47.6 sq mi.

Records available.—June 1951 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 764.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Extremes.—Maximum discharge during year, 4,750 cfs Nov. 22 (gage height, 9.02 ft); minimum, 22 cfs Sept. 9, 10.

1951-54: Maximum discharge, 5,510 cfs (revised) Jan. 18, 1953 (gage height, 9.38 ft), from rating curve extended above 3,400 cfs; minimum, 12 cfs Nov. 26, 27, 1952.

Revisions.—Figures of maximum discharge for the water years 1952 and 1953 have been revised to 2,410 cfs Mar. 24, 1952 (gage height, 7.32 ft) and 5,510 cfs Jan. 18, 1953 (gage height, 9.38 ft), superseding those published in WSP 1248 and 1288, respectively.

Remarks.—Records good except those for period of no gage-height record, which are fair. No regulation or diversion above station.

Revisions.—Revised figures of discharge, in cubic feet per second, for high-water periods in the water year 1953, superseding those published in WSP 1288, are given herewith:

1953		1953--Con.	
Jan. 17	2,220	Jan. 19	2,240
18	4,620	20	1,800

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
January 1953	27,258	4,620	164	879	18.5	21.30	54,070
Water year 1952-53	91,267	4,620	13	250	5.25	71.31	181,000

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	87	a 28	417	215	860	220	166	99	105	72	32	28
2	55	a 28	748	210	*824	200	162	97	77	66	32	26
3	35	a 27	1,000	222	748	186	255	95	69	62	32	26
4	30	a 27	1,020	611	672	172	414	91	69	59	31	25
5	27	a 29	990	632	584	162	516	88	91	56	31	25
6	25	a 140	1,460	434	512	154	524	85	81	56	31	24
7	23	a160	960	368	459	146	407	83	78	54	30	*23
8	23	a70	1,270	353	407	240	389	80	108	52	30	23
9	23	*50	1,810	335	368	302	371	77	150	57	30	23
10	56	48	1,410	312	328	338	328	75	*127	55	29	24
11	40	47	900	282	312	262	290	75	110	50	28	31
12	32	54	920	255	359	220	258	72	108	49	28	67
13	28	46	800	238	353	205	479	70	135	46	28	38
14	27	45	648	325	332	196	386	67	124	45	30	33
15	25	49	532	462	310	210	312	66	252	44	31	72
16	24	179	445	837	280	*238	268	64	238	*44	32	66
17	28	232	*392	716	308	212	235	63	184	42	29	56
18	134	158	362	508	320	190	210	61	150	41	28	44
19	97	242	1,110	401	365	176	194	59	127	40	30	37
20	61	255	1,250	338	880	162	178	58	122	40	37	33
21	49	483	884	310	900	152	164	60	104	43	40	32
22	41	3,540	652	642	668	142	154	58	95	40	31	32
23	37	2,840	492	712	492	136	146	56	87	39	29	30
24	34	1,180	395	488	398	135	136	55	81	37	30	29
25	32	720	335	395	340	122	127	60	77	36	31	28
26	30	488	312	350	302	117	124	94	75	35	32	27
27	30	484	292	700	268	239	119	78	78	34	30	26
28	28	383	270	1,560	242	377	112	62	72	34	29	25
29	28	318	252	*1,380	-------	262	107	59	69	34	28	25
30	27	310	230	1,140	-------	212	*104	71	70	33	28	24
31	a27	-------	212	916	-------	184	-------	110	-------	33	30	-------
Total	1,243	12,660	22,770	16,647	13,191	6,269	7,635	2,288	3,313	1,428	947	1,002
Mean	40.1	422	735	537	471	202	254	73.8	110	46.1	30.5	33.4
Cfsm	0.842	8.87	15.4	11.3	9.89	4.24	5.34	1.55	2.31	0.968	0.641	0.702
In.	0.97	9.89	17.79	13.01	10.31	4.90	5.97	1.79	2.59	1.12	0.74	0.78
Ac-ft	2,470	25,110	45,160	33,020	26,160	12,430	15,140	4,540	6,570	2,830	1,880	1,990

Calendar year 1953: Max 4,620 Min 21 Mean 335 Cfsm 7.04 In. 95.55 Ac-ft 242,600
Water year 1953-54: Max 3,540 Min 23 Mean 245 Cfsm 5.15 In. 69.86 Ac-ft 177,300

Peak discharge (base, 1,800 cfs).--Nov. 22 (2 p. m.) 4,750 cfs (9.02 ft); Dec. 6 (8 a. m.) 1,890 cfs (6.78 ft); Dec. 9 (8 p. m.) 2,100 cfs (7.01 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for Blue River above Quentin Creek and recorded range in stage.

McKenzie River near Coburg, Oreg.

Location.—Lat 44°06'45", long 123°02'45", in NE¼NE¼ sec. 9, T. 17 S., R. 3 W., on left bank at downstream side of Armitage Bridge, 2 miles southeast of Coburg and 3 miles upstream from mouth.

Drainage area.—1,310 sq mi, approximately.

Records available.—October 1944 to September 1954. Gage-height records collected at same site December 1943 to April 1944 are contained in files of U. S. Weather Bureau.

Gage.—Water-stage recorder. Datum of gage is 396.32 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 24, 1944, wire-weight gage at same site and datum.

Average discharge.—10 years, 6,142 cfs (4,447,000 acre-ft per year).

Extremes.—Maximum discharge during year, 68,200 cfs Nov. 23 (gage height, 15.20 ft), from rating curve extended above 35,000 cfs by logarithmic plotting; minimum, 1,550 cfs Oct. 14 (gage height, 0.47 ft).

1944-54: Maximum discharge, 88,200 cfs Dec. 29, 1945 (gage height, 17.36 ft), from rating curve extended above 37,000 cfs; minimum daily, 1,310 cfs Oct. 29, 1944.

Remarks.—Records excellent. Slight diurnal fluctuation caused by log ponds and powerplants upstream. Water supply for city of Eugene is diverted about 10 miles upstream; small diversions above station for irrigation.

Cooperation.—Telemark-gage readings obtained once daily during fall and winter months by employees of U. S. Weather Bureau.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,900	2,110	8,120	6,280	16,700	6,860	4,640	4,820	5,460	3,870	2,530	2,400
2	2,800	2,200	9,860	5,950	16,000	6,350	4,540	4,660	4,910	3,840	2,500	2,300
3	2,430	2,120	12,100	6,420	15,100	5,930	5,080	4,560	4,520	3,660	2,490	2,320
4	2,220	2,070	17,800	7,580	14,000	*5,630	8,150	4,620	4,500	3,570	2,490	2,300
5	2,160	2,090	16,600	9,860	13,500	5,370	12,400	4,620	4,580	3,490	2,460	2,270
6	2,040	2,430	21,300	8,510	12,500	5,170	12,600	4,600	4,390	3,410	2,440	2,250
7	2,030	3,460	*19,800	7,700	11,800	5,030	10,600	4,760	4,230	3,330	2,470	2,300
8	2,030	2,720	*16,300	7,520	11,200	5,900	9,580	5,100	4,300	*3,340	2,410	2,250
9	2,050	2,470	25,700	7,120	10,900	10,200	*9,690	5,420	5,120	3,330	2,400	2,240
10	2,370	2,340	*28,100	6,720	10,100	12,100	8,640	5,170	4,970	3,390	2,380	2,230
11	2,650	2,450	17,700	6,400	9,200	10,100	7,760	5,100	4,760	3,260	2,380	2,360
12	2,300	2,470	14,400	6,000	10,300	8,540	7,140	4,990	4,910	3,150	2,370	2,510
13	2,170	2,410	13,700	5,620	12,500	7,520	9,900	4,740	5,100	3,080	2,380	2,600
14	1,970	2,340	11,800	5,800	11,300	6,860	11,600	4,560	4,910	3,040	2,420	2,380
15	2,070	2,400	10,500	*7,850	10,100	6,530	9,940	4,640	6,060	3,030	2,450	3,030
16	2,240	2,880	9,590	11,300	8,960	6,620	8,820	4,740	8,540	3,030	2,440	3,270
17	2,150	5,190	8,960	13,100	8,920	6,200	8,820	4,800	7,380	2,920	2,370	3,030
18	3,160	4,360	8,840	10,500	9,300	5,800	8,850	4,780	6,290	2,920	2,380	2,800
19	3,800	4,140	15,900	8,810	8,600	5,490	8,360	4,860	5,610	2,900	2,400	2,570
20	*2,960	4,980	41,000	7,480	12,000	5,230	7,450	4,760	5,280	2,860	2,500	2,530
21	2,710	4,840	25,700	6,720	16,500	5,010	6,830	4,540	4,950	2,850	2,570	2,460
22	2,500	27,700	17,000	8,210	15,300	4,800	6,530	4,230	4,640	2,840	2,490	2,380
23	2,380	64,300	13,000	15,700	12,500	4,660	6,410	4,060	4,410	2,800	2,360	2,410
24	2,300	33,200	10,800	11,100	11,000	4,600	6,230	4,010	4,250	2,740	2,380	2,350
25	2,200	17,800	9,350	9,140	9,900	4,430	5,980	4,040	4,090	2,700	2,410	2,320
26	2,200	12,100	8,510	8,660	9,100	4,280	5,680	4,450	4,020	2,670	2,500	2,290
27	2,200	10,900	8,360	10,500	8,260	4,780	5,680	*4,640	4,040	2,640	*2,450	2,290
28	2,160	9,920	7,610	*32,800	7,450	6,860	5,700	4,190	4,040	2,610	2,440	2,260
29	2,150	8,570	7,250	29,000	--------	5,830	5,420	4,020	3,870	2,580	2,410	2,250
30	2,110	7,730	6,780	24,200	--------	5,210	5,140	4,250	3,790	2,600	2,350	2,250
31	2,110	--------	6,380	19,200	--------	4,860	--------	4,410	--------	2,540	2,410	--------
Total	73,520	254,690	448,810	331,750	323,390	192,750	234,260	143,140	147,920	94,990	75,430	73,200
Mean	2,372	8,490	14,480	10,700	11,550	6,218	7,809	4,617	4,931	3,064	2,433	2,440
Cfsm	1.81	6.48	11.1	8.17	8.82	4.75	5.96	3.52	3.76	2.34	1.86	1.86
In.	2.09	7.23	12.74	9.42	9.18	5.47	6.65	4.06	4.02	2.70	2.14	2.08
Ac-ft	145,800	505,200	890,200	658,000	641,400	382,300	464,600	283,900	293,400	188,400	149,600	145,200

Calendar year 1953 : Max 64,300 Min 1,920 Mean 7,880 Cfsm 6.02 In. 81.65 Ac-ft 5,705,000
Water year 1953-54 : Max 64,300 Min 1,970 Mean 6,558 Cfsm 5.01 In. 67.96 Ac-ft 4,748,000

Peak discharge (base, 24,000 cfs).--Nov. 23 (2 p. m.) 68,200 cfs (15.20 ft); Dec. 6 (5 p. m.) 27,500 cfs (9.29 ft); Dec. 10 (6:30 a. m.) 32,400 cfs (10.10 ft); Dec. 20 (7:30 a. m.) 46,600 cfs (12.15 ft); Jan. 28 (11 a. m.) 36,300 cfs (10.44 ft).

* Discharge measurement made on this day.

Willamette River at Harrisburg, Oreg.

Location.—Lat 44°16'05", long 123°10'25", in SW¼NE¼ sec. 16, T. 15 S., R. 4 W., on right bank 10 ft downstream from State highway bridge at Harrisburg and at mile 162.9.

Drainage area.—3,420 sq mi, approximately.

Records available.—October 1944 to September 1954. Gage-height records (October to April each year) collected at same site since December 1927 are contained in reports of U. S. Weather Bureau.

Gage.—Water-stage recorder. Datum of gage is 290.07 ft above mean sea level, datum of 1929. Oct. 1 to Nov. 14, 1944, wire-weight gage on bridge 10 ft upstream at same datum.

Average discharge.—10 years, 12,860 cfs (9,310,000 acre-ft per year).

Extremes.—Maximum discharge during year, 117,000 cfs Nov. 23 (gage height, 16.46 ft); minimum, 3,150 cfs Oct. 14.

1944-54: Maximum discharge, 210,000 cfs Dec. 29, 1945 (gage height, 19.69 ft), from rating curve extended above 89,000 cfs; minimum, 1,990 cfs Oct. 30, 1944.

Flood in 1861 reached a stage of about 21 ft (present site and datum), from information by local residents. Flood of Jan. 1, 1943, reached a stage of 19.1 ft (present datum), from U. S. Weather Bureau records.

Remarks.—Records good except those for periods of no gage-height record or shifting control, which are fair. Many small diversions above station for irrigation; about 15 cfs diverted from McKenzie River for city of Eugene water supply. Flow regulated at times by Lookout Point Reservoir (see p. 116), Cottage Grove Reservoir (see p. 121), and Dorena Reservoir (see p. 124).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,320	3,420	21,300	13,600	44,200	12,300	9,480	6,800	7,010	6,230	4,280	4,300
2	4,650	3,480	24,800	13,200	38,600	12,600	9,020	6,500	6,800	6,380	4,240	4,140
3	4,300	3,520	31,200	14,100	35,400	10,700	9,300	6,350	6,110	6,590	4,200	4,140
4	3,920	a3,400	45,900	15,400	32,400	9,380	12,300	6,320	5,650	6,410	4,200	4,160
5	3,700	a3,400	44,500	19,700	30,700	7,940	20,000	6,350	6,170	6,200	4,000	4,180
6	3,500	a3,800	48,200	18,700	28,900	7,610	25,700	6,290	6,080	5,980	3,900	4,140
7	3,400	a5,500	54,100	17,200	26,200	7,490	*26,300	6,410	5,850	5,380	3,900	4,160
8	3,350	a5,000	43,600	16,400	24,000	8,150	22,400	6,680	6,000	5,300	3,940	4,040
9	3,380	a4,200	54,400	14,900	21,400	12,700	22,000	7,040	7,100	5,250	4,020	4,000
10	3,700	a3,900	60,100	14,300	19,600	22,900	19,200	7,010	7,280	5,300	*4,380	3,860
11	4,380	a3,700	52,400	*13,500	18,000	23,400	15,400	6,860	6,920	5,180	4,450	4,080
12	4,120	a3,900	41,200	12,600	18,600	19,400	13,700	6,800	7,250	5,020	4,500	4,240
13	3,800	a4,000	38,500	11,800	24,000	15,300	18,600	6,530	7,940	4,800	4,500	4,500
14	3,480	a3,700	31,900	11,800	24,300	12,500	22,900	*6,320	8,000	4,680	4,600	4,240
15	3,480	a4,000	25,400	18,900	21,000	11,700	20,600	6,260	8,780	4,680	4,680	4,720
16	3,580	a5,500	21,600	30,500	18,400	11,200	18,100	6,380	12,300	4,580	4,800	5,550
17	3,500	a9,000	22,100	46,700	17,400	10,900	13,500	6,440	11,600	4,520	4,580	5,220
18	4,050	8,240	20,400	38,300	21,100	10,400	11,800	6,410	10,300	4,380	4,320	5,000
19	*6,290	7,160	23,700	29,700	18,800	9,830	11,000	6,470	9,690	4,240	4,320	4,580
20	5,660	8,750	65,600	24,500	20,900	9,410	10,200	6,140	9,200	4,080	4,400	4,380
21	5,020	9,100	55,900	21,700	32,300	8,850	9,340	5,950	*8,680	4,320	4,580	4,240
22	4,580	31,000	48,400	19,600	34,000	8,500	8,820	5,650	8,060	4,450	4,500	4,160
23	4,220	*104,000	42,600	41,600	26,600	8,430	8,540	5,450	7,670	4,400	4,300	4,260
24	4,100	89,400	36,000	35,000	*21,400	8,150	8,320	5,320	7,490	4,350	4,260	*4,200
25	3,800	63,000	26,600	28,900	18,600	7,820	8,090	5,280	6,470	4,300	4,380	4,200
26	3,780	51,000	18,400	26,900	16,800	6,410	7,760	5,680	7,040	4,400	4,500	4,200
27	3,680	44,600	18,000	26,900	13,600	6,470	7,670	6,350	7,160	4,300	4,500	4,200
28	3,620	41,400	17,100	59,000	11,400	9,550	7,790	5,750	7,280	4,350	4,450	4,120
29	3,650	30,200	16,100	62,200	--------	9,760	7,430	5,550	6,560	4,400	4,350	4,100
30	3,520	24,500	15,500	57,000	--------	8,570	7,070	5,680	5,720	4,160	4,240	4,100
31	3,450	--------	14,700	49,400	--------	9,380	--------	5,880	--------	4,260	4,300	--------
Total	123,980	585,770	‡1,080.2	824,000	678,600	337,700	412,330	192,900	228,160	152,870	134,570	129,410
Mean	3,999	19,530	34,850	26,580	24,240	10,890	13,740	6,223	7,605	4,931	4,341	4,314
Ac-ft	245,900	‡1,162	‡2,143	‡1,634	‡1,346	669,800	817,800	382,600	452,500	303,200	266,900	256,700

Calendar year 1953: Max 134,000 Min 3,250 Mean 16,890 Csm 4.94 In. 67.06 Ac-ft 12,230,000
Water year 1953-54: Max 104,000 Min 3,350 Mean 13,370 Csm 3.91 In. 53.07 Ac-ft 9,680,000

* Discharge measurement made on this day.

‡ Expressed in thousands.

a No gage-height record; discharge estimated on basis of recorded range in stage and records for Albany.

Note.--Shifting-control method used June 5 to Aug. 4.

Long Tom River near Noti, Oreg.

Location.—Lat 44°03'00", long 123°25'30", in sec. 33, T. 17 S., R. 6 W., on left bank an eighth of a mile upstream from railroad bridge, 1 mile downstream from Noti Creek, and 1½ miles southeast of Noti.

Drainage area.—88 sq mi, approximately.

Records available.—October 1935 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 388.76 ft above mean sea level (levels by U. S. Weather Bureau). Prior to Nov. 6, 1940, staff gage at same site and datum.

Average discharge.—19 years, 244 cfs (176,600 acre-ft per year).

Extremes.—Maximum discharge during year, 5,400 cfs Jan. 28 (gage height, 18.56 ft); minimum, 18 cfs Aug. 13, 19.

1935-54: Maximum discharge, that of Jan. 28, 1954; minimum observed, 7 cfs Sept. 25-27, 1939.

Remarks.—Records good. No diversion above station; slight diurnal fluctuation caused by log pond above Noti.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 11 to Nov. 21, Dec. 19, Feb. 3-12)

Oct. 1 to Dec. 19				Dec. 20 to Sept. 30			
0.8	23	7.0	692	0.7	18	10.0	1,240
1.0	36	10.0	1,150	1.0	34	14.0	2,250
2.0	123	13.0	1,780	1.5	73	16.0	3,400
4.0	324	15.0	2,450	2.0	122	18.0	4,900
				5.0	481		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	25	214	315	1,300	422	245	148	84	48	22	28
2	70	24	232	304	1,050	389	238	145	75	49	*22	25
3	46	23	293	437	818	358	413	146	73	47	22	24
4	35	23	560	*907	703	334	488	*141	74	42	22	23
5	32	25	956	1,110	605	316	603	132	75	41	22	23
6	29	74	1,540	741	526	299	900	128	74	40	23	22
7	28	101	1,730	657	458	275	699	124	73	41	23	22
8	27	63	1,190	675	403	398	591	121	76	41	22	22
9	29	49	1,060	613	*361	588	547	118	87	42	22	22
10	128	42	1,290	547	325	985	480	115	77	47	20	*20
11	81	43	944	486	329	795	421	118	73	45	22	22
12	*42	42	716	436	984	633	381	113	81	41	20	35
13	32	41	563	*390	1,710	559	389	105	83	36	20	36
14	35	42	456	420	1,430	499	337	102	74	33	22	28
15	29	44	395	589	969	465	305	99	98	33	22	28
16	26	103	347	980	749	448	281	96	96	33	22	30
17	27	209	330	1,330	834	400	267	92	78	32	20	29
18	49	167	327	1,290	1,080	365	250	89	70	32	20	27
19	66	142	1,130	1,140	1,040	338	235	100	65	30	20	25
20	47	*190	3,550	848	1,540	316	224	90	65	29	21	24
21	38	240	1,940	700	1,930	298	212	79	*62	30	22	23
22	33	1,590	1,180	913	1,630	273	205	71	57	29	22	22
23	30	2,320	824	1,860	1,170	*256	196	70	54	28	20	22
24	28	*1,210	652	1,400	899	245	187	71	52	27	22	22
25	28	611	541	992	742	230	178	77	52	26	28	22
26	27	419	476	1,020	633	218	173	94	52	24	38	22
27	27	336	426	1,470	550	317	172	90	52	24	34	22
28	27	280	367	4,670	477	442	165	81	50	24	32	22
29	26	239	352	*3,340	-------	344	156	79	49	23	32	22
30	25	226	327	2,260	-------	292	154	78	47	22	32	22
31	25	-------	304	1,600	-------	262	-------	82	-------	22	30	-------
Total	1,242	8,943	25,212	34,440	25,245	12,359	10,092	3,194	2,078	1,061	741	736
Mean	40.1	298	813	1,111	902	399	336	103	69.3	34.2	23.9	24.5
Cfsm	0.456	3.39	9.24	12.6	10.2	4.53	3.82	1.17	0.787	0.389	0.272	0.278
In.	0.52	3.78	10.65	14.55	10.67	5.22	4.27	1.35	0.88	0.45	0.31	0.31
Ac-ft	2,460	17,740	50,010	68,310	50,070	24,510	20,020	6,340	4,120	2,100	1,470	1,460

Calendar year 1953: Max 3,550 Min 21 Mean 332 Cfsm 3.77 In. 51.23 Ac-ft 240,400
Water year 1953-54: Max 4,670 Min 20 Mean 343 Cfsm 3.90 In. 52.96 Ac-ft 248,600

Peak discharge (base, 1,300 cfs).--Nov. 23 (6:30 a. m.) 2,530 cfs (15.2 ft); Dec. 7 (1:30 a. m.) 1,980 cfs (13.76 ft); Dec. 20 (10 a. m.) 3,950 cfs (16.78 ft); Jan. 17 (10:30 a. m.) 1,380 cfs (10.71 ft); Jan. 23 (1 p. m.) 2,060 cfs (13.44 ft); Jan. 28 (8 a. m.) 5,400 cfs (18.56 ft); Feb. 13 (9 to 11 p. m.) 1,760 cfs (12.35 ft); Feb. 21 (2 p. m.) 1,940 cfs (13.03 ft).

* Discharge measurement made on this day.

Coyote Creek near Crow, Oreg.

Location. —Lat 44°01'19", long 123°15'17", in NE¼ sec. 11, T. 18 S., R. 5 W., on right bank just upstream from backwater of Fern Ridge Reservoir, 1 mile downstream from Spencer Creek and 5 miles northeast of Crow.

Drainage area. —94 sq mi, approximately.

Records available. —June 1940 to September 1954.

Gage. —Water-stage recorder and concrete control. Datum of gage is 374.0 ft above mean sea level (Corps of Engineers benchmark). Prior to Aug. 31, 1940, staff gages near same site at different datums.

Average discharge. —14 years, 186 cfs (134,700 acre-ft per year).

Extremes. —Maximum discharge during year, 8,120 cfs Jan. 28 (gage height, 13.72 ft), from rating curve extended above 4,700 cfs; minimum, 0.3 cfs Aug. 8.

1940-54: Maximum discharge, 9,260 cfs Dec. 28, 1945 (gage height, 14.13 ft), from rating curve extended above 4,700 cfs; no flow at times in August and September 1940.

Remarks. —Records good except those below 10 cfs and those for period of shifting control, which are fair. Some small diversions above station for irrigation.

Rating table, water year 1953-54, except period of shifting control
(gage height, in feet, and discharge, in cubic feet per second)

0.3	0.4	1.0	30	9.5	910
.4	1.2	2.0	81	10.0	1,180
.5	2.6	4.0	215	11.0	2,150
.6	5.4	7.0	485	12.0	3,600
.7	11	9.0	778	13.0	5,750

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.6	4.2	179	159	633	147	101	35	16	8.0	0.8	2.6
2	7.5	3.8	190	146	449	130	95	32	16	7.5	*.7	2.3
3	8.0	3.8	265	404	338	116	294	34	15	7.5	.8	2.3
4	5.4	3.8	471	*554	275	a100	461	*32	14	7.0	.6	1.8
5	4.2	3.8	662	556	226	a95	604	30	14	5.9	.7	1.4
6	3.4	7.0	1,520	405	191	86	746	28	14	5.4	.8	1.3
7	3.0	a18	2,000	356	163	81	592	28	15	5.4	.5	1.0
8	2.6	a13	1,260	397	141	222	440	26	15	5.4	.4	1.0
9	2.6	a9	859	355	*126	385	389	25	18	5.9	.5	.9
10	3.8	a8	907	323	115	725	308	23	18	7.0	.5	*1.0
11	7.5	a8	692	268	119	722	242	23	17	7.0	.4	.8
12	*9.6	a8	513	233	466	a550	201	22	17	6.5	.4	1.1
13	6.5	a8	377	196	1,040	451	213	21	17	5.4	.5	1.4
14	5.4	8.0	285	201	918	357	179	18	16	4.9	.6	2.3
15	4.5	9.6	225	503	586	308	142	18	16	4.2	.5	2.6
16	4.2	14	189	1,750	382	272	122	18	21	3.8	.5	4.2
17	4.2	41	172	2,300	512	230	108	18	20	3.8	.6	4.2
18	8.6	40	194	1,960	734	192	96	17	17	3.8	.6	3.8
19	19	27	1,210	1,360	646	168	85	16	15	3.8	1.0	5.4
20	16	*42	2,750	838	679	148	77	16	14	3.6	1.2	4.2
21	11	47	1,380	599	774	*128	70	16	*13	3.0	1.2	3.4
22	9.6	862	789	592	687	113	64	16	13	2.3	1.1	2.6
23	5.4	2,660	540	1,180	521	*102	58	16	12	2.3	1.0	2.3
24	5.4	*1,560	377	1,210	384	93	54	15	11	2.1	.8	2.0
25	4.9	782	285	865	296	84	50	15	11	1.8	.9	2.0
26	4.5	416	244	1,190	245	74	48	16	11	1.5	.8	1.8
27	4.5	300	237	2,930	203	122	48	18	10	1.8	1.5	1.7
28	4.2	227	194	5,540	170	213	46	18	9.6	1.5	3.8	1.7
29	3.8	171	168	*3,160	-------	165	41	16	9.1	1.0	3.4	1.7
30	3.6	168	144	1,630	-------	129	38	15	8.6	.8	3.0	1.7
31	3.8	-------	128	922	-------	112	-------	15	-------	.8	2.8	-------
Total	190.3	7,493.0	19,406	33,082	12,019	6,820	6,012	656	433.3	130.7	32.9	66.5
Mean	6.14	250	626	1,067	429	220	200	21.2	14.4	4.22	1.06	2.22
Ac-ft	377	14,860	38,490	65,620	23,840	13,530	11,920	1,300	859	259	65	132

Calendar year 1953: Max 3,270 Min 1.8 Mean 241 Ac-ft 174,500
Water year 1953-54: Max 5,540 Min 0.4 Mean 237 Ac-ft 171,300

34.23

Peak discharge (base, 1,600 cfs).--Nov. 23 (11:30 a. m.) 3,040 cfs (11.45 ft); Dec. 7 (4:30 a. m.) 2,280 cfs (10.91 ft); Dec. 20 (5 a. m.) 3,670 cfs (11.84 ft); Jan. 17 (2 a. m.) 2,930 cfs (11.38 ft); Jan. 28 (2 a. m.) 8,120 cfs (13.72 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for Long Tom River near Noti, recorded range in stage, and weather records.

Note.--Shifting-control method used Nov. 22 to Jan. 30.

Fern Ridge Reservoir near Elmira, Oreg.

Location. —Lat 44°07'20", long 123°17'55", near center of sec. 4, T. 17 S., R. 5 W., in control house at spillway section of dam across Long Tom River and Coyote Creek, 4½ miles northeast of Elmira.

Drainage area. —252 sq mi, not including Amazon Creek basin.

Records available. —October 1941 to September 1954.

Gage. —Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes. —Maximum contents during year, 100,800 acre-ft June 16 (elevation, 373.45 ft); minimum, 6,370 acre-ft Jan. 9 (elevation, 352.57 ft).

1941-54: Maximum contents, 105,400 acre-ft Jan. 1, 1943 (elevation, 373.94 ft); minimum since first filling in 1942, 189 acre-ft Nov. 11, 1950 (elevation, 344.00 ft).

Remarks. —Reservoir is formed by earth-fill dam with concrete outlet and spillway, completed in 1941 by Corps of Engineers; storage began Nov. 13, 1941. Capacity, 101,200 acre-ft between elevations 340 ft (sill of outlet gate) and 373.5 ft (normal maximum operating pool level); dead storage, 23 acre-ft below elevation 340 ft. Reservoir used for flood control and improvement of navigation. Daily contents computed from elevations at 12 p. m. Capacity table computed by Geological Survey on basis of areas furnished by Corps of Engineers. Beginnning in November 1951, most of flow of Amazon Creek has been diverted in SE¼ sec. 29, R. 17 S., R. 4 W., and discharged into Fern Ridge Reservoir; drainage area at point of diversion, 21.3 sq mi.

Cooperation. —Water-stage recorder inspected by employees of Corps of Engineers.

Contents to 12 p. m., in acre-feet, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	51,490	13,280	6,940	7,180	82,660	34,150	69,880	95,810	98,720	99,460	94,820	75,110
2	49,860	12,550	6,970	7,560	78,580	35,510	71,040	96,350	98,910	99,460	94,550	74,510
3	48,260	11,800	7,580	7,890	73,690	36,530	73,760	96,710	98,910	99,280	94,190	73,910
4	46,500	11,030	7,540	7,840	68,180	37,610	75,800	96,990	98,910	99,280	93,920	73,240
5	44,940	10,390	7,390	8,030	62,710	38,500	78,350	97,170	99,000	99,280	93,480	72,500
6	43,230	10,090	11,380	7,440	56,650	39,360	79,840	97,350	99,000	99,180	92,240	71,980
7	41,660	9,970	16,860	6,580	50,360	40,290	80,480	97,620	99,090	99,090	91,190	71,110
8	40,150	9,760	19,330	6,410	44,080	42,290	80,640	97,720	99,370	99,090	90,060	70,170
9	38,910	9,500	20,160	6,590	37,750	45,560	81,040	97,810	99,460	99,090	89,020	69,380
10	37,750	9,220	21,000	6,710	31,470	48,530	81,930	97,990	99,550	99,000	88,000	68,670
11	36,400	8,940	19,140	6,690	27,370	49,030	83,230	98,080	99,830	98,720	87,320	68,250
12	35,010	8,620	15,340	7,220	28,620	49,740	83,970	98,170	100,100	98,720	86,560	67,260
13	33,620	8,320	11,010	7,650	32,240	50,920	86,050	98,260	100,100	98,720	86,140	66,500
14	32,200	8,210	8,050	8,140	32,820	51,950	87,400	98,450	100,500	98,450	85,550	65,950
15	30,830	7,830	6,850	8,920	29,550	53,050	88,420	98,450	100,700	98,360	84,880	65,130
16	29,470	8,080	7,070	13,000	26,480	53,990	89,370	98,540	100,700	98,260	83,970	64,240
17	28,510	7,790	7,680	17,590	25,620	55,730	89,970	98,630	100,500	98,170	83,480	63,510
18	27,470	7,210	8,190	21,260	26,150	57,020	90,750	98,540	100,500	97,990	82,740	62,440
19	26,350	7,190	15,340	20,910	27,230	58,260	91,360	98,630	100,600	97,810	82,090	61,070
20	25,260	7,390	28,900	17,960	28,550	59,390	91,890	98,540	100,500	97,530	81,600	59,780
21	24,030	8,190	36,700	14,280	29,650	60,290	92,420	98,630	100,500	97,350	80,880	58,380
22	22,930	14,210	37,570	14,790	29,730	61,200	92,860	98,540	100,400	97,080	80,320	57,080
23	21,710	25,260	34,720	17,170	30,130	62,110	93,300	98,630	100,300	96,800	79,680	55,790
24	20,590	32,900	30,900	18,810	32,350	62,770	93,750	98,540	100,200	96,620	79,210	54,410
25	19,440	34,970	26,890	20,300	33,740	63,440	94,010	98,820	100,200	96,440	78,890	53,230
26	18,420	31,620	22,960	23,620	33,380	64,110	94,460	98,820	100,100	96,260	78,270	51,830
27	17,410	26,820	18,610	38,140	32,670	65,060	94,910	98,820	99,920	95,900	77,800	50,700
28	16,460	21,230	13,730	66,570	32,820	66,090	95,180	98,820	99,740	95,630	77,260	49,300
29	15,590	15,270	8,290	81,600	--------	67,260	95,360	98,820	99,740	95,450	76,720	48,050
30	14,840	9,150	6,720	86,470	--------	68,390	95,630	98,910	99,650	95,270	76,260	46,710
31	14,050	--------	6,960	85,800	--------	69,240	--------	98,910	--------	95,000	75,720	--------

Monthly elevation and contents, water year October 1953 to September 1954

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	367.07	52,760	-
Oct. 31	356.80	14,050	-38,710
Nov. 30	354.35	9,150	-4,900
Dec. 31	352.98	6,960	-2,190
Calendar year 1953	-	-	-290
Jan. 31	371.76	85,800	+78,840
Feb. 28	362.95	32,820	-52,980
Mar. 31	369.62	69,240	+36,420
Apr. 30	372.89	95,630	+26,390
May 31	373.25	98,910	+3,280
June 30	373.33	99,650	+740
July 31	372.82	95,000	-4,650
Aug. 31	370.50	75,720	-19,280
Sept. 30	365.98	46,710	-29,010
Water year 1953-54	-	-	-6,050

† Elevation at 12 p. m.

Long Tom River below Fern Ridge Dam, near Smithfield, Oreg.

Location.—Lat 44°07'25", long 123°17'50", in SE¼ sec. 4, T. 17 S., R. 5 W., on left bank in canalized river channel, 1,000 ft downstream from Fern Ridge Dam, which impounds runoff of Long Tom River and Coyote Creek, and 2½ miles south of Smithfield.

Drainage area.—252 sq mi, not including Amazon Creek basin.

Records available.—August 1939 to September 1954. Prior to October 1943, published as "at Smithfield."

Gage.—Water-stage recorder and masonry control. Datum of gage is 332.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 21, 1939, staff gage, and Sept. 21, 1939, to Sept. 13, 1943, water-stage recorder, at site 2⅛ miles downstream at datum 11.09 ft lower.

Average discharge.—15 years, 547 cfs, adjusted for diversion to Coyote Creek since 1943 (396,000 acre-ft per year).

Extremes.—Maximum discharge during year, 4,180 cfs Feb. 6; minimum daily, 36 cfs July 5. 1939-54: Maximum discharge, 11,500 cfs Jan. 1, 1943 (gage height, 15.12 ft, site and datum then in use); minimum daily, 2 cfs Aug. 7, 1941.

Remarks.—Records good. A few small diversions above station. Records include diversion for irrigation and stock water to Coyote Creek channel through 24-inch concrete pipe 600 ft long. The diversion is several hundred feet upstream and point of return to Long Tom River about 2½ miles downstream. Record for Coyote Creek is based on daily staff-gage readings and occasional measurements. Fern Ridge Dam, 1,000 ft above station, was completed in 1941, and has regulated flow since Nov. 13, 1941 (see preceding page). Discharge not adjusted for storage or release from Fern Ridge Dam, as evaporation from Reservoir at times exceeds natural flow and diversions, and beginning in November 1951 most of flow of Amazon Creek has been diverted in SE¼ sec. 29, T. 17 S., R. 4 W., and discharged into Fern Ridge Reservoir; drainage area at point of diversion, 21.3 sq mi.

Revisions (water years).—WSP 1248: 1940-41, 1948.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	861	409	1,810	552	3,940	83	64	58	70	43	61	309
2	861	404	573	664	3,880	79	64	58	61	39	*61	309
3	875	399	596	1,160	3,980	76	65	59	59	39	61	309
4	890	394	1,330	*1,810	3,960	73	565	*59	57	39	63	308
5	840	389	2,100	1,890	3,820	72	831	58	58	36	247	300
6	819	278	2,380	1,880	3,980	72	1,310	58	58	39	535	304
7	819	220	2,270	1,820	3,880	72	1,500	59	55	42	540	336
8	812	220	2,350	1,570	3,890	76	1,440	58	56	44	540	421
9	811	216	2,410	1,350	*3,810	78	1,130	56	58	42	540	423
10	805	215	2,420	1,170	3,710	1,170	651	55	58	41	401	*412
11	798	215	3,030	1,020	2,870	1,240	284	53	58	41	326	408
12	*777	215	3,470	711	1,920	1,250	112	53	58	40	332	413
13	755	212	3,430	612	1,710	817	72	52	58	40	332	413
14	748	211	2,590	730	2,950	604	70	52	*56	41	333	419
15	741	208	1,470	1,350	3,830	549	70	53	80	41	328	423
16	741	208	692	2,180	3,090	388	68	52	121	39	328	423
17	735	415	542	2,600	2,530	65	61	50	119	39	324	422
18	728	533	553	2,740	2,220	64	45	49	78	38	324	557
19	663	317	606	3,240	1,860	63	43	46	57	60	320	664
20	637	*205	38	3,660	2,210	63	43	53	57	71	320	664
21	631	324	667	3,490	2,900	63	49	54	58	65	320	664
22	616	408	2,210	2,420	2,930	63	53	56	58	65	320	658
23	604	238	3,180	2,300	1,960	*63	55	56	58	65	315	650
24	598	246	3,140	2,780	563	63	55	54	57	61	310	651
25	592	904	3,060	2,340	795	63	55	53	57	61	310	643
26	544	2,940	2,930	2,010	1,330	63	55	52	57	61	310	643
27	528	3,260	2,810	732	1,330	252	56	58	57	61	310	637
28	522	3,430	2,950	144	677	231	56	69	57	61	310	637
29	446	3,370	3,100	1,050	-------	64	56	69	57	61	310	631
30	415	3,300	1,570	2,680	-------	64	56	69	57	61	305	631
31	414	-------	519	3,790	-------	64	-------	69	-------	61	306	-------
Total	21,626	24,303	60,796	56,445	76,525	8,707	9,034	1,750	1,905	1,537	9,742	14,682
Mean	698	810	1,961	1,821	2,733	281	301	56.5	63.5	49.6	314	489
Ac-ft	42,890	48,200	120,600	112,000	151,800	17,270	17,920	3,470	3,780	3,050	19,320	29,120

Calendar year 1953: Max 3,470 Min 35 Mean 770 Ac-ft 557,200
Water year 1953-54: Max 3,980 Min 36 Mean 786 Ac-ft 569,400

* Discharge measurement made on this day.

Long Tom River at Monroe, Oreg.

Location. —Lat 44°18'50", long 123°17'45", in NE¼ sec. 33, T. 14 S., R. 5 W., on left bank in canalized river channel at Monroe, 800 ft upstream from a concrete drop structure and just downstream from Shafer Creek.

Drainage area. —391 sq mi.

Records available. —November 1920 to September 1954 (1925-27 incomplete). Prior to October 1930, published as "near Monroe."

Gage. —Water-stage recorder and concrete control. Datum of gage is 270.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Nov. 24, 1944, staff gages at various sites ranging from present site to 1½ miles downstream, at different datums.

Average discharge. —31 years (1921-25, 1927-54), 762 cfs (551,700 acre-ft per year).

Extremes. —Maximum discharge during year, 6,580 cfs Jan. 28 (gage height, 8.69 ft); minimum, 30 cfs July 16, 17.

1920-54: Maximum discharge, 19,300 cfs Jan. 2, 1943 (gage height, 17.14 ft, site and datum then in use, from graph based on gage readings), includes some overflow from Willamette River near Junction City; no flow Oct. 20-22, 1944 (water filling pool at gage); minimum observed prior to regulation of flow, 7 cfs Sept. 29, Oct. 1, 1939.

Remarks. —Records good except those below 100 cfs, which are fair. A few small diversions above station. Flow regulated by Fern Ridge Reservoir beginning Nov. 13, 1941 (see p. 141). In 1943 and 1944, river channel was improved from outlet of Fern Ridge Reservoir to a point below Monroe.

Cooperation. —Gage-height record collected in cooperation with U. S. Weather Bureau. Water-stage recorder inspected by employee of Corps of Engineers.

Revisions (water years). —WSP 654: Drainage area. WSP 1248: 1923, 1927, 1928(M). WSP 1288: 1952 (yearly runoff only).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	802	390	*2,530	775	4,920	384	216	137	*99	76	60	290
2	802	383	811	870	4,700	341	222	137	87	*60	64	296
3	802	376	802	1,640	4,620	314	486	137	80	54	64	272
4	811	376	1,560	2,850	4,590	290	929	132	83	54	64	266
5	784	376	2,790	2,770	4,380	*272	1,470	124	80	44	91	266
6	757	348	4,260	2,390	4,360	260	1,970	119	87	51	470	266
7	757	244	4,020	2,340	4,320	260	2,070	*110	87	57	486	284
8	748	232	3,500	2,280	4,240	575	1,860	110	87	64	478	369
9	757	238	3,380	1,840	4,200	950	1,660	114	102	68	478	369
10	775	232	3,690	1,580	4,100	1,990	1,050	110	91	57	430	383
11	757	227	3,520	*1,330	3,670	2,890	667	119	91	60	290	383
12	739	222	3,960	1,000	3,690	2,040	414	119	106	57	290	383
13	721	222	3,840	811	4,040	1,290	348	110	106	54	290	383
14	712	222	3,200	970	3,840	1,010	314	106	99	47	290	383
15	703	222	2,040	1,710	4,740	*860	278	99	114	41	290	*390
16	694	254	1,040	3,520	4,060	820	254	99	160	41	290	390
17	703	383	793	4,470	3,710	369	232	99	160	30	284	390
18	712	568	840	4,830	3,690	302	210	99	142	47	284	462
19	*667	486	2,800	4,320	3,160	*290	185	91	102	*41	290	649
20	613	278	3,730	4,280	3,920	266	175	87	95	87	284	649
21	595	341	2,440	4,020	4,810	249	165	95	91	83	284	649
22	577	1,470	2,680	3,940	4,240	232	165	87	87	83	284	640
23	568	1,930	3,730	3,790	3,200	227	160	91	83	83	290	640
24	559	1,230	3,580	4,040	1,640	222	160	91	87	80	290	640
25	559	817	3,390	3,540	978	210	155	91	87	76	290	631
26	534	3,090	3,320	3,310	*1,800	205	155	110	80	72	290	631
27	502	3,300	3,040	5,530	1,720	364	155	*91	83	68	290	631
28	502	3,580	3,210	5,810	1,420	721	150	106	80	64	296	622
29	478	3,430	3,300	4,790	--------	*302	146	99	76	60	296	622
30	406	3,410	2,260	4,760	--------	*249	142	99	76	60	290	613
31	398	--------	793	4,920	--------	232	--------	106	--------	60	290	--------
Total	20,494	28,877	84,849	95,026	102,758	18,986	16,563	3,324	2,888	1,879	8,757	13,842
Mean	661	963	2,737	3,065	3,670	612	552	107	96.3	60.6	282	461
Ac-ft	40,650	57,280	168,300	188,500	203,800	37,660	32,850	6,590	5,730	3,730	17,370	27,460

Calendar year 1953: Max 5,210 Min 38 Mean 1,089 Ac-ft 788,200
Water year 1953-54: Max 5,810 Min 30 Mean 1,091 Ac-ft 789,900

* Discharge measurement made on this day.

Marys River near Philomath, Oreg.

Location. —Lat 44°31'35", long 123°20'00", in SW¼ sec. 18, T. 12 S., R. 5 W., near midspan on downstream side of bridge, 2 miles southeast of Philomath and 3½ miles upstream from Muddy Creek.

Drainage area. —159 sq mi (including drainage area of Evergreen Creek above road crossing 1½ miles south of station).

Records available. —October 1940 to September 1954.

Gage. —Wire-weight gage read twice daily, oftener during floods. Altitude of gage is 218 ft (by barometer).

Average discharge. —14 years, 467 cfs (338,100 acre-ft per year).

Extremes. —Maximum discharge during year, 5,800 cfs Jan. 27 (gage height, 20.0 ft, from graph based on gage readings); minimum observed, 19 cfs Sept. 30.

1940-54: Maximum discharge, 8,250 cfs Dec. 15, 1946 (gage height, 20.67 ft, from flood-mark); maximum gage height, 20.8 ft Jan. 18, 1953, from graph based on gage readings; minimum discharge observed, 4.7 cfs Oct. 15, 1952.

Remarks. —Records good. Records include flow of Evergreen Creek (tributary to Muddy Creek) at road crossing 1½ miles south, with which overflow from Marys River may at times be mingled. City of Corvallis diverts municipal supply from headwaters; other small diversions above station for irrigation of about 1,500 acres. Slight regulation by small storage reservoir on Rock Creek operated by city of Corvallis.

Revisions. —WSP 1218: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
2.2	23	7.0	620	2.1	18	7.0	600
3.0	71	11.0	1,430	2.5	34	10.0	1,150
4.0	163	15.0	2,500	3.0	62	15.0	2,500
5.0	285			4.0	148	18.0	3,670
				5.0	270	19.5	4,940

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	39	542	633	2,140	620	436	204	104	72	31	48
2	74	39	624	615	1,730	550	410	196	98	69	30	36
3	57	40	807	961	1,420	496	633	196	89	65	28	32
4	39	40	1,690	2,340	1,190	445	714	192	86	62	28	29
5	30	39	2,880	2,510	1,020	404	1,200	178	84	58	29	27
6	26	92	4,690	1,880	879	383	1,840	170	83	56	28	26
7	27	136	3,430	1,640	775	356	1,390	159	81	*58	28	27
8	25	107	2,710	1,460	690	681	1,240	158	90	56	28	27
9	34	80	3,010	1,290	632	1,460	1,100	152	108	61	28	24
10	164	67	*3,720	1,060	575	1,570	999	144	105	59	25	24
11	136	68	2,840	*887	532	1,300	862	142	94	62	24	24
12	72	68	2,060	769	2,640	1,070	748	136	115	59	24	38
13	55	65	1,480	693	4,690	910	736	130	119	55	24	33
14	47	65	1,140	738	3,460	805	651	124	103	51	24	34
15	42	80	930	940	2,360	736	589	121	133	51	27	33
16	38	340	784	1,210	1,660	702	532	115	177	50	25	36
17	42	816	684	1,270	1,560	642	483	107	156	48	23	36
18	72	551	693	1,560	1,520	589	434	*102	134	47	23	35
19	92	458	1,820	1,460	1,710	537	402	98	120	45	24	34
20	78	465	3,380	1,170	2,630	488	372	95	113	45	23	30
21	62	510	2,710	1,210	2,830	445	346	95	102	44	27	29
22	*56	2,350	1,900	3,620	2,300	410	323	92	95	43	26	29
23	51	4,040	1,400	3,490	1,770	382	302	88	88	40	27	28
24	46	2,700	1,080	2,630	1,350	356	290	84	84	38	25	26
25	43	1,600	864	1,880	1,080	329	267	86	81	38	25	26
26	41	1,070	775	1,700	*932	318	256	127	79	37	*27	25
27	39	818	705	2,850	784	586	246	144	78	35	28	24
28	37	669	662	*4,880	690	803	235	104	72	34	30	22
29	38	571	622	4,310	-------	648	218	94	72	32	31	20
30	36	528	557	3,280	-------	*557	200	86	70	31	37	20
31	37	-------	508	2,700	-------	483	-------	92	-------	30	50	-------
Total	1,694	18,511	51,697	57,636	45,549	20,061	18,454	4,011	3,013	1,531	857	882
Mean	54.6	617	1,668	1,859	1,627	647	615	129	100	49.4	27.6	29.4
Cfsm	0.343	3.88	10.5	11.7	10.2	4.07	3.87	0.811	0.629	0.311	0.174	0.185
In.	0.40	4.33	12.09	13.48	10.65	4.69	4.32	0.94	0.70	0.36	0.20	0.21
Ac-ft	3,360	36,720	102,500	114,300	90,350	39,790	36,600	7,960	5,980	3,040	1,700	1,750

Calendar year 1953: Max 6,010 Min 14 Mean 630 Cfsm 3.96 In. 53.78 Ac-ft 456,000
Water year 1953-54: Max 4,880 Min 20 Mean 613 Cfsm 3.86 In. 52.37 Ac-ft 444,000

Peak discharge (base, 2,500 cfs).--Nov. 23 (about 3 a. m.) 5,090 cfs (19.6 ft); Dec. 6 (about 7 a. m.) 5,420 cfs (19.8 ft); Dec. 10 (9 a. m.) 4,000 cfs (18.54 ft); Dec. 19 (about 12 p. m.) 3,670 cfs (18.0 ft); Jan. 4 (4 p. m.) 2,840 cfs (15.97 ft); Jan. 22 (about 8 p. m.) 5,250 cfs (19.7 ft); Jan. 27 (about 12 p. m.) 5,800 cfs (20.0 ft); Feb. 13 (about 10 p. m.) 5,600 cfs (19.9 ft); Feb. 21 (5 p. m.) 2,870 cfs (16.05 ft).

* Discharge measurement made on this day.

Calapooya River at Holley, Oreg.

Location. —Lat 44°21'05", long 122°47'10", in SE¼ sec. 15, T. 14 S., R. 1 W., on right bank a quarter of a mile southwest of Holley and 5 miles upstream from Brush Creek.
Drainage area. —105 sq mi.
Records available. —September 1935 to September 1954.
Gage. —Staff gage read once daily below, and two or more times daily above 3.0 ft gage height. Datum of gage is 527.20 ft above mean sea level, datum of 1929.
Average discharge. —19 years, 441 cfs (319,300 acre-ft per year).
Extremes. —Maximum discharge during year, 9,990 cfs Nov. 22 (gage height, 12.16 ft); minimum, 38 cfs Oct. 9.
1935-54: Maximum discharge, 12,200 cfs Dec. 28, 1945 (gage height, 14.1 ft, from flood-mark), from rating curve extended above 5,300 cfs by logarithmic plotting; minimum observed, 13 cfs Sept. 8, 1940.
Remarks. —Records excellent. Slight regulation at times during low-water periods by small dam upstream; no diversion above station.
Cooperation. —Gage-height record collected in cooperation with U. S. Weather Bureau.
Revisions (water years). —WSP 1044: 1943. WSP 1218: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22						Nov. 23 to Sept. 30			
0.9	30	2.0	245	4.0	1,370	0.8	36	3.0	710
1.1	52	2.5	440	6.0	3,050	1.1	65	4.0	1,370
1.5	120	3.0	710	10.0	7,400	1.5	130	6.0	3,050
						2.0	270	9.0	6,200

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	202	53	830	438	1,700	470	313	186	305	135	54	47
2	129	68	1,230	385	1,620	420	291	176	200	126	52	43
3	70	56	1,800	492	1,480	377	616	178	160	120	52	43
4	59	53	2,010	1,120	1,320	353	1,200	170	144	110	51	43
5	50	56	2,160	1,350	1,160	317	1,520	166	186	105	50	42
6	44	165	3,750	955	981	294	1,460	160	156	102	50	41
7	41	262	2,240	824	878	277	1,060	156	156	100	50	41
8	39	182	2,260	782	800	425	1,030	160	158	98	50	42
9	38	127	3,650	688	746	910	1,030	158	305	96	49	41
10	131	108	3,150	635	640	1,030	812	144	254	107	49	41
11	104	122	1,900	574	551	764	710	137	240	98	48	48
12	68	138	1,780	524	896	*615	625	135	225	*90	47	114
13	56	116	1,480	461	1,130	546	1,160	124	270	87	45	93
14	50	104	1,240	452	878	488	994	120	240	81	47	63
15	*46	131	1,040	710	722	456	752	116	495	78	48	258
16	44	516	*884	1,710	666	497	655	114	596	78	61	189
17	44	692	758	1,520	770	425	596	110	438	75	49	173
18	280	455	722	1,230	782	393	533	107	345	73	47	124
19	262	396	3,220	878	865	361	470	*103	284	70	47	96
20	170	570	3,380	734	1,600	329	417	100	274	70	54	81
21	138	864	2,070	655	2,090	309	*373	108	237	73	73	73
22	112	7,000	1,460	1,780	1,580	284	337	95	209	70	58	69
23	95	6,000	1,080	1,960	1,150	267	313	90	186	66	48	65
24	84	2,600	866	1,290	930	277	298	87	170	63	*48	58
25	76	1,600	722	955	764	254	277	92	160	63	49	56
26	69	1,120	615	955	710	225	257	153	146	61	54	54
27	65	1,150	635	2,850	596	385	250	184	158	60	50	52
28	63	860	551	*5,550	524	582	228	122	153	57	52	49
29	58	734	524	3,600	-------	456	206	107	139	56	47	45
30	56	710	474	2,620	-------	393	203	135	130	54	45	43
31	53	-------	434	1,820	-------	333	-------	178	-------	54	50	-------
Total	2,805	27,008	48,915	40,497	28,502	13,513	18,986	4,171	7,119	2,576	1,574	2,227
Mean	90.5	900	1,578	1,306	1,018	436	633	135	237	83.1	50.8	74.2
Cfsm	0.862	8.57	15.0	12.4	9.70	4.15	6.03	1.29	2.26	0.791	0.484	0.707
In.	0.99	9.57	17.33	14.34	10.10	4.79	6.72	1.48	2.52	0.91	0.56	0.79
Ac-ft	5,560	53,570	97,020	80,320	56,530	26,800	37,660	8,270	14,120	5,110	3,120	4,420

Calendar year 1953: Max 7,940 Min 28 Mean 684 Cfsm 6.51 In. 88.38 Ac-ft 494,800
Water year 1953-54: Max 7,000 Min 38 Mean 542 Cfsm 5.16 In. 70.10 Ac-ft 392,500

Peak discharge (base, 2,600 cfs).--Nov. 22 (5:30 p. m.) 9,990 cfs (12.16 ft); Dec. 6 (7 a. m.) 4,660 cfs (7.60 ft); Dec. 9 (10 p. m.) 4,350 cfs (7.30 ft); Dec. 19 (8:30 p. m.) 5,560 cfs (8.42 ft); Jan. 22 (8 p. m.) 2,890 cfs (5.82 ft); Jan. 28 (3 a. m.) 7,040 cfs (9.70 ft).
* Discharge measurement made on this day.

Calapooya River at Albany, Oreg.

Location.—Lat 44°37'15", long 123°07'40", in NW¼ sec. 13, T. 11 S., R. 4 W., near right bank on upstream side of highway bridge, half a mile downstream from Oak Creek, 1½ miles southwest of Albany, and 3 miles upstream from mouth.

Drainage area.—372 sq mi.

Records available.—October 1940 to September 1954.

Gage.—Wire-weight gage read twice daily, oftener at high stages. Datum of gage is 180.37 ft above mean sea level, datum of 1929.

Average discharge.—14 years, 919 cfs (665,300 acre-ft per year).

Extremes.—Maximum discharge during year, 19,900 cfs Jan. 28 (gage height, 20.38 ft); minimum, 25 cfs Sept. 6, 10.

1940-54: Maximum discharge observed, 24,900 cfs Jan. 8, 1948; maximum gage height, 25.5 ft Jan. 2, 1943, from graph based on gage readings (backwater from Willamette River); minimum discharge, 4 cfs Oct. 7, 1952; minimum daily, 6 cfs Aug. 14, 21, 28, Sept. 18, 1951, Sept. 30, 1952.

Remarks.—Records good except those below 100 cfs, which are fair. A few small diversions above station for irrigation. Diurnal fluctuation caused by ponds at flour mills near Shedd.

Revisions.—WSP 1218: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from Willamette River Nov. 25-29; backwater from debris May 7 to July 25)

Oct. 1 to Nov. 23

1.7	47	5.0	700
2.0	74	10.0	2,600
2.5	131	14.0	4,900
3.0	203	17.0	8,000
4.0	428	19.0	13,000

Nov. 24 to Sept. 30

1.3	24	10.0	2,750
1.6	41	14.0	5,360
2.0	75	17.0	8,750
2.5	131	18.0	10,500
3.0	205	19.0	13,400
4.0	430	20.0	18,000
6.0	1,050		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53	85	1,270	828	4,270	801	510	293	180	138	43	32
2	104	58	1,370	924	3,190	714	475	283	271	148	38	47
3	150	78	1,900	1,480	2,570	636	774	271	204	146	92	45
4	119	83	3,100	2,350	2,190	585	1,670	267	182	141	63	45
5	92	84	4,600	3,510	1,880	540	2,260	259	166	142	48	59
6	76	79	6,170	2,800	1,590	504	3,800	243	194	107	62	26
7	64	147	8,750	1,760	1,330	470	3,280	229	198	111	52	64
8	57	347	7,180	1,650	1,200	810	2,040	223	168	106	52	48
9	50	231	5,360	1,470	1,060	2,110	1,990	223	221	108	30	40
10	59	181	6,620	1,510	948	*3,440	1,730	207	328	108	71	37
11	99	158	7,040	1,180	875	3,380	1,260	202	279	115	47	34
12	139	169	4,830	970	2,520	1,950	1,040	193	267	*113	37	40
13	87	169	3,260	825	5,000	1,220	1,040	200	269	102	37	28
14	84	150	2,680	762	4,620	952	1,690	172	289	97	47	135
15	76	135	2,050	1,080	2,630	858	1,350	166	269	105	61	112
16	65	187	1,610	2,550	1,500	816	1,060	150	537	97	31	131
17	74	998	1,320	5,360	1,410	783	903	144	570	111	69	205
18	53	1,330	1,270	6,400	2,960	702	780	*145	438	106	59	184
19	139	872	2,330	4,940	2,530	636	717	130	360	112	53	151
20	398	1,180	7,800	2,840	2,650	579	636	125	318	106	52	125
21	289	1,180	9,350	1,580	3,470	522	*540	119	273	107	48	105
22	*203	1,890	5,900	1,730	3,760	498	507	123	267	113	66	93
23	150	10,200	3,650	3,660	3,100	428	470	118	217	113	44	91
24	141	*12,700	2,350	4,900	1,970	432	440	113	207	120	77	86
25	134	6,200	1,700	3,990	1,470	440	410	111	207	120	*70	83
26	106	3,690	1,290	*3,870	1,210	410	392	119	174	69	58	83
27	98	2,090	1,530	6,920	1,060	412	358	156	170	93	55	53
28	93	1,920	1,300	13,800	875	976	380	192	168	74	61	76
29	88	1,370	1,200	*16,000	-------	931	338	151	158	70	68	70
30	87	1,270	1,040	9,350	-------	681	312	134	158	68	35	62
31	71	1,270	878	6,000	-------	570	-------	152	-------	88	73	-------
Total	3,498	49,231	110,698	116,989	63,838	28,786	33,152	5,613	7,707	3,334	1,699	2,390
Mean	113	1,641	3,571	3,774	2,280	929	1,105	181	257	108	54.8	79.7
Cfsm	0.304	4.41	9.60	10.1	6.13	2.50	2.97	0.487	0.691	0.290	0.147	0.214
In.	0.35	4.92	11.07	11.70	6.38	2.88	3.31	0.56	0.77	0.33	0.17	0.24
Ac-ft	6,940	97,650	219,600	232,000	126,600	57,100	65,760	11,130	15,290	6,610	3,370	4,740

Calendar year 1953: Max 13,100 Min 18 Mean 1,291 Cfsm 3.47 In. 47.13 Ac-ft 935,000
Water year 1953-54: Max 16,000 Min 26 Mean 1,170 Cfsm 3.15 In. 42.68 Ac-ft 846,800

* Discharge measurement made on this day.

Willamette River at Albany, Oreg.

Location.—Lat 44°38'20", long 123°06'20", in SW¼ sec. 6, T. 11 S., R. 3 W., on right bank at Albany, a quarter of a mile downstream from Calapooya River and at mile 120.0.

Drainage area.—4,840 sq mi, approximately.

Records available.—November 1878 to April 1882, 1883 to 1888 (fragmentary), January 1892 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 172.18 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Sept. 27, 1906, staff gage a quarter of a mile upstream at same datum. Sept. 27, 1906, to Nov. 14, 1934, staff gage 300 ft upstream at same datum.

Average discharge.—59 years (1895-1954), 14,070 cfs (10,190,000 acre-ft per year).

Extremes.—Maximum discharge during year, 112,000 cfs Nov. 25 (gage height, 22.42 ft); minimum, 4,140 cfs Nov. 2.

1878-82, 1892-1954: Maximum discharge, 266,000 cfs Jan. 14, 1881 (gage height, 32.8 ft); minimum, 1,840 cfs Sept. 1, 2, 1940.

Maximum stage known, 36.0 ft Dec. 4, 1861 (discharge, 340,000 cfs, from rating curve extended above 220,000 cfs). Flood of Feb. 4, 1890, reached a stage of 33.9 ft (discharge, 291,000 cfs).

Remarks.—Records good. Flow regulated at times by Lookout Point, Cottage Grove, Fern Ridge and Dorena Reservoirs (see p. 116, 121, 141, 124). Albany power canal diverts water from South Santiam River into Willamette River above station; small diversions for irrigation.

Revisions (water years).—WSP 894: Drainage area. WSP 904: 1939. WSP 964: 1881, 1890, 1894, 1897, 1901, 1903, 1908, 1910, 1916, 1923, 1927, 1932(M). WSP 984: 1916. WSP 1248: 1895, 1902, 1907, 1915(M), 1917(M), 1918-19, 1934(M).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 30				May 1 to Sept. 30	
-0.7	4,090	10.0	37,200	-0.5	4,400
0.0	5,210	15.0	61,400	1.0	7,600
2.0	9,260	22.0	108,000	3.5	14,800
6.0	21,700				

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,750	4,240	*29,800	17,200	64,000	16,100	12,100	8,780	7,700	7,280	4,860	5,160
2	5,640	4,200	27,200	17,100	55,000	16,700	11,600	8,500	8,800	7,520	4,800	5,100
3	5,700	4,260	31,500	18,200	48,000	15,100	12,000	8,420	8,020	7,680	4,800	4,980
4	5,300	4,290	39,400	23,700	44,000	13,200	15,200	8,300	7,300	7,420	4,780	4,960
5	4,960	4,210	53,400	30,400	40,800	11,800	22,400	8,250	7,200	7,280	4,680	4,960
6	4,780	4,240	60,400	30,700	38,200	10,300	*32,500	8,120	7,680	7,100	4,480	4,880
7	4,660	4,880	69,200	26,800	35,700	10,000	35,000	8,050	7,480	6,580	4,780	4,900
8	4,580	6,650	71,700	25,400	33,000	11,100	31,600	8,150	7,380	6,180	4,720	4,880
9	4,530	5,670	63,300	23,100	30,600	17,000	29,200	8,550	7,780	5,960	4,820	4,900
10	4,860	5,210	70,400	21,700	28,400	26,600	26,800	8,780	8,850	6,000	*5,040	4,780
11	5,230	4,750	75,300	*19,900	26,500	34,200	22,300	8,550	8,650	5,980	5,120	4,740
12	5,570	4,690	67,400	18,200	29,600	31,000	18,600	8,520	8,580	5,880	5,000	5,020
13	5,160	4,820	55,000	16,400	39,800	24,400	18,600	8,280	9,050	5,700	5,060	5,060
14	4,850	4,880	48,300	15,600	44,800	19,600	25,000	*8,000	9,420	5,580	5,060	5,100
15	4,670	4,610	39,100	18,000	38,200	17,100	24,700	7,850	9,350	5,420	5,120	4,980
16	4,580	4,900	31,200	30,300	32,200	15,900	22,200	7,850	12,300	5,380	5,240	5,740
17	4,690	7,020	27,800	47,200	28,100	15,100	18,800	7,980	14,400	5,240	5,400	6,020
18	4,780	11,600	27,200	58,400	31,300	14,000	15,000	7,980	13,200	5,040	5,040	5,880
19	6,130	10,500	28,100	52,400	32,300	13,000	13,800	7,980	11,800	4,980	5,000	5,760
20	*7,460	10,400	52,400	40,700	32,300	12,400	12,600	7,950	10,800	4,840	5,060	5,500
21	6,650	11,700	79,900	33,600	39,800	11,700	11,700	7,650	10,200	4,860	5,220	5,360
22	5,950	17,400	75,300	32,100	47,400	11,000	10,900	7,320	*9,580	5,040	5,340	5,300
23	5,570	50,200	59,600	40,200	*43,600	10,600	10,300	6,950	9,020	5,040	5,200	*5,280
24	5,350	89,600	50,400	53,400	34,100	10,400	10,000	6,680	8,820	5,080	5,180	5,260
25	5,060	*106,000	41,100	47,100	27,200	10,200	9,640	6,600	8,400	5,000	5,180	5,220
26	4,870	78,100	30,500	41,500	24,700	9,260	9,280	6,560	7,950	4,940	5,220	5,200
27	4,690	59,600	25,800	47,400	21,700	8,710	8,960	7,550	8,300	5,060	5,300	5,120
28	4,540	51,700	24,600	68,100	18,700	11,600	8,980	7,680	8,420	4,940	5,260	5,120
29	4,530	45,200	23,500	91,700	------	13,900	8,910	7,080	8,180	4,960	5,260	5,060
30	4,480	35,500	22,000	89,800	------	12,300	8,780	6,850	7,300	4,880	5,180	5,040
31	4,320	------	19,400	77,000	------	11,500	------	7,220	------	4,840	5,140	------
Total	158,890	661,020	‡1,420.2	‡1,173.3	‡1,010	465,770	517,450	242,980	271,910	177,680	156,340	155,260
Mean	5,125	22,030	45,810	37,850	36,070	15,020	17,250	7,838	9,064	5,732	5,043	5,175
Ac-ft	315,200	‡1,311	‡2,817	‡2,327	‡2,003	923,800	‡1,026	481,900	539,300	352,400	310,100	308,000

Calendar year 1953: Max 164,000 Min 4,160 Mean 20,950 Cfsm 4.33 In. 58.75 Ac-ft 15,160,000
Water year 1953-54: Max 106,000 Min 4,200 Mean 17,560 Cfsm 3.63 In. 49.32 Ac-ft 12,710,000

* Discharge measurement made on this day.
‡ Expressed in thousands.

North Santiam River below Boulder Creek, near Detroit, Oreg.

Location. —Lat 44°42'25", long 122°06'00", in SE¼NW¼ sec. 17, T. 10 S., R. 6 E., on right bank half a mile downstream from Boulder Creek and 3 miles southeast of Detroit.
Drainage area. —216 sq mi.
Records available. —January 1907 to October 1909, October 1928 to September 1954. Published as North Santiam River at Detroit prior to Oct. 1, 1952.
Gage. —Water-stage recorder. Datum of gage is 1,590.07 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Jan. 24, 1907, to Oct. 31, 1909, staff gage at site 1¾ miles downstream at different datum. Oct. 1, 1928, to June 30, 1932, staff gage at site 2½ miles downstream at different datum. July 1, 1932, to Sept. 30, 1952, water-stage recorder at site 2¼ miles downstream at datum 114.39 ft lower.
Average discharge. —28 years (1907-9, 1928-54), 985 cfs (713,100 acre-ft per year).
Extremes. —Maximum discharge during year, 10,100 cfs Dec. 19 (gage height, 7.74 ft); minimum, 440 cfs Oct. 7, Nov. 1, 4, 5 (gage height, 2.51 ft).
1907-9, 1928-54: Maximum discharge, 20,300 cfs Dec. 28, 1945 (gage height, 11.24 ft, site and datum then in use); minimum, 250 cfs Sept. 13, 1909 (gage height, 0.40 ft, site and datum then in use).
Remarks. —Records excellent. No diversion above station; slight diurnal fluctuation caused by powerplant at Idanha. Records of water temperature for the water year 1954 are given in WSP 1353.
Revisions (water years). —WSP 814: Drainage area at former site. WSP 1248: 1931.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 19				Dec. 20 to Sept. 30			
2.5	435	5.0	3,100	2.5	480	5.0	3,100
3.0	755	6.0	5,100	3.0	790	6.0	5,100
4.0	1,700	7.0	7,700	4.0	1,720	7.0	7,700

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	629	446	1,330	1,100	1,780	1,200	783	1,140	1,490	1,160	650	579
2	550	457	1,410	1,060	1,700	1,150	790	1,080	1,370	1,060	650	574
3	508	*446	1,660	1,050	1,660	1,080	1,230	1,100	1,350	1,000	644	*568
4	479	446	1,620	1,440	1,650	1,030	1,620	1,160	1,370	980	638	557
5	457	452	1,550	1,680	1,630	1,000	2,050	1,170	1,340	972	632	552
6	452	550	1,970	1,530	1,570	980	1,910	1,220	1,270	948	632	546
7	446	550	*1,620	1,460	1,540	964	1,620	1,340	1,200	932	626	546
8	446	514	1,560	1,380	1,540	1,530	1,650	1,590	1,340	892	620	540
9	446	502	2,710	1,280	1,540	2,490	1,600	1,720	*1,480	892	614	540
10	544	502	2,900	1,210	1,500	2,500	1,450	1,600	1,420	924	608	552
11	502	508	2,150	1,140	1,460	1,990	1,380	1,650	1,360	892	602	568
12	474	502	2,220	1,060	2,170	1,680	1,370	1,530	1,570	876	596	664
13	462	484	2,030	1,020	2,580	1,490	2,130	1,440	1,500	860	596	596
14	452	490	1,800	1,060	2,210	1,370	2,190	1,400	1,420	860	596	584
15	452	526	1,630	1,040	1,890	1,290	1,900	1,510	1,790	839	614	678
16	446	853	1,510	1,130	1,690	1,220	1,830	1,630	1,900	811	608	644
17	457	792	1,440	1,090	1,600	1,150	2,040	1,700	1,690	790	590	626
18	650	678	1,500	1,040	1,480	*1,070	2,120	1,830	1,510	776	590	602
19	608	678	5,220	980	1,450	1,030	1,940	1,860	1,450	776	671	574
20	570	671	6,600	948	1,780	988	1,710	1,710	1,460	755	678	552
21	544	829	3,890	980	2,250	956	1,620	1,490	1,440	*748	657	546
22	514	5,820	2,770	1,760	2,060	932	1,590	1,360	1,390	720	626	535
23	490	*6,200	2,170	1,840	1,790	908	1,600	1,320	1,350	706	614	535
24	484	*3,470	1,820	1,570	1,640	892	1,570	1,360	1,260	699	608	530
25	474	2,380	1,590	1,410	1,560	860	1,500	1,320	1,220	692	608	535
26	468	1,800	1,470	1,300	1,470	846	*1,450	1,500	1,210	685	614	530
27	462	1,810	1,400	1,440	1,370	892	1,460	1,350	1,190	678	596	518
28	457	1,490	1,320	*2,180	1,290	884	1,420	1,240	1,150	678	590	518
29	457	1,310	1,260	2,490	-------	839	1,310	1,290	1,070	664	584	513
30	452	1,280	1,180	2,260	-------	811	1,220	1,360	1,140	657	584	508
31	446	-------	1,130	1,960	-------	797	-------	1,430	-------	650	590	-------
Total	15,278	37,436	64,430	42,898	47,850	36,819	48,053	44,400	41,700	25,572	19,126	16,910
Mean	493	1,248	2,078	1,384	1,709	1,188	1,602	1,432	1,390	825	617	564
Cfsm	2.28	5.78	9.62	6.41	7.91	5.50	7.42	6.63	6.44	3.82	2.86	2.61
In.	2.63	6.45	11.09	7.39	8.24	6.34	8.27	7.64	7.18	4.40	3.29	2.91
Ac-ft	30,300	74,250	127,800	85,090	94,910	73,030	95,310	88,070	82,710	50,720	37,940	33,540

Calendar year 1953: Max 11,200 Min 446 Mean 1,326 Cfsm 6.14 In. 83.32 Ac-ft 959,800
Water year 1953-54: Max 6,600 Min 446 Mean 1,207 Cfsm 5.59 In. 75.83 Ac-ft 873,700

Peak discharge (base, 3,200 cfs).--Nov. 23 (4:30 a. m.) 8,600 cfs (7.30 ft); Dec. 9 (7:30 p. m.) 3,830 cfs (5.39 ft); Dec. 19 (10 p. m.) 10,100 cfs (7.74 ft).
* Discharge measurement made on this day.

Breitenbush River above Canyon Creek, near Detroit, Oreg.

Location.—Lat 44°45'10", long 122°07'40", in SE¼NE¼ sec. 36, T. 9 S., R. 5 E., on left bank 600 ft upstream from Canyon Creek and 1½ miles northeast of Detroit.
Drainage area.—106 sq mi.
Records available.—June 1932 to September 1954. Prior to October 1952, published as "above French Creek, near Detroit."
Gage.—Water-stage recorder. Datum of gage is 1,573.10 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1952, at site 0.2 mile downstream at datum 13.46 ft lower.
Average discharge.—22 years, 562 cfs (406,900 acre-ft per year).
Extremes.—Maximum discharge during year, 9,010 cfs Dec. 19 (gage height, 10.68 ft); minimum, 129 cfs Oct. 16, 17, Nov. 4, 5.
1932-54: Maximum discharge, 11,600 cfs Dec. 28, 1945 (gage height, 11.86 ft, site and datum then in use); minimum, 87 cfs Sept. 2, 1940 (gage height, 0.36 ft, site and datum then in use).
Remarks.—Records good. No regulation or diversion above station. Records of water temperature for the water year 1954 are given in WSP 1353.
Revisions (water years).—WSP 1044: 1943(M). WSP 1248: 1947.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

2.6	127	5.0	1,370
3.0	225	6.0	2,300
3.5	390	7.0	3,400
4.0	640	9.0	6,180

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	297	138	851	558	1,050	658	354	536	765	612	267	195
2	225	140	900	530	1,050	602	358	510	658	525	270	193
3	177	*135	1,130	515	1,060	568	1,010	530	652	505	261	*188
4	162	133	1,070	1,070	1,100	530	1,370	602	658	510	255	182
5	155	133	956	1,270	1,070	505	1,700	624	624	541	249	180
6	148	209	1,640	1,040	1,020	500	1,500	658	580	515	243	175
7	146	203	*1,070	949	978	495	1,110	784	558	490	240	172
8	140	177	956	865	986	1,180	1,100	1,020	652	462	237	170
9	138	167	2,420	765	1,020	2,060	1,050	1,090	*791	476	234	170
10	203	165	2,280	688	942	1,850	893	949	713	558	225	172
11	185	175	1,420	624	914	1,290	810	970	682	500	222	195
12	162	175	1,780	574	1,860	1,000	844	824	824	466	220	312
13	148	165	1,500	536	2,070	851	1,640	726	791	458	220	234
14	140	172	1,210	580	1,580	746	1,480	726	726	458	222	209
15	135	209	1,040	568	1,210	682	1,190	865	1,130	435	234	261
16	131	651	914	596	1,020	640	1,130	963	1,110	390	225	261
17	142	476	837	568	949	585	1,310	994	886	374	217	246
18	294	340	900	525	872	*536	1,370	1,100	765	374	212	225
19	258	358	4,720	476	858	510	1,160	1,090	732	390	258	212
20	214	350	4,480	460	1,350	480	963	942	893	370	288	201
21	195	554	2,470	500	1,910	462	872	752	872	*346	261	190
22	175	4,880	1,680	1,450	1,470	444	872	640	810	318	231	185
23	165	*3,580	1,250	1,380	1,150	435	886	640	772	318	220	180
24	155	2,130	994	956	1,030	430	851	700	670	318	217	175
25	146	1,430	830	778	956	412	798	640	670	306	217	170
26	144	1,030	746	676	907	404	*752	713	664	303	225	167
27	142	1,110	688	765	804	462	758	590	658	297	214	165
28	140	879	670	1,070	732	462	720	530	596	291	209	160
29	138	726	646	1,310	-------	412	652	558	563	285	201	158
30	135	752	585	1,260	-------	386	590	590	629	276	201	158
31	133	-------	541	1,100	-------	370	-------	670	-------	273	214	-------
Total	5,268	21,742	43,174	25,002	31,918	20,947	30,093	23,526	22,094	12,740	7,209	5,861
Mean	170	725	1,393	807	1,140	676	1,003	759	736	411	233	195
Cfsm	1.60	6.84	13.1	7.61	10.8	6.38	9.46	7.16	6.94	3.88	2.20	1.84
In.	1.85	7.63	15.15	8.77	11.20	7.35	10.56	8.25	7.75	4.47	2.53	2.06
Ac-ft	10,450	43,120	85,630	49,590	63,310	41,550	59,690	46,660	43,820	25,270	14,300	11,630

Calendar year 1953: Max 8,020 Min 131 Mean 756 Cfsm 7.13 In. 96.85 Ac-ft 547,500
Water year 1953-54: Max 4,880 Min 131 Mean 684 Cfsm 6.45 In. 87.57 Ac-ft 495,000

Peak discharge (base, 4,000 cfs).--Nov. 22 (4 p. m.) 7,390 cfs (9.73 ft); Dec. 19 (6 p. m.) 9,010 cfs (10.68 ft).
* Discharge measurement made on this day.

Detroit Reservoir near Detroit, Oreg.

Location.—Lat 44°43'20", long 122°15'20", in NW¼ sec. 7, T. 10 S., R. 5 E., in control house near right abutment of Detroit Dam and 5 miles west of Detroit.

Drainage area.—437 sq mi.

Records available.—January 1953 to September 1954.

Gage.—Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.—Maximum contents during year, 440,400 acre-ft June 16 (elevation, 1,564.83 ft); minimum, 151,000 acre-ft Jan. 8 (elevation, 1,447.63 ft).

1953-54: Maximum contents, that of June 16, 1954; minimum since first filling, that of Jan. 8, 1954.

Remarks.—Reservoir is formed by concrete, gravity-type dam with six 42-by-28-foot control gates. Length of dam is 1,580 ft; built by Corps of Engineers. Storage began in January 1953. Total capacity is 454,900 acre-ft and usable capacity is 340,200 acre-ft between 1,425.0 ft (proposed lower limit of operation) and 1,569.0 ft (top of spillway gates). Reservoir used for flood control, power development, irrigation, improvement of navigation, pollution abatement, and other purposes. Capacity table computed by Corps of Engineers. Figures shown herein are for total storage.

Contents at 12 p. m., in acre-feet, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	300,800	228,900	254,000	166,500	175,300	284,000	328,700	425,200	435,800	436,900	438,200	424,000
2	300,700	227,700	251,400	161,000	175,800	286,200	331,600	426,700	437,000	436,200	437,500	421,900
3	300,200	226,800	251,000	155,800	172,300	288,400	337,400	426,800	436,500	436,100	436,900	419,600
4	299,500	225,300	245,500	155,700	172,800	290,300	345,600	427,100	435,700	435,900	436,200	417,700
5	296,800	222,400	238,900	156,400	177,400	291,500	354,900	426,800	435,700	435,900	436,000	415,600
6	293,400	220,800	242,300	154,800	181,100	293,100	362,700	427,000	435,900	435,600	436,000	413,400
7	292,200	218,400	241,000	152,700	184,900	294,800	367,800	427,800	434,800	435,500	436,200	410,900
8	290,700	217,400	233,700	151,200	188,700	300,100	372,600	429,600	435,400	435,400	436,400	408,200
9	289,400	216,300	247,000	152,800	194,100	310,200	376,700	431,900	435,600	435,600	435,600	405,400
10	287,100	213,400	258,900	153,900	198,800	313,900	377,100	432,900	435,000	436,200	435,100	402,500
11	284,500	212,600	256,700	153,500	203,600	313,700	377,000	433,500	434,300	436,800	434,600	401,400
12	281,700	211,700	249,000	153,900	213,700	311,900	380,000	433,100	435,400	437,200	434,000	400,500
13	280,400	209,100	239,100	155,200	220,900	314,800	387,900	432,500	436,500	437,300	433,500	397,900
14	279,000	208,400	227,000	156,000	226,600	316,800	392,100	433,300	436,300	437,200	433,200	395,200
15	276,000	207,600	213,900	155,100	230,600	319,000	391,500	434,400	438,700	437,000	433,000	393,100
16	272,700	208,300	200,800	156,400	231,200	319,600	393,000	436,000	439,800	436,800	432,100	390,700
17	270,000	207,800	193,600	155,800	231,600	321,900	397,500	436,200	437,900	436,900	431,600	387,400
18	270,600	206,200	190,300	155,100	234,200	321,100	403,400	436,300	435,200	436,700	431,000	384,400
19	268,600	204,800	220,200	154,300	239,000	322,600	405,800	436,500	435,000	436,500	430,900	382,000
20	266,300	203,600	250,200	153,900	247,500	324,200	406,100	435,400	435,200	436,600	430,700	378,300
21	263,900	203,600	260,800	152,800	260,100	325,600	405,800	434,909	436,200	436,600	430,600	375,600
22	261,200	234,400	263,200	160,100	269,200	325,900	405,400	435,000	436,900	436,500	430,300	373,000
23	258,000	262,500	256,300	164,900	271,800	326,400	405,900	434,900	437,300	436,200	429,400	370,400
24	251,700	271,600	234,600	167,700	271,000	326,900	409,600	433,700	437,400	436,300	428,800	367,600
25	245,500	272,700	215,000	165,800	271,400	327,200	413,000	433,800	437,300	436,300	428,500	364,300
26	240,700	270,700	200,500	161,700	274,300	327,600	413,400	434,500	437,900	436,200	428,000	361,600
27	237,700	269,100	192,100	160,400	278,100	331,300	416,500	433,400	437,800	436,400	427,400	358,400
28	235,300	265,800	187,200	169,000	281,700	330,800	419,100	431,600	437,500	436,500	426,900	355,800
29	233,700	261,400	182,300	175,500	--------	330,400	421,200	431,200	436,800	436,600	426,300	353,400
30	232,100	257,300	177,200	177,000	--------	331,400	423,400	431,500	436,500	438,300	425,800	350,800
31	230,500	--------	171,800	176,600	--------	331,400	--------	433,300	--------	438,200	425,300	--------

Monthly elevation and contents, water year October 1953 to September 1954

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	1,518.58	300,500	-
Oct. 31	1,489.41	230,500	-70,000
Nov. 30	1,501.18	257,300	+26,800
Dec. 31	1,459.53	171,800	-85,500
Calendar year 1953	-	-	+171,800
Jan. 31	1,462.21	176,600	+4,800
Feb. 28	1,511.15	281,700	+105,100
Mar. 31	1,530.23	331,400	+49,700
Apr. 30	1,559.81	423,400	+92,000
May 31	1,562.73	433,300	+9,900
June 30	1,563.68	436,500	+3,200
July 31	1,564.18	438,200	+1,700
Aug. 31	1,560.39	425,300	-12,900
Sept. 30	1,536.99	350,800	-74,500
Water year 1953-54	-	-	+50,300

† Elevation at 12 p. m.

North Santiam River at Niagara, Oreg.

Location.—Lat 44°45'10", long 122°17'50", in NE¼NE¼ sec. 34, T. 9 S., R. 4 E., on left bank 0.8 mile downstream from Big Cliff Dam and 2.1 miles east of Niagara.

Drainage area.—453 sq mi.

Records available.—December 1908 to September 1912 (gage heights and discharge measurements only), October 1912 to December 1919 and October 1938 to September 1954. Prior to October 1912, published as North Fork Santiam River near Niagara and October 1938 to September 1952, published as North Santiam River above Mayflower Creek, near Detroit.

Gage.—Water-stage recorder. Datum of gage is 1,093.78 ft above mean sea level (Bureau of Public Roads benchmark). Dec. 20, 1908, to Dec. 31, 1919, staff gage at site half a mile west of Niagara at different datum. Oct. 1, 1938, to Sept. 30, 1952, water-stage recorders or staff gages at various sites and datums about 3.5 miles upstream.

Average discharge.—23 years (1912-19, 1938-54), 2,271 cfs, adjusted (1,644,000 acre-ft per year).

Extremes.—Maximum discharge during year, 15,900 cfs Dec. 24 (gage height, 9.36 ft); minimum, 87 cfs Nov. 8, caused by regulation at Big Cliff Dam; minimum daily, 704 cfs Mar. 27.

1912-19, 1938-54: Maximum discharge, 63,200 cfs Nov. 22, 1909 (gage height, 16.4 ft, from floodmark, site and datum then in use), from rating curve extended above 35,000 cfs; minimum, that of Nov. 8, 1953; minimum daily, 430 cfs Sept. 23-25, 1915 (gage height, 1.25 ft).

Remarks.—Records excellent except those for period of no gage-height record, which are good. No diversion above station. Flow regulated by Detroit Reservoir beginning January 1953 (see preceding page). Records of water temperatures for the water year 1954 are given in WSP 1353.

Revisions (water years).—WSP 1288: 1914-18, 1920.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,250	1,630	5,550	5,010	5,390	1,450	1,400	980	2,740	1,870	728	1,590
2	1,160	1,380	5,590	4,950	4,550	1,070	1,400	1,020	2,170	2,250	750	*1,900
3	1,130	*1,150	5,790	4,890	5,120	1,090	1,210	1,870	2,070	1,740	992	1,850
4	1,130	1,410	7,900	4,910	4,150	1,110	1,310	1,990	2,950	1,700	1,140	2,060
5	2,080	2,280	8,180	5,220	1,830	1,370	1,810	2,380	3,010	1,820	1,030	1,810
6	2,430	2,030	5,720	4,950	1,920	1,100	1,640	2,120	2,660	1,720	960	1,840
7	1,430	2,420	5,450	4,830	1,880	1,040	1,670	2,380	2,370	1,660	896	2,190
8	*1,490	865	*8,380	4,100	1,960	1,670	2,080	2,340	2,090	1,520	812	2,140
9	1,390	1,430	4,100	2,160	1,150	2,280	2,000	2,300	2,800	1,390	968	2,210
10	2,260	2,440	3,120	2,150	1,090	5,200	3,130	2,590	*3,090	1,400	1,180	2,260
11	2,310	1,350	7,370	2,220	1,190	5,010	3,050	2,900	2,980	1,280	1,160	1,680
12	2,270	1,380	11,000	1,590	2,360	4,760	2,240	3,000	2,470	1,300	1,120	1,690
13	1,410	2,230	10,900	1,330	4,530	1,810	2,180	2,850	2,260	1,430	1,120	2,310
14	1,390	1,280	10,900	1,640	3,430	1,780	3,010	2,190	2,660	1,400	1,090	2,200
15	2,250	1,650	11,000	2,900	2,650	1,750	4,320	2,070	2,880	1,500	1,070	2,490
16	2,440	2,820	10,600	2,570	3,450	1,960	3,340	2,240	2,480	1,430	1,090	2,390
17	2,310	2,660	8,530	2,580	3,820	*1,460	2,370	3,030	4,790	1,220	1,210	3,040
18	1,390	2,680	5,160	2,680	2,380	2,310	2,030	3,400	4,560	1,250	1,090	2,330
19	2,400	2,660	4,550	2,420	1,190	1,620	2,370	3,380	2,980	1,310	1,140	2,360
20	2,480	2,590	2,690	2,100	1,320	942	3,300	3,540	2,680	1,310	1,220	2,710
21	2,430	3,080	4,010	2,620	1,650	1,000	3,350	2,780	2,350	*a1,100	1,080	2,330
22	2,390	4,980	5,460	2,880	1,400	1,180	3,220	2,270	2,240	a1,200	1,080	2,220
23	2,580	3,160	8,400	3,080	2,620	1,300	2,810	2,210	2,220	a1,200	1,180	2,220
24	4,010	*4,450	15,800	3,370	4,900	1,570	1,110	3,030	2,180	a1,100	1,200	2,240
25	4,080	5,420	13,800	4,340	3,270	1,560	1,090	2,350	2,220	a1,100	1,060	2,470
26	3,320	5,310	10,500	5,070	2,120	1,400	*2,470	2,490	1,960	a1,100	1,210	2,290
27	2,310	5,380	7,590	4,180	1,030	704	3,110	2,100	2,100	a1,000	1,160	2,440
28	2,030	5,310	5,260	2,430	1,040	1,490	1,270	2,840	2,210	946	1,140	2,100
29	1,630	5,310	5,240	3,730	-------	1,140	1,320	2,830	2,160	988	1,130	1,980
30	1,600	5,400	5,130	5,190	-------	1,480	1,080	2,350	2,190	1,240	1,140	2,140
31	1,610	-------	5,030	5,230	-------	1,490	-------	2,230	-------	930	1,140	-------
Total	64,390	86,135	228,710	107,320	73,390	55,096	64,710	77,060	79,520	42,304	33,286	65,480
Mean	2,077	2,871	7,378	3,462	2,621	1,777	2,157	2,486	2,651	1,365	1,074	2,183
Ac-ft	127,700	170,800	453,600	212,900	145,600	109,300	128,400	152,800	157,700	83,910	66,020	129,900

Adjusted for change in contents in Detroit Reservoir

Mean	938	3,321	5,987	3,541	4,514	2,586	3,704	2,646	2,704	1,392	864	931
Csm	2.07	7.33	13.2	7.82	9.96	5.71	8.18	5.84	5.97	3.07	1.91	2.06
In.	2.39	8.18	15.24	9.01	10.38	6.58	9.12	6.73	6.66	3.54	2.20	2.29
Ac-ft	57,700	197,600	368,100	217,700	250,700	159,000	220,400	162,700	160,900	85,610	53,120	55,400

Observed

Calendar year 1953: Max 15,800 Min 620 Mean 2,921 Ac-ft 2,115,000
Water year 1953-54: Max 15,800 Min 704 Mean 2,678 Ac-ft 1,939,000

Adjusted

Calendar year 1953: Mean 3,159 Csm 6.97 In. 94.65 Ac-ft 2,287,000
Water year 1953-54: Mean 2,747 Csm 6.06 In. 82.32 Ac-ft 1,989,000

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of 1 discharge measurement and records for station at Mahama.

Little North Santiam River near Mehama, Oreg.

Location.--Lat 44°47'30", long 122°34'40", in NW¼ sec. 16, T. 9 S., R. 2 E., on left bank 2 miles east of Mehama and 2 miles upstream from mouth.

Drainage area.--110 sq mi.

Records available.--October 1931 to September 1954.

Gage.--Water-stage recorder. Datum of gage is 655.41 ft above mean sea level, datum of 1929. Oct. 1-26, 1931, staff gage at site 4 miles upstream at different datum. Oct. 27, 1931, to June 10, 1948, wire-weight gage at about present site at same datum.

Average discharge.--23 years, 787 cfs (555,300 acre-ft per year).

Extremes.--Maximum discharge during year, 15,700 cfs Nov. 22 (gage height, 13.10 ft); minimum, 68 cfs Aug. 19.

1931-54: Maximum discharge, 19,900 cfs Dec. 28, 1945 (gage height, 15.20 ft), from rating curve extended above 9,700 cfs by logarithmic plotting; minimum, 21 cfs Sept. 11, 1934, Sept. 27, 28, 1938, Sept. 1, 1940.

Remarks.--Records good except those for periods of no-gage-height record, which are fair. No regulation or diversion above station.

Revisions (water years).--WSP 754: 1932. WSP 1218: 1934, 1936, 1949-50.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 19

3.0	91	5.0	940
3.3	145	6.0	1,810
3.9	325	8.0	5,130
4.5	620	11.0	11,100

Dec. 10 to Sept. 30

2.7	62	4.0	390
3.0	107	4.5	620
3.5	220		

Note.--Same as preceding table above 4.5 ft.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	534	123	1,930	700	2,000	680	500	326	1,500	462	100	132
2	590	155	2,160	700	1,920	585	600	301	1,000	470	97	*113
3	304	*139	3,110	700	1,910	525	850	301	740	398	95	104
4	195	131	2,980	3,000	1,790	475	2,700	362	638	343	92	95
5	148	133	3,170	*2,920	1,600	450	3,000	398	650	308	90	90
6	125	421	4,340	1,600	1,420	430	2,800	402	746	284	90	84
7	109	704	2,520	1,300	1,310	406	1,900	462	989	262	86	81
8	97	445	*2,970	1,200	1,230	1,590	1,800	644	856	241	82	86
9	91	337	7,080	1,000	1,140	2,790	1,700	686	1,020	256	84	78
10	156	294	4,540	950	982	2,220	1,500	525	*919	452	80	74
11	207	300	2,410	850	856	1,300	1,300	545	794	495	76	81
12	158	300	4,060	800	1,820	968	1,400	510	740	402	75	191
13	129	280	2,630	750	2,420	794	3,400	414	734	336	75	430
14	116	269	1,880	700	1,630	692	2,200	378	668	294	75	253
15	107	497	1,550	850	1,200	644	1,300	430	1,570	268	78	244
16	99	2,180	1,310	1,600	996	626	1,400	495	2,120	244	84	446
17	102	1,600	1,160	1,600	1,030	560	1,600	485	1,420	223	75	426
18	634	1,020	1,300	1,200	1,000	*505	1,400	520	1,060	202	71	370
19	776	1,070	6,000	1,100	1,080	466	1,100	495	849	188	81	301
20	515	1,140	7,600	850	3,660	434	900	430	821	182	122	247
21	435	2,280	4,600	900	4,360	402	800	358	758	202	158	208
22	325	11,100	2,500	2,900	2,400	382	700	304	644	*175	116	185
23	266	*6,220	1,500	2,900	1,550	358	700	280	555	163	98	170
24	222	3,420	850	1,700	1,260	354	650	315	480	152	107	154
25	190	2,230	800	1,200	1,130	332	600	336	430	143	116	141
26	168	1,620	750	1,400	1,040	315	550	822	398	134	139	128
27	148	1,830	750	3,000	863	490	*495	722	422	128	130	118
28	137	1,510	750	4,600	770	600	458	530	326	122	115	111
29	129	1,170	800	*3,440	-------	550	402	495	370	116	102	104
30	125	1,300	750	2,850	-------	500	362	782	362	111	97	98
31	118	-------	700	2,230	-------	460	-------	1,160	-------	105	149	-------
Total	7,455	44,218	79,450	51,490	44,367	21,883	39,067	15,213	24,579	7,861	3,035	5,343
Mean	240	1,474	2,563	1,661	1,585	706	1,302	491	819	254	97.9	178
Cfsm	2.18	13.4	23.3	15.1	14.4	6.42	11.8	4.46	7.45	2.31	0.890	1.62
In.	2.52	14.95	26.86	17.41	15.00	7.40	13.21	5.14	8.31	2.66	1.03	1.81
Ac-ft	14,790	87,710	157,600	102,100	88,000	43,400	77,490	30,170	48,750	15,590	6,020	10,600

Calendar year 1953: Max 12,000 Min 36 Mean 1,138 Cfsm 10.3 In. 140.44 Ac-ft 824,000
Water year 1953-54: Max 11,100 Min 71 Mean 942 Cfsm 8.56 In. 116.30 Ac-ft 682,200

Peak discharge (base, 8,200 cfs).--Nov. 22 (4:30 p. m.) 15,700 cfs (13.10 ft); Dec. 9 (6:30 p. m.) 10,100 cfs (10.52 ft); Dec. 20 (about 8 p. m.) about 11,000 cfs.

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 19 to Jan. 4, Jan. 6-28, Mar. 28 to Apr. 26; discharge estimated on basis of recorded range in stage when available and records for North Santiam River at Niagara and at Mehama and Breitenbush River above Canyon Creek, near Detroit.

North Santiam River at Mehama, Oreg.

Location.—Lat 44°47'20", long 122°37'00", in NW¼ sec. 18, T. 9 S., R. 2 E., on right bank 300 ft downstream from highway bridge and 0.5 mile downstream from Little North Santiam River.
Drainage area.—665 sq mi.
Records available.—July 1905 to March 1907, October 1910 to September 1914, September 1921 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 601.78 ft above mean sea level, datum of 1929. Prior to June 15, 1933, staff gage at site 100 ft upstream at same datum.
Average discharge.—38 years (1905-6, 1910-14, 1921-54), 3,272 cfs (2,369,000 acre-ft per year).
Extremes.—Maximum discharge during year, 26,500 cfs Nov. 22 (gage height, 9.62 ft); minimum, 778 cfs Nov. 8; minimum daily, 921 cfs Aug. 2.
1905-7, 1910-14, 1921-54: Maximum discharge, 76,600 cfs Dec. 28, 1945 (gage height, 15.37 ft), from rating curve extended above 36,000 cfs on basis of slope-area determination of peak flow; maximum gage height, 17.5 ft Nov. 20, 1921, from graph based on gage readings, and Jan. 6, 1923, from floodmark, at site then in use; minimum discharge, 400 cfs Sept. 29, Oct. 13, 1934; minimum daily, 420 cfs Sept. 18, 1924.
Remarks.—Records excellent except those for period of no gage-height record, which are fair. Flow regulated by Detroit Reservoir beginning January 1953. No diversion above station for irrigation.
Revisions (water years).—WSP 634: Drainage area. WSP 739: 1922-23(M). WSP 1044: 1943. WSP 1248: 1906, 1911-14, 1924(M), 1926, 1934-36(M), 1937, 1938(M), 1942(M).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 22)

Oct. 1 to Nov. 22		Nov. 23 to Sept. 30	
2.5	1,430	1.9	840
3.0	2,070	2.0	930
4.0	3,800	3.0	2,010
5.0	6,200	4.0	3,830
7.0	13,200	6.0	9,220
9.0	24,000	8.0	17,100

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,940	1,800	8,120	a6,000	8,560	2,350	2,000	1,450	4,780	2,560	948	1,560
2	1,930	1,670	8,560	a5,800	7,690	2,010	1,940	1,500	3,450	2,850	921	*1,940
3	1,540	*1,430	10,100	a6,900	7,900	1,830	3,350	2,090	3,060	2,350	1,090	1,890
4	1,430	1,590	11,500	a9,500	7,180	1,810	4,400	2,430	3,660	2,140	1,250	2,090
5	2,040	2,250	13,400	*9,530	4,200	1,940	5,320	2,770	4,050	2,210	1,200	1,870
6	2,500	2,600	12,700	7,620	3,920	1,770	4,920	2,600	3,700	2,080	1,130	1,820
7	1,710	3,240	9,760	6,970	3,790	1,660	3,940	2,830	3,580	2,010	1,080	2,120
8	1,600	1,580	*13,300	6,270	3,700	3,500	4,340	3,100	3,060	1,880	984	2,110
9	1,510	1,800	a14,800	3,770	2,810	5,540	4,070	3,080	4,090	1,760	1,070	2,200
10	2,290	2,580	a10,500	3,450	2,430	8,180	4,730	3,100	*4,470	1,930	1,250	2,210
11	2,500	1,900	a10,500	3,350	2,330	6,970	4,820	3,580	4,070	1,930	1,280	1,830
12	2,400	1,770	a16,000	2,680	4,950	6,320	4,140	3,720	3,660	1,770	1,230	2,020
13	1,680	2,600	a14,500	2,240	8,240	3,180	6,430	3,430	3,220	1,820	1,220	2,460
14	1,570	1,720	a13,500	2,540	6,190	2,790	5,750	2,700	3,540	1,810	1,220	2,410
15	2,210	2,100	a13,000	4,340	4,760	2,670	6,270	2,490	4,740	1,800	1,220	2,850
16	2,420	5,410	a12,500	4,870	4,730	2,850	5,230	2,720	5,930	1,760	1,210	2,960
17	2,410	4,950	a10,000	4,890	5,670	*2,280	4,270	3,490	6,600	1,580	1,300	3,470
18	2,310	4,040	a7,500	4,420	4,290	*2,990	3,660	3,960	5,980	1,490	1,220	2,740
19	3,160	4,110	a13,800	4,230	2,980	2,580	3,640	3,980	4,290	1,580	1,250	2,670
20	3,090	4,150	a12,000	3,140	5,830	1,680	4,230	3,980	3,870	1,490	1,430	2,850
21	2,880	5,330	a9,000	3,830	7,320	1,620	4,450	3,390	3,330	1,430	1,310	2,510
22	2,740	21,600	a8,000	6,970	4,960	1,750	4,200	2,670	3,080	*1,460	1,270	2,350
23	2,730	*13,100	a10,000	6,940	4,610	1,820	3,920	2,490	2,960	1,480	1,310	2,330
24	4,040	8,990	a16,800	6,030	6,860	2,010	2,220	3,280	2,810	1,280	1,390	2,320
25	4,260	8,630	a15,000	5,770	5,040	2,050	1,840	2,810	2,770	1,290	1,270	2,510
26	3,780	7,680	a11,500	6,740	4,130	1,920	3,000	3,220	2,460	1,330	1,330	2,400
27	2,530	7,960	a8,500	7,960	2,300	1,600	*1,980	4,090	2,650	1,170	1,380	2,430
28	2,200	7,470	a6,500	10,500	2,140	2,410	1,860	3,540	2,720	1,130	1,310	2,200
29	1,890	6,970	a6,500	9,290	-------	1,890	1,840	3,540	2,610	1,150	1,300	2,010
30	1,800	7,230	a6,000	9,900	-------	2,090	1,630	3,370	2,680	1,390	1,290	2,150
31	1,770	-------	a6,000	9,020	-------	2,070	-------	3,620	-------	1,200	1,350	-------
Total	72,860	148,250	339,840	185,460	139,510	86,130	114,390	95,020	111,870	53,110	38,013	69,280
Mean	2,350	4,942	10,963	5,983	4,982	2,778	3,813	3,065	3,729	1,713	1,226	2,309
Ac-ft	144,500	294,000	674,100	367,900	276,700	170,800	226,900	188,500	221,900	105,300	75,400	137,400

Calendar year 1953: Max 21,600 Min 714 Mean 4,549 Cfsm 6.84 In. 93.86 Ac-ft 3,294,000
Water year 1953-54: Max 21,600 Min 921 Mean 3,983 Cfsm 5.99 In. 81.30 Ac-ft 2,883,000

* Discharge measurement made on this day.
a No gage-height record Dec. 9 to Jan. 4; discharge estimated on basis of summation of records for station at Niagara and Little North Santiam River near Mehama.

South Santiam River below Cascadia, Oreg.

Location.—Lat 44°23'30", long 122°30'35", in SE¼ sec. 36, T. 13 S., R. 2 E., on right bank 100 ft downstream from bridge at Cascadia ranger station, half a mile downstream from Tollgate Creek, half a mile upstream from Deer Creek, and 1½ miles southwest of Cascadia. All records computed are for site at gaging cable 0.7 mile upstream, above Tollgate Creek.

Drainage area.—174 sq mi at gaging cable.

Records available.—September 1935 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 759.38 ft above mean sea level, datum of 1929. Prior to Nov. 1, 1935, staff gage at same site and datum.

Average discharge.—19 years, 790 cfs (571,900 acre-ft per year).

Extremes.—Maximum discharge during year, 18,900 cfs Nov. 22 (gage height, 15.63 ft), from rating curve extended above 10,000 cfs by logarithmic plotting; minimum, 74 cfs Sept. 9, 10.
1935-54: Maximum discharge, 23,400 cfs Dec. 28, 1945 (gage height, 18.65 ft), from rating curve extended above 12,000 cfs by logarithmic plotting; minimum, 23 cfs Dec. 1, 2, 1936 (gage height, 0.98 ft).

Remarks.—Records excellent. No regulation or diversion above station.

Cooperation.—Water-stage recorder inspected by employee of U. S. Forest Service.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.5	66	3.0	515	8.0	5,010
2.0	165	4.0	1,060	10.0	8,100
2.5	315	6.0	2,670	13.0	13,700

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	358	131	1,600	721	2,590	726	430	422	770	350	104	98
2	277	140	2,350	685	2,440	660	434	398	585	322	100	91
3	170	118	3,600	705	2,320	610	1,160	410	515	298	98	93
4	138	108	3,640	1,560	2,140	570	2,110	438	510	280	96	87
5	116	116	3,410	1,920	1,890	538	2,700	430	570	265	94	84
6	102	323	5,120	1,460	1,710	515	2,280	438	560	253	94	79
7	93	350	2,940	1,260	1,590	492	1,640	492	542	244	93	79
8	82	256	3,860	1,150	1,500	1,040	1,640	580	640	232	89	77
9	80	220	7,120	1,050	1,450	2,230	1,670	595	862	232	87	76
10	232	214	5,460	982	1,280	2,210	1,320	520	765	241	85	77
11	211	259	3,030	880	1,180	*1,440	1,130	533	695	223	84	100
12	150	262	3,300	770	2,300	1,110	1,040	484	695	208	82	241
13	129	223	2,880	716	2,620	940	2,460	430	655	*193	82	182
14	116	217	2,310	844	1,940	832	2,320	406	610	185	85	191
15	*106	265	1,920	964	1,530	798	1,660	442	1,150	178	110	898
16	96	930	*1,710	2,210	1,240	804	1,340	466	1,450	172	114	635
17	104	976	1,550	1,890	1,220	716	1,320	474	1,140	165	94	470
18	555	655	1,590	1,320	1,160	660	1,260	488	904	160	85	382
19	502	787	6,560	1,040	1,160	610	1,070	462	765	152	104	322
20	354	868	6,560	838	2,450	556	904	*418	700	150	145	277
21	315	1,220	3,890	820	3,180	515	798	374	605	165	165	247
22	256	12,800	2,500	3,100	2,370	484	*743	329	533	150	127	232
23	214	*11,500	1,790	2,960	1,700	462	726	315	488	140	108	214
24	188	4,390	1,360	1,810	1,370	454	675	318	442	136	*104	193
25	170	2,560	1,100	1,320	1,190	422	620	329	406	131	108	180
26	160	1,710	994	1,120	1,070	398	580	497	378	125	118	168
27	150	1,790	958	*2,940	910	551	595	434	410	120	108	160
28	140	1,390	892	7,590	820	710	556	370	378	118	100	150
29	133	1,110	880	5,400	-------	585	506	350	332	114	94	145
30	125	1,130	787	3,940	-------	510	466	450	336	112	94	140
31	120	-------	716	2,950	-------	462	-------	635	-------	106	118	-------
Total	5,942	47,018	86,377	56,915	48,320	23,610	36,153	13,727	19,391	5,920	3,169	6,368
Mean	192	1,567	2,786	1,836	1,726	762	1,205	443	646	191	102	212
Cfsm	1.10	9.01	16.0	10.6	9.92	4.38	6.93	2.55	3.71	1.10	0.586	1.22
In.	1.27	10.05	18.46	12.16	10.33	5.05	7.73	2.93	4.14	1.27	0.68	1.36
Ac-ft	11,790	93,260	171,300	112,900	95,840	46,830	71,710	27,230	38,460	11,740	6,290	12,630

Calendar year 1953: Max 15,600 Min 57 Mean 1,244 Cfsm 7.15 In. 97.05 Ac-ft 900,700
Water year 1953-54: Max 12,800 Min 76 Mean 967 Cfsm 5.56 In. 75.43 Ac-ft 700,000

Peak discharge (base, 5,300 cfs).--Nov. 22 (8 p. m.) 18,900 cfs (15.63 ft); Dec. 3 (6 p. m.) 5,740 cfs (8.49 ft); Dec. 6 (7 a. m.) 7,170 cfs (9.42 ft); Dec. 9 (7:30 p. m.) 8,680 cfs (10.34 ft); Dec. 19 (6 p. m.) 11,800 cfs (12.00 ft); Jan. 22 (6:30 p. m.) 5,420 cfs (8.28 ft); Jan. 28 (6 a. m.) 8,730 cfs (10.37 ft).

* Discharge measurement made on this day.

Middle Santiam River at mouth, near Foster, Oreg.

Location.—Lat 44°25'25", long 122°37'20", in NE¼SE¼ sec. 24, T. 13 S., R. 1 E., on right bank half a mile upstream from mouth and 2½ miles northeast of Foster.
Drainage area.—287 sq mi.
Records available.—January 1951 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 562.14 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Oct. 24, 1952, staff gage at same site and datum.
Extremes.—Maximum discharge during year, 38,400 cfs Nov. 22 (gage height, 19.67 ft); minimum, 172 cfs Sept. 10 (gage height, 1.72 ft).
1951-54: Maximum discharge, that of Nov. 22, 1953; minimum, 72 cfs Sept. 22-24, 1951 (gage height, 0.77 ft).
During flood of Dec. 28, 1945, flow of 41,800 cfs occurred at former station upstream where drainage area is 6 percent smaller.
Remarks.—Records excellent. No regulation or diversion above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.7	169	5.0	960	13.0	13,300
2.0	209	6.0	1,560	16.0	22,600
3.0	372	7.0	2,520	18.0	30,900
4.0	600	10.0	6,690		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	825	265	3,350	1,500	4,770	1,580	908	868	1,910	681	249	220
2	781	297	4,280	1,400	4,580	1,400	928	800	1,390	648	242	202
3	412	263	6,240	1,430	4,490	1,290	3,720	793	1,120	579	238	196
4	303	247	6,240	4,890	4,250	1,180	4,910	844	1,060	538	233	191
5	255	253	5,660	5,330	3,900	1,120	5,400	864	1,160	502	230	185
6	226	720	9,170	3,610	3,510	1,080	4,800	856	1,190	475	227	182
7	208	1,020	5,440	2,980	3,370	1,040	3,430	924	1,290	452	222	181
8	194	609	5,910	2,690	3,150	2,720	3,410	1,100	1,250	434	215	182
9	182	480	14,600	2,330	2,910	5,120	3,420	1,140	1,640	466	212	177
10	378	426	10,900	2,130	2,520	4,740	2,810	1,010	1,400	636	208	176
11	478	444	5,680	1,890	2,280	*3,030	2,450	1,010	1,240	645	202	205
12	334	458	6,690	1,670	4,100	2,310	2,320	940	1,200	532	198	666
13	277	420	5,400	1,550	4,720	1,930	5,720	816	1,130	*475	198	468
14	249	406	4,380	1,850	3,640	1,690	4,650	751	1,060	444	201	354
15	*227	612	3,690	2,100	2,850	1,570	3,280	800	2,140	420	216	1,110
16	209	2,790	3,260	3,160	2,360	1,560	2,700	860	2,690	400	228	1,060
17	222	2,620	2,990	3,130	2,330	1,400	2,680	852	2,200	381	208	816
18	1,410	1,630	3,160	2,420	2,280	1,260	2,540	868	1,800	363	194	642
19	1,460	1,850	16,600	1,950	2,420	1,170	2,150	828	1,500	351	210	508
20	908	2,040	15,000	1,670	6,810	1,090	1,810	*730	1,450	340	277	430
21	772	3,340	7,600	1,560	8,730	1,020	1,610	642	1,300	352	303	379
22	591	29,100	5,020	6,600	5,420	964	*1,500	558	1,140	335	245	346
23	478	20,400	3,690	5,420	3,780	916	1,480	522	1,030	320	*216	325
24	418	*8,500	2,860	3,540	3,070	908	1,390	525	924	306	209	303
25	370	5,220	2,320	2,640	2,630	852	1,290	542	840	298	226	284
26	337	3,700	2,060	2,240	2,310	808	1,200	964	776	287	258	268
27	317	3,770	1,940	*3,990	1,990	1,220	1,180	1,000	779	279	247	255
28	295	3,160	1,850	13,400	1,760	1,550	1,120	812	730	274	224	244
29	281	2,500	1,840	9,860	-------	1,180	1,030	723	654	268	209	234
30	271	2,510	1,640	7,090	-------	1,050	956	932	645	258	206	226
31	258	-------	1,490	5,370	-------	964	-------	1,470	-------	255	239	-------
Total	13,926	100,050	170,950	111,390	100,930	49,712	76,792	26,344	38,638	12,994	6,990	11,015
Mean	449	3,335	5,515	3,593	3,605	1,604	2,560	850	1,288	419	225	367
Cfsm	1.56	11.6	19.2	12.5	12.6	5.59	8.92	2.96	4.49	1.46	0.784	1.28
In.	1.80	12.96	22.15	14.43	13.08	6.44	9.95	3.41	5.01	1.68	0.91	1.43
Ac-ft	27,620	198,400	339,100	220,900	200,200	98,600	152,300	52,250	76,640	25,770	13,860	21,850

Calendar year 1953: Max 31,800 Min 115 Mean 2,479 Cfsm 8.64 In. 117.22 Ac-ft 1,794,000
Water year 1953-54: Max 29,100 Min 176 Mean 1,972 Cfsm 6.87 In. 93.25 Ac-ft 1,427,000

Peak discharge (base, 12,000 cfs).--Nov. 22 (6:30 p. m.) 38,400 cfs (19.67 ft); Dec. 6 (8 a. m.) 12,700 cfs (12.78 ft); Dec. 9 (8 p. m.) 20,800 cfs (15.47 ft); Dec. 19 (6:30 p. m.) 33,200 cfs (18.50 ft); Jan. 28 (9 a. m.) 15,300 cfs (13.74 ft).
* Discharge measurement made on this day.

Wiley Creek near Foster, Oreg.

Location.—Lat 44°22'20", long 122°37'20", in NE¼ sec. 12, T. 14 S., R. 1 E., on right bank 0.4 mile downstream from Little Wiley Creek and 3½ miles southeast of Foster.

Drainage area.—52 sq mi, approximately.

Records available.—October 1947 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 718.08 ft above mean sea level (Corps of Engineers benchmark).

Average discharge.—7 years, 240 cfs (173,800 acre-ft per year).

Extremes.—Maximum discharge during year, 5,200 cfs Nov. 22 (gage height, 7.37 ft); minimum, 17 cfs Sept. 7-10.

1947-54: Maximum discharge, 5,410 cfs Jan. 7, 1948 (gage height, 7.52 ft); maximum gage height, 7.80 ft Jan. 18, 1953 (backwater from debris); minimum discharge, 5.6 cfs about Nov. 26, 1952.

Remarks.—Records excellent. No regulation or diversion above station.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 21				Nov. 22 to Sept. 30					
0.9	16	1.5	92	0.8	12	1.5	102	3.0	720
1.0	23	2.0	230	1.0	28	2.0	245	4.0	1,420
1.2	44	2.5	440	1.2	51	2.5	450	6.0	3,360

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	101	39	352	195	720	195	138	84	120	77	30	21
2	76	42	520	180	660	177	138	80	92	72	30	20
3	43	34	885	210	612	160	388	82	79	65	29	20
4	33	33	917	592	550	146	600	80	79	62	29	19
5	28	40	1,000	575	480	133	720	75	96	58	28	18
6	25	156	1,730	425	415	125	690	72	84	57	28	18
7	23	134	931	372	380	118	495	72	77	55	28	17
8	22	88	1,090	332	340	230	515	70	113	55	27	17
9	22	71	1,680	304	304	453	490	68	157	58	27	17
10	105	71	1,360	280	262	510	392	64	148	62	26	17
11	61	76	780	252	245	*360	328	64	133	55	25	25
12	44	87	690	220	490	292	288	61	146	*51	25	65
13	36	72	580	207	580	252	505	58	177	49	26	43
14	32	76	495	262	475	224	440	55	160	47	28	40
15	*30	96	410	312	384	220	352	54	299	46	34	184
16	28	435	356	918	324	231	296	52	320	46	38	109
17	34	404	316	642	376	204	266	51	252	44	29	88
18	211	269	296	480	368	183	238	50	198	43	27	64
19	160	305	1,480	364	376	171	207	*47	166	41	28	52
20	116	328	1,420	296	684	154	183	47	157	41	35	46
21	88	422	882	308	840	143	*163	51	130	43	36	41
22	72	3,100	606	1,170	654	133	151	46	114	40	26	40
23	63	2,800	455	931	485	128	141	45	100	39	*24	37
24	55	1,090	356	575	388	128	130	44	92	37	23	35
25	50	660	296	435	328	118	118	50	84	36	24	32
26	45	465	280	384	288	109	111	98	80	35	24	30
27	42	455	266	*1,620	245	194	109	80	94	35	23	29
28	39	320	245	2,860	217	266	100	61	80	34	21	27
29	37	300	224	1,670	-------	198	92	57	74	32	20	27
30	36	320	204	1,160	-------	168	90	70	75	31	20	25
31	33	-------	189	854	-------	148	-------	94	-------	31	25	-------
Total	1,790	12,788	21,291	19,385	12,470	6,271	8,874	1,982	3,976	1,477	843	1,223
Mean	57.7	426	687	625	445	202	296	63.9	133	47.6	27.2	40.8
Cfsm	1.11	8.19	13.2	12.0	8.56	3.88	5.69	1.23	2.56	0.915	0.523	0.785
In.	1.28	9.15	15.23	13.86	8.92	4.48	6.35	1.42	2.84	1.06	0.60	0.87
Ac-ft	3,550	25,360	42,230	38,450	24,730	12,440	17,600	3,930	7,890	2,930	1,670	2,430

Calendar year 1953: Max 3,390 Min 14 Mean 307 Cfsm 5.90 In. 80.10 Ac-ft 222,100
Water year 1953-54: Max 3,100 Min 17 Mean 253 Cfsm 4.87 In. 66.06 Ac-ft 183,200

Peak discharge (base, 1,400 cfs).--Nov. 22 (8:30 p. m.) 5,200 cfs (7.37 ft); Dec. 6 (6 a. m.) 2,490 cfs (5.19 ft); Dec. 9 (4:30 p. m.) 2,250 cfs (4.94 ft); Dec. 19 (4 p. m.) 2,670 cfs (5.37 ft); Jan. 22 (5 p. m.) 1,850 cfs (4.50 ft); Jan. 28 (2:30 a. m.) 3,890 cfs (6.41 ft).

* Discharge measurement made on this day.

South Santiam River at Waterloo, Oreg.

Location.—Lat 44°29'55", long 122°49'20", in NW¼ sec. 28, T. 12 S., R. 1 W., on left bank 600 ft downstream from bridge at Waterloo and 2 miles upstream from Hamilton Creek.
Drainage area.—640 sq mi, approximately.
Records available.—July 1905 to March 1907, October 1910 to December 1911, July 1923 to September 1954. January to December 1911, gage heights only.
Gage.—Water-stage recorder. Datum of gage is 370.39 ft above mean sea level, datum of 1929. Prior to Dec. 31, 1911, staff gage at site half a mile downstream at datum about 5.0 ft lower. July 1, 1923, to Nov. 12, 1934, staff gage at present site and datum.
Average discharge.—32 years (1905-6, 1923-54), 2,804 cfs (2,030,000 acre-ft per year).
Extremes.—Maximum discharge during year, 61,300 cfs Nov. 22 (gage height, 20.21 ft), from rating curve extended above 37,000 cfs by logarithmic plotting; minimum, 282 cfs Oct. 9 (gage height, 2.37 ft).
1905-7, 1910-11, 1923-54: Maximum discharge, 74,200 cfs Dec. 28, 1945 (gage height, 22.85 ft), from rating curve extended above 37,000 cfs by logarithmic plotting; minimum, 96 cfs Sept. 1, 2, 1940.
Remarks.—Records excellent. No regulation or diversion above station. Some diurnal fluctuation caused by numerous log ponds above station.
Cooperation.—Gage-height record collected in cooperation with U. S. Weather Bureau.
Revisions (water years).—WSP 1248: 1907, 1924-30, 1932.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

2.3	250	5.0	3,550
2.5	345	6.0	5,690
3.0	660	7.5	9,850
3.5	1,150	11.0	21,700
4.0	1,800	16.0	42,400

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,030	406	6,050	3,040	9,280	3,060	1,770	1,530	3,110	1,200	385	385
2	1,340	456	8,150	2,890	8,680	2,760	1,730	1,440	2,340	1,160	375	345
3	740	428	12,000	3,090	8,260	2,490	4,920	1,400	1,840	1,050	365	335
4	504	395	13,400	6,610	7,740	2,270	8,060	1,470	1,700	963	370	320
5	412	395	12,400	9,340	7,080	2,110	9,730	1,480	1,940	900	360	315
6	360	744	18,400	6,500	6,300	2,010	9,100	1,480	1,890	850	355	300
7	325	1,770	11,900	5,410	5,950	1,920	6,550	1,520	2,060	812	345	300
8	295	1,070	12,200	4,960	5,580	3,500	6,030	1,800	2,000	767	340	305
9	286	830	23,800	4,390	5,210	7,770	6,420	1,920	2,910	785	340	290
10	474	732	20,000	4,080	4,630	8,830	5,320	1,730	2,570	930	325	290
11	910	794	11,400	3,720	4,120	*5,810	4,540	1,670	2,250	996	315	325
12	580	812	11,700	3,320	6,710	4,460	4,180	1,600	2,170	*850	310	748
13	462	758	10,300	3,040	8,860	3,800	8,810	1,420	2,110	758	310	840
14	412	700	8,150	3,360	6,910	3,320	8,350	1,310	1,940	708	325	566
15	370	890	6,890	4,200	5,580	3,090	6,030	1,350	3,310	676	340	2,030
16	*340	3,960	6,100	7,410	4,650	3,130	4,930	1,440	4,910	636	390	1,970
17	345	5,050	5,580	7,660	4,670	2,800	4,740	1,460	3,980	596	345	1,510
18	1,740	3,230	5,640	5,910	4,740	2,550	4,520	1,460	3,250	573	315	1,210
19	2,600	3,260	21,700	4,690	4,430	2,340	3,920	*1,430	2,730	545	320	952
20	1,530	3,920	27,300	3,900	10,000	2,170	3,340	1,310	2,510	538	428	794
21	1,290	4,600	14,600	3,490	13,900	2,010	*2,980	1,160	2,270	552	510	692
22	1,030	41,800	9,730	10,300	10,200	1,840	2,730	1,020	1,970	538	450	628
23	821	39,400	7,130	12,000	7,050	1,740	2,620	941	1,740	504	380	580
24	700	*16,400	5,670	7,520	5,710	1,730	2,460	930	1,560	480	*365	538
25	612	10,400	4,650	5,690	4,930	1,630	2,270	974	1,430	468	370	504
26	552	7,290	4,140	5,160	4,390	1,510	2,130	1,460	1,340	450	390	474
27	510	7,100	4,060	9,700	3,820	2,170	2,110	1,720	1,350	434	417	456
28	474	6,100	3,740	*29,000	3,400	3,210	2,000	1,330	1,340	428	385	434
29	450	4,930	3,760	19,800	-------	2,480	1,820	1,190	1,170	417	360	417
30	434	4,710	3,360	14,400	-------	2,110	1,670	1,440	1,130	400	335	400
31	412	-------	3,080	10,800	-------	1,890	-------	1,920	-------	395	385	-------
Total	22,340	173,330	316,980	225,380	182,780	92,510	135,780	44,305	66,820	21,359	11,305	19,253
Mean	721	5,778	10,230	7,270	6,528	2,984	4,526	1,429	2,227	689	365	642
Cfsm	1.13	9.03	16.0	11.4	10.2	4.66	7.07	2.23	3.48	1.08	0.570	1.00
In.	1.30	10.07	18.42	13.10	10.62	5.38	7.89	2.57	3.88	1.24	0.66	1.12
Ac-ft	44,310	343,800	628,700	447,000	362,500	183,500	269,300	87,880	132,500	42,360	22,420	38,190

Calendar year 1953: Max 51,600 Min 192 Mean 4,447 Cfsm 6.95 In. 94.32 Ac-ft 3,220,000
Water year 1953-54: Max 41,800 Min 286 Mean 3,595 Cfsm 5.62 In. 76.25 Ac-ft 2,602,000

Peak discharge (base, 21,000 cfs).--Nov. 22 (10 p. m.) 61,300 cfs (20.21 ft); Dec. 6 (9:30 a. m.) 24,700 cfs (11.79 ft); Dec. 9 (10 p. m.) 31,600 cfs (13.47 ft); Dec. 19 (9 p. m.) 47,800 cfs 47,800 cfs (17.23 ft); Jan. 28 (10 a. m.) 32,000 cfs (13.58 ft).
* Discharge measurement made on this day.

Albany power canal near Lebanon, Oreg.

Location.—Lat 44°33'10", long 122°54'20", in SW¼ sec. 2, T. 12 S., R. 2 W., on left bank an eighth of a mile downstream from spillway and 1 mile north of Lebanon.
Records available.—April 1926 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 322.90 ft above mean sea level, datum of 1929. Prior to June 24, 1938, staff gage at same site and datum.
Average discharge.—28 years, 210 cfs (152,000 acre-ft per year).
Extremes.—1926-54: Maximum daily discharge, 332 cfs Dec. 29, 1936; minimum daily, 8 cfs Sept. 16, 1954.
Remarks.—Records good. Canal diverts from South Santiam River at Lebanon and discharges into Calapooya River at mouth. Lebanon ditch discharges into canal just below canal intake. Water is used for power and water supply at Albany.
Cooperation.—Recorder inspected by employee of Pacific Power and Light Co.
Revisions (water years).—WSP 1248: 1926, 1930, 1939, 1942.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	172	160	198	142	183	169	151	142	171	110	222	227
2	187	169	221	137	191	162	148	140	184	156	222	211
3	165	170	236	137	190	154	197	134	145	154	218	202
4	155	166	233	164	186	155	240	141	191	154	214	194
5	153	163	226	190	193	151	232	146	190	156	200	193
6	150	162	170	163	220	152	210	143	191	150	221	193
7	151	179	91	145	216	154	210	142	146	114	223	188
8	147	172	142	136	215	174	221	145	178	161	220	161
9	150	166	158	132	218	214	222	150	108	89	220	180
10	164	163	181	128	210	*211	213	149	131	152	214	178
11	189	164	211	138	199	193	210	153	97	151	214	191
12	176	168	205	170	156	198	205	158	132	*150	199	225
13	166	174	205	171	96	186	216	153	132	183	207	61
14	162	157	196	175	144	176	210	151	129	215	214	9
15	160	158	202	202	153	169	207	152	87	225	217	9
16	*158	168	204	152	184	166	200	155	136	220	236	8
17	158	184	200	88	203	162	199	159	138	205	227	55
18	186	210	202	128	206	155	197	166	128	196	205	121
19	214	220	119	177	191	155	194	*169	126	197	204	124
20	203	203	105	199	181	152	182	178	132	213	216	122
21	203	175	161	191	181	151	*176	191	129	242	240	201
22	193	197	198	185	173	141	175	190	131	245	239	224
23	191	134	211	143	197	136	170	185	110	244	*229	235
24	187	146	197	137	206	136	169	184	153	239	224	238
25	182	157	185	160	197	134	162	184	105	237	224	230
26	177	164	170	*159	187	132	156	150	153	239	226	223
27	172	161	162	52	178	150	154	158	157	222	208	221
28	171	160	153	60	176	188	152	151	158	196	222	212
29	168	150	153	172	-------	170	147	171	111	218	218	213
30	169	165	150	193	-------	162	143	174	155	224	215	213
31	169	-------	143	182	-------	156	-------	180	-------	220	223	-------
Total	5,348	5,085	5,586	4,708	5,230	5,064	5,668	4,944	4,234	5,877	6,781	5,062
Mean	173	170	180	152	187	163	189	159	141	190	219	169
Ac-ft	10,610	10,090	11,080	9,340	10,370	10,040	11,240	9,810	8,400	11,660	13,450	10,040

Calendar year 1953: Max 257 Min 91 Mean 181 Ac-ft 131,200
Water year 1953-54: Max 245 Min 8 Mean 174 Ac-ft 126,100

* Discharge measurement made on this day.

Santiam River at Jefferson, Oreg.

Location. —Lat 44°42'55", long 123°00'40", in SE¼ sec. 11, T. 10 S., R. 3 W., on right bank 350 ft upstream from railroad bridge at Jefferson, 2 miles downstream from confluence of North Santiam and South Santiam Rivers, and 9 miles upstream from mouth.

Drainage area. —1,790 sq mi, approximately.

Records available. —October 1905 to June 1906 (gage heights and discharge measurements only), October 1907 to September 1916, and October 1939 to September 1954, in reports of Geological Survey. Gage-height records collected at same site since April 1904 are contained in reports of U. S. Weather Bureau.

Gage. —Water-stage recorder. Datum of gage is 199.63 ft above mean sea level, datum of 1929. Oct. 8, 1905, to June 30, 1906, Oct. 1, 1907, to May 14, 1908, July 1, 1914, to Sept. 30, 1916, Oct. 1, 1939, to Sept. 21, 1940, staff gage at site 350 ft downstream and May 15, 1908, to June 30, 1914, staff gage at site 150 ft downstream, all at datum 3.00 ft higher.

Average discharge. —24 years (1907-16, 1939-54), 7,670 cfs (5,553,000 acre-ft per year).

Extremes. —Maximum discharge during year, 111,000 cfs Nov. 23 (gage height, 20.89 ft); minimum, 850 cfs Aug. 3, 9 (gage height, 2.44 ft).

1905-6, 1907-16, 1939-54: Maximum discharge, 161,000 cfs Nov. 22, 1909 (gage height, 18.2 ft, from floodmark, site and datum then in use; corresponding gage height at present site, 23.0 ft, from curve of relation); minimum observed, 260 cfs Aug. 15-22, Aug. 24 to Sept. 2, 1940 (gage height, -1.00 ft, site and datum then in use).

Maximum discharge known, about 202,000 cfs Nov. 21, 1921 (gage height, 19.5 ft at railroad bridge 350 ft downstream, datum in use prior to Oct. 1, 1940; corresponding gage height at present site, 24.4 ft, from curve of relation).

Remarks. —Records excellent except those for period of shifting control, which are fair. Salem Canal diverts from North Santiam River at Stayton for irrigation and power use; most of this water reaches Willamette River through Mill Creek at Salem. Stayton Canal diverts from North Santiam River at Stayton for irrigation of lands near West Stayton; some return flow reaches North Santiam River above station. Albany power canal diverts from South Santiam River at Lebanon; return flow reaches Willamette River at Albany. Flow regulated by Detroit Reservoir (see p. 150).

Revisions (water years). —WSP 904: Drainage area. WSP 1094: 1908, 1910, 1912, 1922(M), 1943. WSP 1248: 1911, 1915-16(M).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,010	2,070	16,300	11,100	24,000	7,040	4,930	3,720	8,430	4,200	1,120	1,500
2	3,630	2,160	19,000	10,700	22,100	6,630	4,630	3,490	6,820	4,330	940	2,030
3	2,640	1,900	23,600	11,200	19,600	5,810	8,060	3,410	5,720	3,970	920	1,980
4	2,010	1,710	34,500	15,400	19,100	5,430	14,700	4,350	5,500	3,430	1,090	2,080
5	1,930	2,100	35,000	25,600	15,000	5,050	18,700	4,690	6,390	3,320	1,150	2,100
6	2,500	2,980	42,700	18,600	13,200	5,030	20,400	4,690	5,920	3,270	1,100	1,890
7	2,500	4,830	35,200	15,700	12,500	4,610	14,800	4,670	6,340	3,150	1,020	2,080
8	1,690	3,860	30,200	14,400	11,600	6,200	13,100	5,140	5,630	2,990	920	2,210
9	1,710	2,760	46,300	11,400	10,600	14,500	14,100	5,350	7,580	2,770	880	2,300
10	2,050	2,970	49,300	9,960	9,100	*22,500	12,800	5,140	7,940	2,940	1,030	2,300
11	3,370	3,410	31,200	9,210	8,240	17,200	12,000	5,430	7,360	3,320	1,190	2,170
12	3,160	2,760	33,000	8,170	12,800	13,900	10,700	5,570	6,840	*2,930	1,120	2,160
13	2,590	2,980	32,500	7,040	22,400	10,400	17,100	5,280	6,040	2,720	1,110	3,240
14	1,960	2,970	27,200	6,960	18,300	8,430	18,900	4,710	5,850	2,670	1,120	3,260
15	2,040	2,720	24,200	9,910	14,200	7,660	15,300	4,050	7,580	2,440	1,120	4,140
16	2,570	7,700	22,000	15,200	12,100	7,660	12,900	4,220	12,200	2,430	1,130	5,480
17	2,680	14,800	19,200	19,200	13,200	7,110	11,000	4,670	11,900	2,270	1,190	5,260
18	3,060	9,950	15,100	15,800	13,000	6,530	10,100	*5,200	10,600	1,990	1,200	4,570
19	6,250	8,870	28,200	13,700	10,600	6,940	9,100	5,330	8,580	2,020	1,140	3,790
20	5,190	10,600	64,400	10,100	19,800	5,220	8,630	5,140	7,360	1,940	1,320	3,560
21	4,660	10,100	35,600	9,660	29,800	4,770	*8,690	4,930	6,650	1,880	1,520	3,380
22	4,150	50,400	26,400	15,700	23,000	4,570	8,140	3,940	5,830	1,840	1,460	2,910
23	3,740	*93,900	20,300	29,600	16,100	4,470	7,740	3,440	5,350	1,730	1,350	2,800
24	4,240	41,100	25,800	19,800	16,100	4,630	6,480	3,740	4,970	1,620	1,460	2,670
25	4,760	27,500	24,400	15,500	13,000	4,690	5,120	3,990	4,630	1,460	*1,420	2,690
26	4,660	20,300	19,100	*16,900	11,400	4,290	5,350	4,200	4,260	1,470	1,350	2,820
27	3,320	19,300	17,500	23,700	9,050	4,950	5,590	6,010	4,350	1,410	1,510	2,540
28	2,770	17,700	12,900	58,100	7,610	7,280	4,570	5,260	4,370	1,230	1,470	2,520
29	2,440	15,200	13,000	46,200	--------	6,240	4,470	5,030	4,180	1,240	1,410	2,190
30	2,150	14,100	11,900	36,400	--------	5,500	4,140	5,010	4,010	1,320	1,370	2,200
31	2,070	--------	11,200	28,000	--------	5,140	--------	5,460	--------	1,310	1,420	--------
Total	94,500	403,500	847,200	558,910	427,500	230,380	312,240	145,260	199,180	75,610	37,550	84,820
Mean	3,048	13,450	27,330	18,030	15,270	7,432	10,410	4,686	6,639	2,439	1,211	2,827
Ac-ft	187,400	800,300	‡1,680	‡1,109	847,900	457,000	619,300	288,100	395,100	150,000	74,480	168,200

Calendar year 1953: Max 93,900 Min 586 Mean 11,000 Ac-ft 7,960,000
Water year 1953-54: Max 93,900 Min 880 Mean 9,361 Ac-ft 6,777,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
Note.--Shifting-control method used Sept. 15-30.

Luckiamute River near Hoskins, Oreg.

Location.—Lat 44°43'10", long 123°30'10", in NE¼ sec. 11, T. 10 S., R. 7 W., on right bank a quarter of a mile downstream from Benton County line and 3½ miles northwest of Hoskins.
Drainage area.—34 sq mi, approximately.
Records available.—May 1934 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 378.7 ft above mean sea level (river-profile survey).
Average discharge.—20 years, 207 cfs (149,900 acre-ft per year).
Extremes.—Maximum discharge during year, 3,060 cfs Nov. 22 (gage height, 8.92 ft); minimum daily, 16 cfs Sept. 27, 28, 30.
1934-54: Maximum discharge, 5,560 cfs Dec. 14, 1946, Feb. 17, 1949; maximum gage height, 13.22 ft Dec. 14, 1946; minimum daily discharge, 5 cfs Oct. 15, 16, 1952.
Remarks.—Records good except those for period of no gage-height record, which are fair. No regulation or diversion above station; log ponds upstream cause diurnal fluctuation at times.
Revisions (water years).—WSP 834: 1936(M).

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.2	4.8	2.0	117
1.3	12	3.0	385
1.4	21	5.0	1,130
1.7	61	8.0	2,560

Discharge, in cubic feet per second, water year October 1953 to September, 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	85	31	358	215	624	240	160	85	60	a48	25	28
2	75	*31	391	212	550	215	172	82	50	a46	23	23
3	40	29	568	304	475	195	382	82	46	a44	23	22
4	29	28	774	1,050	421	180	508	76	46	a40	25	22
5	25	33	1,250	1,110	382	162	734	73	45	a38	25	21
6	22	92	1,570	846	346	148	766	71	43	a38	23	20
7	20	82	1,010	648	316	142	557	68	*46	a38	23	20
8	19	64	950	515	292	*334	494	66	52	a40	22	21
9	38	54	1,650	433	268	790	470	63	58	*45	22	20
10	122	50	1,480	364	248	770	436	61	50	54	22	19
11	61	56	926	316	271	522	379	63	52	52	21	21
12	45	52	790	271	1,120	406	334	63	58	43	21	45
13	37	49	610	245	1,400	343	466	61	54	41	22	32
14	33	52	487	316	1,090	301	388	56	73	38	22	26
15	29	117	403	480	762	271	331	52	a120	38	21	26
16	26	417	*337	445	578	258	289	50	a140	37	20	26
17	36	358	298	394	560	230	252	49	a110	34	20	25
18	68	283	292	394	564	212	222	48	a95	33	20	22
19	55	307	1,500	*361	1,040	202	*202	48	a90	32	20	21
20	48	316	1,460	319	1,720	190	185	46	a95	34	26	20
21	43	682	938	334	1,760	172	165	46	a85	34	26	20
22	34	2,370	658	*1,260	1,090	160	152	46	a75	32	21	20
23	33	1,960	501	974	746	148	140	45	a70	31	*20	19
24	31	1,010	403	644	540	140	131	45	a65	31	22	18
25	29	686	337	484	424	131	119	49	a60	29	26	17
26	27	536	301	406	367	131	113	80	a60	29	27	17
27	26	466	262	913	310	295	109	56	a60	28	25	16
28	25	397	242	1,070	268	252	98	48	a55	27	25	16
29	31	358	218	850	-------	212	94	45	a50	26	26	17
30	34	349	198	750	-------	188	91	45	a50	26	49	16
31	32	-------	188	683	-------	170	-------	63	-------	25	37	-------
Total	1,258	11,315	21,350	17,606	18,530	8,110	8,939	1,831	2,013	1,131	750	656
Mean	40.6	377	689	568	662	262	298	59.1	67.1	36.5	24.2	21.9
Cfsm	1.19	11.1	20.3	16.7	19.5	7.71	8.76	1.74	1.97	1.07	0.712	0.644
In.	1.38	12.38	23.35	19.26	20.27	8.87	9.78	2.00	2.20	1.24	0.82	0.72
Ac-ft	2,500	22,440	42,350	34,920	36,750	16,090	17,730	3,630	3,990	2,240	1,490	1,300

Calendar year 1953: Max 3,320 Min 13 Mean 302 Cfsm 8.88 In. 120.42 Ac-ft 218,300
Water year 1953-54: Max 2,370 Min 16 Mean 256 Cfsm 7.53 In. 102.27 Ac-ft 185,400

Peak discharge (base, 2,000 cfs).--Nov. 22 (6 p. m.) 3,060 cfs (8.92 ft); Dec. 9 (6 p. m.) 2,260 cfs (7.40 ft); Dec. 19 (8 p. m.) 2,380 cfs (7.63 ft); Feb. 21 (8 a. m.) 2,050 cfs (6.98 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for station at Pedee.

Luckiamute River at Pedee, Oreg.

Location.—Lat 44°44'35", long 123°25'25", in SE¼ sec. 33, T. 9 S., R. 6 W., on left bank half a mile downstream from Pedee Creek and three-quarters of a mile southwest of Pedee.
Drainage area.—115 sq mi.
Records available.—October 1940 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 245.47 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to July 1, 1949, staff gage at site 1,700 ft downstream at datum 1.85 ft lower.
Average discharge.—14 years, 471 cfs (341,000 acre-ft per year).
Extremes.—Maximum discharge during year, 6,360 cfs Nov. 23 (gage height, 13.26 ft); minimum, 24 cfs Aug. 19.
1940-54: Maximum discharge, 13,500 cfs Feb. 17, 1949 (gage height, 18.46 ft, from floodmark, present site and datum), from rating curve extended above 7,800 cfs by logarithmic plotting; minimum observed, 7 cfs Sept. 12, 1944.
Remarks.—Records excellent. Small diversions above station for irrigation. Some diurnal fluctuation in summer caused by log ponds above station.
Revisions (water years).—WSP 964: 1941. WSP 1044: Drainage area. WSP 1248: 1945.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.6	25	2.5	190	6.0	1,700
1.8	44	3.0	350	8.0	2,700
2.1	88	4.0	750	11.0	4,450

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	146	57	674	515	1,600	624	396	220	125	96	36	49
2	154	*55	723	531	1,360	535	413	211	104	90	36	41
3	83	55	998	790	1,170	487	682	211	96	83	36	36
4	59	56	1,500	2,150	1,030	448	908	199	100	79	37	36
5	48	57	2,580	2,220	908	416	1,380	190	104	74	38	36
6	45	135	3,550	1,670	813	392	1,560	178	96	74	37	33
7	42	175	2,470	1,400	732	371	1,240	172	*100	74	33	33
8	41	135	2,220	1,180	660	*674	1,120	169	108	*74	32	35
9	49	118	3,530	1,030	611	1,400	1,060	163	138	84	31	31
10	250	104	*3,540	885	567	1,620	966	154	118	94	31	31
11	136	108	2,160	772	567	1,220	854	143	108	100	31	34
12	92	104	1,780	664	2,220	1,000	750	146	146	84	30	62
13	74	102	1,360	599	3,420	858	903	140	132	74	31	62
14	67	104	1,100	710	2,700	759	759	127	125	69	32	45
15	60	149	930	1,010	1,840	682	669	125	241	64	31	44
16	56	713	*795	1,050	1,390	633	595	120	274	63	31	48
17	62	638	710	1,010	1,280	563	535	113	223	60	28	45
18	127	483	687	1,200	1,280	515	519	106	193	59	27	42
19	125	511	3,090	*1,020	1,840	475	*441	104	178	57	27	38
20	102	527	3,810	872	3,270	444	413	104	196	57	30	36
21	88	825	2,360	916	3,520	413	379	102	172	62	36	34
22	77	4,350	1,650	*2,790	2,560	385	354	98	154	56	31	33
23	69	4,410	1,240	2,450	1,700	360	326	90	140	52	*28	33
24	67	*2,140	1,010	1,730	1,290	340	304	90	132	50	31	31
25	62	1,410	844	1,350	1,060	318	290	96	125	49	32	31
26	59	1,110	754	1,230	898	304	277	163	120	46	40	30
27	56	934	656	2,540	768	642	271	127	120	45	36	29
28	55	790	578	3,080	664	633	253	102	108	44	34	31
29	56	728	539	2,610	-------	523	244	94	100	42	36	31
30	69	682	487	2,110	-------	463	232	94	98	40	69	30
31	63	-------	448	1,820	-------	424	-------	125	-------	40	75	-------
Total	2,541	21,765	48,773	43,914	41,718	18,921	19,093	4,276	4,174	2,035	1,093	1,130
Mean	82.0	726	1,573	1,417	1,490	610	636	138	139	65.6	35.3	37.7
Cfsm	0.713	6.31	13.7	12.3	13.0	5.30	5.53	1.20	1.21	0.570	0.307	0.328
In.	0.82	7.04	15.77	14.20	13.49	6.12	6.17	1.38	1.35	0.66	0.35	0.37
Ac-ft	5,040	43,170	96,740	87,100	82,750	37,530	37,870	8,480	8,280	4,040	2,170	2,240

Calendar year 1953: Max 7,240 Min 23 Mean 637 Cfsm 5.54 In. 75.17 Ac-ft 461,100
Water year 1953-54: Max 4,410 Min 27 Mean 574 Cfsm 4.99 In. 67.72 Ac-ft 415,400

Peak discharge (base, 3,500 cfs).--Nov. 23 (1 a. m.) 6,360 cfs (13.26 ft); Dec. 6 (7:30 a. m.) 4,230 cfs (10.68 ft); Dec. 9 (8 p. m.) 4,980 cfs (11.73 ft); Dec. 19 (10 p. m.) 5,360 cfs (12.18 ft); Jan. 22 (3:30 p. m.) 3,820 cfs (10.03 ft); Jan. 27 (9 to 10 p. m.) 4,330 cfs (10.83 ft); Feb. 13 (4 p. m.) 4,050 cfs (10.41 ft); Feb. 21 (11 a. m. to 12 m.) 3,870 cfs (10.12 ft).
* Discharge measurement made on this day.

Luckiamute River near Suver, Oreg.

Location.—Lat 44°47'00", long 123°14'00", in SW¼SW¼ sec. 18, T. 9 S., R. 4 W., on right bank 10 ft upstream from highway bridge at Helmick State Park, 3 miles northwest of Suver, and 4½ miles downstream from Little Luckiamute River.

Drainage area.—240 sq mi.

Records available.—August 1905 to October 1911, July 1940 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 171.92 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Aug. 18, 1905, to Oct. 31, 1911, staff gage at same site at different datum. Aug. 20 to Oct. 15, 1940, staff gage at present site and datum.

Average discharge.—20 years (1905-11, 1940-54), 953 cfs (689,900 acre-ft per year).

Extremes.—Maximum discharge during year, 9,460 cfs Dec. 20 (gage height, 27.85 ft); minimum, 42 cfs Aug. 19.

1905-11, 1940-54: Maximum discharge, 23,800 cfs Feb. 18, 1949 (gage height, 33.10 ft), from rating curve extended above 14,000 cfs by logarithmic plotting; minimum, 13 cfs Oct. 17, 18, 1952.

Maximum stage known, 33.5 ft, probably Dec. 29, 1937, from information by local residents (discharge, 25,000 cfs, from rating curve extended above 14,000 cfs by logarithmic plotting).

Remarks.—Records excellent. A few small diversions above station for irrigation; no diversion around station. Some diurnal fluctuation during periods of low flow caused by millpond above station.

Revisions (water years).—WSP 1044: Drainage area. WSP 1094: 1945-46. WSP 1248: 1905-11.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 20						Dec. 21 to Sept. 30					
2.6	72	6.0	432	24.0	4,520	2.1	42	6.0	392	25.0	5,190
3.0	97	11.0	1,180	26.0	6,030	3.0	100	10.0	964	27.0	7,630
4.0	185	19.0	2,860	28.0	9,810	4.0	180	20.0	3,250		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	203	109	1,280	980	3,500	1,260	724	426	253	170	61	107
2	269	102	1,300	1,000	2,920	1,120	699	410	228	163	59	79
3	205	*99	1,400	1,540	2,470	1,010	1,230	410	201	154	59	66
4	128	97	2,190	2,800	2,130	920	1,730	398	195	147	59	62
5	102	96	3,040	4,760	1,860	851	2,330	373	204	142	60	59
6	88	114	4,560	4,510	1,660	793	3,350	356	192	135	60	59
7	82	316	5,850	3,410	1,510	745	2,810	339	*187	134	59	56
8	76	261	4,580	2,880	1,380	1,200	2,250	320	197	*136	56	58
9	76	211	4,380	2,280	1,260	*2,490	2,150	310	254	135	57	59
10	265	183	7,060	1,900	1,170	3,500	2,020	300	246	154	53	53
11	365	177	5,830	1,600	1,100	3,050	1,720	289	215	179	51	53
12	210	185	4,180	1,390	3,040	2,270	1,480	283	234	167	50	67
13	157	178	3,200	1,220	6,600	1,810	1,650	274	266	142	49	112
14	132	174	2,380	1,220	7,170	1,560	1,530	262	230	130	52	95
15	118	200	1,900	1,790	4,990	1,400	1,310	252	294	120	52	78
16	108	692	1,590	2,020	3,620	1,290	1,150	243	510	113	54	81
17	105	1,360	*1,370	2,000	2,810	1,150	1,030	234	433	110	52	89
18	169	992	1,430	2,540	2,800	1,040	925	217	361	105	47	82
19	282	859	2,390	*2,390	3,160	957	840	207	312	101	44	76
20	224	1,040	8,120	1,820	5,230	886	*778	201	337	99	46	70
21	192	994	6,760	1,670	7,080	830	722	199	328	100	49	66
22	162	2,940	4,670	3,560	6,400	773	675	196	290	100	54	64
23	144	7,370	3,300	6,240	4,530	730	631	188	262	91	*51	64
24	130	6,490	2,340	4,820	3,230	694	597	180	245	84	48	63
25	122	4,130	1,840	3,470	2,400	660	561	180	228	80	53	59
26	115	2,710	1,570	2,940	1,950	622	537	239	215	78	62	58
27	110	2,000	1,410	3,450	1,650	827	520	285	210	73	70	53
28	103	1,640	1,220	6,430	1,430	1,230	493	219	200	71	62	53
29	99	1,450	1,130	*5,790	-------	975	459	196	186	71	59	52
30	103	1,310	989	5,110	-------	845	444	189	173	67	65	52
31	114	-------	906	4,160	-------	769	-------	197	-------	65	144	-------
Total	4,758	38,479	94,165	91,690	89,050	38,257	37,345	8,372	7,686	3,616	1,797	2,045
Mean	153	1,283	3,038	2,958	3,180	1,234	1,245	270	256	117	58.0	68.2
Cfsm	0.638	5.35	12.7	12.3	13.2	5.14	5.19	1.12	1.07	0.488	0.242	0.284
In.	0.74	5.96	14.59	14.21	13.80	5.93	5.79	1.30	1.19	0.56	0.28	0.32
Ac-ft	9,440	76,320	186,800	181,900	176,600	75,880	74,070	16,610	15,240	7,170	3,560	4,060

Calendar year 1953: Max 13,800 Min 36 Mean 1,237 Cfsm 5.15 In. 69.97 Ac-ft 895,500
Water year 1953-54: Max 8,120 Min 44 Mean 1,143 Cfsm 4.76 In. 64.67 Ac-ft 827,600

Peak discharge (base, 6,600 cfs).--Nov. 23 (5:30 p. m.) 9,420 cfs (27.83 ft); Dec. 10 (2:30 p. m.) 8,240 cfs (27.29 ft); Dec. 20 (1 p. m.) 9,460 cfs (27.85 ft); Jan. 23 (9 a. m.) 6,780 cfs (26.53 ft); Jan. 28 (1:30 p. m.) 7,280 cfs (26.82 ft); Feb. 14 (3 a. m.) 8,050 cfs (27.20 ft); Feb. 21 (10 to 11 p. m.) 7,570 cfs (26.97 ft).

* Discharge measurement made on this day.

Willamette River at Salem, Oreg.

Location.—Lat 44°56'40", long 123°02'30", in SW¼ sec. 22, T. 7 S., R. 3 W., on right bank 300 ft upstream from Center Street Bridge at Salem and at mile 85.1.

Drainage area.—7,280 sq mi, approximately.

Records available.—October 1909 to December 1916, October 1927 to September 1954. Gage-height records collected at about same site since 1892 are contained in reports of U.S. Weather Bureau.

Gage.—Water-stage recorder. Datum of gage is 114.14 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Oct. 1, 1909, to Dec. 31, 1916, staff gage at site half a mile upstream at about present datum. Oct. 1, 1927, to Nov. 26, 1934, staff gage at Center Street Bridge at present datum.

Average discharge.—34 years, 23,160 cfs (16,770,000 acre-ft per year).

Extremes.—Maximum discharge during year, 153,000 cfs Jan. 30 (gage height, 19.20 ft); minimum, 5,900 cfs Aug. 6 (gage height, -3.12 ft).

1909-16, 1927-54: Maximum discharge, 315,000 cfs Nov. 25, 1909 (gage height, 30.5 ft); minimum, 2,470 cfs Aug. 27, 1940 (gage height, -4.45 ft).

Maximum discharge known, 500,000 cfs Dec. 4, 1861 (gage height, about 39 ft), from rating curve extended above 250,000 cfs in 1916. Flood of Feb. 5, 1890, reached a stage of 37.1 ft. Flood of Jan. 8, 1923, was measured at 344,000 cfs, at or very close to peak (gage height, 30.35 ft).

Remarks.—Records excellent. Many small diversions for irrigation above station; part of flow of Salem Canal, which diverts water from North Santiam River, returns to Willamette River below station, through Mill Creek at Salem. Flow regulated at times by Lookout Point, Cottage Grove, Fern Ridge, Dorena, and Detroit Reservoirs (see p. 116, 121, 141, 124, 150). Records of chemical analyses and water temperature for the water year 1954 are given in WSP 1353.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 10				Dec. 11 to Sept. 30			
-2.9	6,450	8.0	56,500	-3.1	5,950	12.0	85,000
-2.0	9,000	12.0	85,000	0.0	15,500	19.1	152,000
1.0	20,500	19.0	151,000	6.0	42,000		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,900	6,880	*51,600	30,800	g111,000	26,800	g18,700	13,300	g13,400	11,600	6,450	7,120
2	9,420	6,900	49,300	30,000	g93,000	26,600	g18,300	12,700	g16,700	11,900	6,250	7,230
3	9,900	6,880	53,600	31,400	g80,200	24,600	g18,300	12,300	14,300	12,000	6,150	7,410
4	8,640	6,580	71,600	39,000	g71,000	22,300	g27,100	12,700	13,000	11,500	6,180	7,260
5	7,800	6,620	85,400	61,400	g63,500	g20,700	g34,500	12,900	13,000	11,100	6,320	7,470
6	7,920	7,500	101,000	60,500	g57,800	g19,100	g50,800	13,100	13,600	10,900	6,100	7,290
7	8,040	9,000	117,000	50,800	g52,900	g17,900	g57,100	12,800	13,600	10,500	6,150	7,230
8	7,050	11,900	114,000	45,200	g48,000	g17,500	*50,100	13,100	13,400	9,840	6,120	7,560
9	6,820	9,780	115,000	40,200	g44,400	g26,700	46,700	13,700	14,200	9,450	*6,080	7,530
10	7,260	9,000	127,000	35,200	g40,500	g43,200	43,200	13,900	16,300	9,300	6,200	7,530
11	8,850	9,150	129,000	32,600	37,200	g57,100	38,000	13,900	16,200	9,750	6,550	7,470
12	9,870	8,280	116,000	*30,100	43,400	g54,300	32,200	14,000	15,500	9,570	6,500	7,470
13	9,180	8,160	105,000	26,700	68,400	g44,400	36,100	*13,900	15,000	9,060	6,480	8,220
14	7,920	8,880	89,100	25,300	80,400	g33,500	44,400	13,100	15,100	8,880	6,500	9,030
15	7,230	7,980	74,800	28,600	69,000	g28,400	40,600	12,200	15,900	8,520	6,620	8,850
16	7,620	10,600	61,500	41,600	55,700	g26,300	38,400	12,100	21,500	8,370	6,750	11,000
17	7,950	22,800	52,300	64,000	47,000	g25,500	33,000	12,700	25,300	8,160	6,850	11,600
18	8,190	24,600	46,100	g78,600	48,400	g23,500	27,700	13,400	24,500	7,800	6,800	11,400
19	11,100	22,600	49,000	g75,500	49,800	g22,700	25,000	g13,400	22,000	7,500	6,580	10,300
20	14,100	23,700	99,200	g63,500	57,500	g21,500	23,300	g13,400	19,000	7,320	6,700	9,810
21	12,900	24,700	130,000	g49,400	74,400	g19,500	22,300	g13,000	17,700	7,180	7,000	9,600
22	*12,000	43,900	126,000	g54,300	85,000	g18,300	20,700	g12,000	*15,900	7,290	7,230	9,030
23	10,600	103,000	102,000	g82,600	*76,200	g17,500	19,700	g11,100	14,800	7,290	7,150	*8,760
24	9,930	142,000	84,400	g79,400	61,800	g17,100	18,500	g10,800	14,000	7,180	6,950	g9,000
25	10,600	*144,000	75,200	g80,200	48,900	g17,100	16,700	g11,400	13,400	7,000	6,980	g8,700
26	10,200	132,000	60,000	g66,500	41,000	g16,300	15,500	g11,100	12,600	6,900	6,950	g8,700
27	9,300	99,200	49,000	g81,000	36,000	g14,800	14,900	g11,700	12,600	6,900	7,120	g8,700
28	8,250	79,200	41,600	g106,000	29,800	g17,500	14,900	g13,800	12,900	6,620	7,150	g8,700
29	7,740	70,100	39,200	g144,000	--------	g22,700	14,800	g12,400	12,700	6,550	7,050	g8,400
30	7,290	58,000	37,000	g152,000	--------	g20,700	14,100	g12,000	12,000	6,600	7,080	g8,100
31	7,020	--------	33,800	g137,000	--------	g19,100	--------	g12,400	--------	6,580	7,020	--------
Total	277,590	‡1,123.89	‡2,485.7	‡1,923.4	‡1,672.2	783,200	875,600	394,300	470,100	269,110	206,010	256,470
Mean	8,955	37,460	80,180	62,050	59,720	25,260	29,190	12,720	15,670	8,681	6,645	8,549
Ac-ft	550,600	‡2,229	‡4,930	‡3,815	‡3,317	‡1,553	‡1,737	782,100	932,400	533,800	408,600	508,700

Calendar year 1953: Max 233,000 Min 5,280 Mean 35,290 Cfsm 4.85 In. 65.80 Ac-ft 25,550,000
Water year 1953-54: Max 152,000 Min 6,080 Mean 29,420 Cfsm 4.04 In. 54.86 Ac-ft 21,300,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
g Computed on basis of one or more daily staff-gage or Telemark gage readings.

Mill Creek at penitentiary annex, near Salem, Oreg.

Location.—Lat 44°52'55", long 122°58'35", in NE¼ sec. 18, T. 8 S., R. 2 W., on left bank at State penitentiary annex, 2¾ miles downstream from Battle Creek, 5 miles southeast of Salem, and 7 miles upstream from mouth.

Drainage area.—104 sq mi.

Records available.—October 1940 to September 1954 in reports of Geological Survey. November 1938 to September 1941 in reports of Oregon State engineer.

Gage.—Water-stage recorder. Datum of gage is 231.96 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.—15 years (1939-54), 370 cfs (267,900 acre-ft per year).

Extremes.—Maximum discharge during year, 3,840 cfs Jan. 27 (gage height, 7.34 ft); minimum daily, 50 cfs July 7.

1938-54: Maximum discharge, 5,140 cfs Feb. 18, 1949 (gage height, 7.67 ft); minimum, 44 cfs July 4, 1939, July 6, 1949.

Maximum discharge known, 8,320 cfs Dec. 29, 1937, computed by velocity-area method on basis of discharge measurement of 7,300 cfs made that day.

Remarks.—Records good. Salem power canal diverts water to Mill Creek from North Santiam River at Stayton; some diversions for irrigation from canal and creek above station. Flow diverted for irrigation on left bank between gage and control is not included in record. Diurnal fluctuations caused by changes at headgates and small powerplants above station.

Revisions.—WSP 1218: Drainage area.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	204	153	615	438	780	334	269	149	228	165	181	*192
2	198	*160	626	412	646	306	276	149	208	161	172	187
3	174	156	801	556	545	278	438	144	200	154	185	176
4	161	153	1,050	1,120	471	257	480	154	200	149	189	170
5	158	165	1,280	1,270	412	239	604	153	208	146	187	172
6	170	230	2,050	788	362	228	788	168	200	65	176	161
7	176	235	*1,710	696	321	216	604	163	198	50	177	154
8	168	204	1,440	650	288	483	570	161	216	65	176	160
9	165	183	1,510	587	216	732	520	160	276	153	172	156
10	198	187	1,730	531	252	840	432	158	239	158	170	156
11	200	196	1,080	468	370	710	384	161	*210	154	172	158
12	181	192	836	417	956	559	349	163	214	149	177	161
13	174	185	702	381	1,400	480	477	160	200	146	181	163
14	168	181	604	398	1,020	435	395	226	187	146	185	177
15	158	181	531	474	710	400	342	266	257	138	183	176
16	156	750	477	914	612	*378	310	262	266	141	185	176
17	163	724	450	948	720	342	283	239	235	140	181	158
18	196	548	492	1,220	772	316	264	269	208	136	181	153
19	212	601	1,560	828	755	298	248	255	196	*141	185	151
20	189	622	2,110	608	1,190	271	237	252	190	149	196	148
21	179	580	1,380	618	1,230	246	224	214	176	161	196	146
22	174	1,680	916	947	868	239	212	206	163	154	185	146
23	170	2,350	732	1,080	682	283	202	196	158	160	179	143
24	161	1,340	646	916	584	271	192	200	156	156	181	138
25	158	900	566	*764	510	262	177	222	154	149	181	138
26	156	748	556	1,000	471	246	172	246	153	149	181	135
27	151	792	566	2,360	414	390	183	226	154	146	181	135
28	151	674	514	3,140	370	423	*163	210	153	149	170	138
29	148	615	517	2,140	-------	331	149	218	146	154	172	136
30	148	626	450	1,410	-------	293	154	228	151	181	181	136
31	148	-------	414	990	-------	274	-------	237	-------	192	194	-------
Total	5,313	16,311	28,911	29,069	17,973	11,360	10,098	6,215	5,900	4,457	5,610	4,698
Mean	171	544	933	938	642	366	337	200	197	144	181	157
Ac-ft	10,540	32,350	57,340	57,660	35,650	22,530	20,030	12,330	11,700	8,840	11,130	9,310

Calendar year 1953: Max 3,470 Min 98 Mean 429 Ac-ft 310,800
Water year 1953-54: Max 3,140 Min 50 Mean 400 Ac-ft 289,400

* Discharge measurement made on this day.

400 × 365 × .0372 / 104

Mill Creek at Salem, Oreg.

Location.—Lat 44°56'05", long 123°01'00", in NE¼ sec. 26, T. 7 S., R. 3 W., on left bank at State Street Bridge in Salem, 220 ft downstream from 19th Street diversion.

Drainage area.—110 sq mi.

Records available.—October 1940 to September 1954 in reports of Geological Survey. November, December 1934, and July 1938 to September 1941 in reports of Oregon State engineer.

Gage.—Water-stage recorder. Datum of gage is 166.12 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Nov. 2 to Dec. 31, 1934, staff gage three-quarters of a mile downstream at different datum. July 21, 1938, to Oct. 9, 1940, water-stage recorder at site 200 ft upstream at different datum.

Average discharge.—15 years (1939-54), 144 cfs (104,300 acre-ft per year).

Extremes.—Maximum discharge during year, 1,350 cfs Jan. 28 (gage height, 7.07 ft); minimum, 15 cfs Sept. 27.

1938-54: Maximum discharge recorded, that of Jan. 28, 1954; no flow Oct. 2, 1938.

Remarks.—Records good. Salem power canal diverts water into Mill Creek near Stayton; several diversions from Mill Creek, including Shelton flood bypass 1¼ miles upstream and 19th Street power diversion 220 ft upstream. Diurnal fluctuation caused by powerplants above station.

Revisions.—WSP 1218: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 23				Nov. 24 to Sept. 30			
0.7	24	2.0	236	0.7	18	2.0	217
1.0	55	3.0	486	.9	34	4.0	724
1.5	133	5.0	970	1.2	70	6.0	1,160
				1.5	117		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	81	36	190	146	307	190	146	45	70	64	60	*49
2	93	*40	240	138	247	175	149	46	60	61	50	45
3	81	34	285	213	213	151	222	43	57	127	56	41
4	75	30	404	357	200	132	242	45	58	155	62	38
5	72	35	446	448	202	125	319	50	69	151	66	40
6	65	69	654	312	200	114	407	60	65	64	55	36
7	81	92	*584	274	181	107	326	56	62	47	52	31
8	80	66	472	257	163	270	307	55	74	51	55	36
9	78	50	503	228	144	381	288	55	134	155	52	36
10	98	51	573	206	126	417	245	55	117	120	51	36
11	92	59	394	171	161	363	211	55	*98	51	51	34
12	68	59	307	159	474	295	146	58	100	52	49	35
13	48	54	264	155	659	252	235	55	92	46	43	37
14	43	53	222	157	524	228	183	49	84	46	47	43
15	34	51	192	196	383	213	192	46	123	43	45	40
16	31	266	186	351	338	*204	188	44	136	45	42	42
17	38	296	167	425	373	186	171	34	115	43	37	37
18	68	234	183	542	399	159	155	55	97	40	37	32
19	75	241	415	407	391	149	132	65	87	*42	41	31
20	59	265	717	295	547	140	119	66	86	45	49	31
21	51	248	461	295	576	126	110	53	74	52	49	31
22	49	508	348	404	451	117	100	45	69	50	44	31
23	47	790	281	469	363	134	94	92	62	57	42	30
24	41	443	240	409	322	130	84	38	61	56	44	28
25	39	274	200	*353	276	128	74	49	58	53	43	27
26	35	217	194	451	252	128	66	67	56	53	45	25
27	31	222	202	772	226	182	71	64	57	49	43	30
28	31	196	177	1,140	204	213	*62	53	55	52	37	30
29	31	177	181	735	-------	167	51	57	52	56	36	30
30	31	175	151	503	-------	153	51	100	57	60	40	29
31	31	-------	138	378	-------	146	-------	73	-------	62	47	-------
Total	1,777	5,331	9,971	11,346	8,902	5,875	5,146	1,728	2,385	2,048	1,470	1,041
Mean	57.3	178	322	366	318	190	172	55.7	79.5	66.1	47.4	34.7
Ac-ft	3,520	10,570	19,780	22,500	17,660	11,650	10,210	3,430	4,730	4,060	2,920	2,060

Calendar year 1953: Max 939 Min 9.5 Mean 158 Ac-ft 114,600
Water year 1953-54: Max 1,140 Min 25 Mean 156 Ac-ft 113,100

* Discharge measurement made on this day.

South Yamhill River near Willamina, Oreg.

Location.—Lat 45°02'50", long 123°30'10", in sec. 14, T. 6 S., R. 7 W., on left bank 2¼ miles southwest of Willamina and 3 miles upstream from Willamina Creek.

Drainage area.—133 sq mi.

Records available.—May 1934 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 235.55 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.—20 years, 609 cfs (440,900 acre-ft per year).

Extremes.—Maximum discharge during year, 9,860 cfs Jan. 22 (gage height, 11.14 ft); minimum, 26 cfs Aug. 18 (gage height, 0.69 ft); minimum daily, 28 cfs Aug. 24.
1934-54: Maximum discharge, 15,200 cfs Feb. 10, 1949 (gage height, 14.80 ft); minimum, 2.6 cfs Oct. 11, 1952; minimum daily, 5.6 cfs Sept. 18, 1951, Oct. 11, 1952.

Remarks.—Records good except those for periods of backwater from beaver dam or debris, which are fair. Slight regulation occasionally during summer by millpond upstream; no diversion above station.

Revisions.—WSP 814: Drainage area.

Rating table, water year 1953-54, except periods of backwater from beaver dam or debris
(gage height, in feet, and discharge, in cubic feet per second)

0.6	20	1.5	210	4.0	1,470
.8	42	2.0	377	6.0	3,200
1.0	77	3.0	845	10.0	8,200

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	272	75	1,210	680	1,720	640	322	207	177	124	41	84
2	186	77	1,270	840	1,550	555	358	201	154	116	38	64
3	124	69	1,780	1,380	1,390	495	1,190	204	140	104	38	55
4	92	66	2,370	5,100	1,240	455	1,590	189	160	99	40	55
5	75	*68	3,540	5,170	1,100	415	2,280	177	171	92	41	52
6	60	208	5,260	3,420	1,000	385	2,110	171	138	92	41	47
7	55	228	3,370	2,750	900	362	1,530	160	143	95	37	41
8	50	166	2,980	2,010	823	933	1,610	157	*143	95	35	50
9	71	140	5,340	1,560	765	*2,830	1,460	148	174	* 97	34	47
10	373	132	5,420	1,220	715	2,240	1,210	146	148	129	31	41
11	210	219	3,040	1,000	772	1,600	1,010	143	138	140	29	44
12	148	210	2,400	845	5,470	1,250	894	140	157	112	29	79
13	114	195	1,680	730	4,730	1,040	1,080	135	143	97	30	84
14	97	204	1,270	1,060	3,340	894	840	129	138	90	30	68
15	86	330	*1,020	1,710	2,560	812	735	124	292	84	31	66
16	77	1,060	840	1,480	2,230	770	660	119	355	79	31	73
17	125	954	725	1,250	2,250	675	585	114	298	75	29	64
18	423	710	745	*1,320	2,020	610	513	106	256	71	29	56
19	319	874	3,630	1,110	3,510	545	467	106	237	69	29	55
20	250	1,030	4,730	912	4,730	491	*427	102	259	68	29	52
21	210	1,510	2,990	2,990	5,220	455	388	104	225	88	35	47
22	168	5,750	2,000	7,610	3,320	419	355	99	201	71	31	47
23	148	*6,150	1,480	3,880	2,170	388	326	97	180	62	29	48
24	129	2,960	1,150	2,430	1,600	366	305	95	166	58	*28	44
25	116	1,930	942	1,850	1,240	344	298	104	151	55	31	41
26	102	1,560	840	1,540	1,040	322	275	216	146	53	56	40
27	95	1,320	735	2,090	845	500	266	189	146	52	48	38
28	84	1,120	650	2,060	740	455	240	143	146	48	38	37
29	81	996	590	2,020	-------	388	231	135	132	45	37	37
30	84	1,040	522	1,980	-------	351	219	129	122	42	148	35
31	79	-------	487	1,890	-------	333	-------	158	-------	41	143	-------
Total	4,503	31,351	65,006	65,887	58,990	22,318	23,774	4,447	5,436	2,543	1,296	1,591
Mean	145	1,045	2,097	2,125	2,107	720	792	143	181	82.0	41.8	53.0
Cfsm	1.09	7.86	15.8	16.0	15.8	5.41	5.95	1.08	1.36	0.617	0.314	0.398
In.	1.26	8.77	18.18	18.42	16.50	6.24	6.65	1.24	1.52	0.71	0.36	0.44
Ac-ft	8,930	62,180	128,900	130,700	117,000	44,270	47,160	8,820	10,780	5,040	2,570	3,160

Calendar year 1953: Max 8,420 Min 17 Mean 828 Cfsm 6.23 In. 84.57 Ac-ft 599,700
Water year 1953-54: Max 7,610 Min 28 Mean 787 Cfsm 5.92 In. 80.29 Ac-ft 569,500

Peak discharge (base, 5,700 cfs).--Nov. 22 (8:30 p. m.) 8,390 cfs (10.13 ft); Dec. 9 (8 p. m.) 8,430 cfs (10.16 ft); Dec. 19 (10 p. m.) 6,480 cfs (8.77 ft); Jan. 4 (10 a. m.) 6,120 cfs (8.50 ft); Jan. 22 (11 a. m.) 9,860 cfs (11.14 ft); Feb. 12 (11:30 a. m.) 6,980 cfs (9.13 ft); Feb. 21 (7:30 a. m.) 6,490 cfs (8.78 ft).

* Discharge measurement made on this day.

Note.--Backwater from debris or beaver dam Oct. 1 to Nov. 21, May 31 to June 5.

Willamina Creek near Willamina, Oreg.

Location.—Lat 45°08'30", long 123°29'35", in W½NE¼ sec. 13, T. 5 S., R. 7 W., on left bank 4½ miles north of Willamina and 7 miles upstream from mouth.
Drainage area.—65 sq mi, approximately.
Records available.—June 1934 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 315.1 ft above mean sea level (river-profile survey). Prior to Oct. 1, 1939, at datum 1.00 ft higher.
Average discharge.—20 years, 250 cfs (181,000 acre-ft per year).
Extremes.—Maximum discharge during year, about 4,500 cfs Jan. 22; minimum, 20 cfs Sept. 30.
1934-54: Maximum discharge, 6,380 cfs Feb. 17, 1949 (gage height, 10.25 ft), from rating curve extended above 3,400 cfs by logarithmic plotting; minimum, 9 cfs Sept. 3, 4, 1934, Sept. 9, 1935, Aug. 8-10, 19, Sept. 22-27, 1939, Aug. 17, 18, 1940.
Flood of Mar. 31, 1931, reached a stage of about 12 ft, from information by local resident (discharge, 9,500 cfs).
Remarks.—Records good except those for periods of no gage-height record, which are fair. No regulation or diversion above station.
Revisions.—WSP 964: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 19						Dec. 20 to Sept. 30					
1.6	21	2.5	134	5.0	1,000	1.5	18	2.5	140	5.0	1,010
1.8	37	3.0	241	6.0	1,620	1.8	41	3.0	255	6.0	1,620
2.2	86	4.0	555	7.0	2,410	2.1	75	4.0	580	8.0	3,430

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	35	380	320	650	320	160	123	78	65	29	38
2	46	36	431	440	600	270	178	119	71	61	28	30
3	33	33	551	600	550	250	322	121	66	59	29	30
4	27	32	800	1,800	500	230	451	114	74	55	30	30
5	24	*33	1,200	1,900	440	210	644	109	74	54	31	28
6	22	72	1,900	1,400	400	200	660	106	68	51	30	27
7	21	69	1,400	1,100	380	190	532	101	67	52	28	26
8	21	58	1,200	900	360	250	556	98	*83	52	27	29
9	48	52	1,900	750	340	*1,200	552	95	92	*54	27	26
10	117	50	2,000	600	320	870	496	94	79	58	26	25
11	59	57	1,300	500	380	668	434	92	76	53	25	32
12	44	55	1,030	424	1,900	548	406	90	85	47	25	48
13	37	55	752	379	1,700	468	440	88	78	44	26	37
14	33	59	550	508	1,300	415	373	83	79	43	28	32
15	31	69	*473	680	1,000	379	337	81	136	43	27	36
16	29	280	395	604	950	355	304	78	134	43	26	43
17	63	236	341	516	950	322	278	75	114	42	25	36
18	145	193	312	*479	900	292	255	72	98	41	24	33
19	94	282	1,100	415	1,300	275	238	71	100	41	25	30
20	79	298	1,520	380	1,600	255	*220	71	100	43	27	29
21	66	460	1,060	1,200	1,800	238	206	68	88	47	28	28
22	56	1,750	792	2,800	1,100	225	194	67	81	41	24	28
23	50	2,130	640	1,500	850	213	180	65	78	38	23	27
24	46	1,000	516	900	650	201	169	65	74	37	*28	25
25	42	655	434	750	550	189	160	71	71	36	28	24
26	40	539	394	650	480	187	154	101	68	35	39	23
27	38	452	349	800	420	232	148	82	71	34	30	23
28	36	386	322	800	360	201	140	71	71	34	27	22
29	37	350	289	750	-------	184	132	67	65	32	26	22
30	38	350	260	750	-------	173	129	65	65	31	79	21
31	34	-------	250	700	-------	167	-------	83	-------	30	60	-------
Total	1,516	10,126	24,841	26,295	22,730	10,177	9,448	2,686	2,485	1,396	935	888
Mean	48.9	338	801	848	812	328	315	86.6	82.8	45.0	30.2	29.6
Cfsm	0.752	5.20	12.3	13.0	12.5	5.05	4.85	1.33	1.27	0.692	0.465	0.455
In.	0.87	5.79	14.21	15.04	13.01	5.82	5.41	1.54	1.42	0.80	0.53	0.51
Ac-ft	3,010	20,080	49,270	52,160	45,080	20,190	18,740	5,330	4,930	2,770	1,850	1,760

Calendar year 1953: Max 3,300 Min 16 Mean 332 Cfsm 5.11 In. 69.39 Ac-ft 240,600
Water year 1953-54: Max 2,800 Min 21 Mean 311 Cfsm 4.78 In. 64.95 Ac-ft 225,200

Peak discharge (base, 2,300 cfs).--Nov. 23 (4 a. m.) 3,140 cfs (7.74 ft); Dec. 6 (about 4 a. m.) about 3,000 cfs; Dec. 9 (about 6 p. m.) about 3,800 cfs; Jan. 4 (about 8 a. m.) about 2,800 cfs; Jan. 22 (about 9 a. m.) about 4,500 cfs; Feb. 12 (about 10 a. m.) about 3,200 cfs; Feb. 21 (about 6 a. m.) about 3,000 cfs.

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 23 to Nov. 3, Dec. 4-11, 14, Dec. 30 to Jan. 11, Jan. 20 to Mar. 9; discharge estimated on basis of recorded range in stage when available and records for South Yamhill River near Willamina.

South Yamhill River near Whiteson, Oreg.

Location.—Lat 45°10'10", long 123°12'25", in NW¼ sec. 5, T. 5 S., R. 4 W., near left bank on downstream side of Whiteson Bridge on Pacific Highway West, 1 mile downstream from Salt Creek and 1½ miles northwest of Whiteson.

Drainage area.—502 sq mi.

Records available.—July 1940 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 82.30 ft above mean sea level, datum of 1929. Prior to Sept. 20, 1940, wire-weight gage at same site and datum.

Average discharge.—14 years, 1,702 cfs (1,232,000 acre-ft per year).

Extremes.—Maximum discharge during year, 20,200 cfs Jan. 23 (gage height, 40.90 ft); minimum, 45 cfs Aug. 13, 14.

1940-54: Maximum discharge, 28,900 cfs Feb. 11, 1949 (gage height, 43.39 ft); minimum, 8.5 cfs Sept. 25, 26, 1952 (gage height, 0.80 ft).

Remarks.—Records fair. Slight regulation during low-water periods from log pond upstream. Small diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	528	180	2,650	1,930	k6,840	2,370	1,080	864	403	260	69	284
2	490	g169	2,830	2,280	k5,960	2,110	1,050	832	377	254	66	200
3	344	*g158	3,030	k4,000	k5,090	1,910	1,950	800	331	232	58	130
4	242	g145	k5,010	k6,610	k4,420	1,740	3,080	792	312	214	59	110
5	210	g150	k6,620	k11,900	k3,850	1,600	4,670	758	382	203	67	106
6	174	g208	k8,920	12,800	k3,500	1,470	6,080	710	326	193	71	105
7	153	568	10,700	k9,860	k3,260	1,390	5,310	673	296	183	72	93
8	142	495	k9,840	k8,240	k2,970	k1,800	4,270	642	322	191	67	85
9	137	395	*9,440	k6,020	2,780	k4,640	4,410	619	424	192	61	100
10	463	*331	k12,600	k4,550	2,580	*1,450	4,150	592	*424	212	57	91
11	671	372	k13,000	k3,590	2,390	k6,170	3,540	536	358	274	54	91
12	396	440	k9,900	k3,000	k5,950	k4,540	3,010	536	364	257	50	101
13	300	439	k7,190	2,560	15,700	k3,530	3,060	527	396	209	47	187
14	247	458	k4,750	2,490	k15,500	k3,020	2,860	500	350	182	49	174
15	226	511	k3,510	k4,340	k11,200	2,700	2,500	459	398	*162	58	140
16	218	1,190	2,840	5,210	k8,800	2,530	2,250	437	836	154	69	144
17	210	*2,650	*2,440	k4,570	k6,950	2,280	2,050	415	758	147	63	173
18	623	1,930	2,360	*k5,170	k6,500	2,070	1,870	384	649	138	59	143
19	904	1,620	3,440	k4,930	k6,580	1,900	1,720	347	558	132	57	128
20	622	2,260	10,200	k3,940	k9,650	1,770	1,610	334	579	124	53	114
21	543	2,150	12,100	3,380	k12,600	1,630	*1,490	326	541	133	56	102
22	454	k5,080	9,420	8,910	k12,400	1,510	1,400	319	469	157	63	97
23	374	k9,350	6,560	*17,800	k9,790	1,420	1,310	294	418	127	*60	95
24	326	*11,600	4,280	k11,500	k6,820	1,360	1,240	273	387	106	50	97
25	289	k8,500	3,270	k8,570	k4,540	1,290	1,150	267	344	101	50	93
26	256	k5,370	2,780	k6,210	k3,550	1,200	1,090	350	331	98	61	87
27	g222	k3,810	2,650	k5,950	k3,100	1,280	1,060	554	339	98	116	79
28	g203	k3,080	2,300	k9,320	2,700	1,550	1,010	387	324	90	104	74
29	g175	k2,650	2,120	k9,020	-------	1,340	934	326	296	84	85	69
30	g175	2,410	1,880	k8,380	-------	1,210	904	308	264	80	89	70
31	g180	-------	1,720	k7,670	-------	1,130	-------	308	-------	73	408	-------
Total	10,497	68,669	180,350	204,700	185,970	71,910	72,108	15,469	12,556	5,060	2,348	3,562
Mean	339	2,289	5,818	6,603	6,642	2,320	2,404	499	419	163	75.7	119
Cfsm	0.675	4.56	11.6	13.2	13.2	4.62	4.79	0.994	0.835	0.325	0.151	0.237
In.	0.78	5.09	13.36	15.16	13.78	5.33	5.34	1.15	0.93	0.37	0.17	0.26
Ac-ft	20,820	136,200	357,700	406,000	368,900	142,600	143,000	30,680	24,900	10,040	4,660	7,070

Calendar year 1953: Max 20,700 Min 40 Mean 2,314 Cfsm 4.61 In. 62.58 Ac-ft 1,675,000
Water year 1953-54: Max 17,800 Min 47 Mean 2,283 Cfsm 4.55 In. 61.72 Ac-ft 1,653,000

Peak discharge (base, 9,300 cfs).--Nov. 24 (6 a. m.) 12,200 cfs (36.83 ft); Dec. 10 (12 p. m.) 15,300 cfs (38.98 ft); Dec. 21 (7 a. m.) 12,500 cfs (37.10 ft); Jan. 6 (6 a. m.) 13,200 cfs (37.68 ft); Jan. 23 (6 a. m.) 20,200 cfs (40.90 ft); Feb. 13 (4 to 7 p. m.) 18,700 cfs (40.39 ft); Feb. 22 (6:30 a. m.) 13,400 cfs (37.90 ft).

* Discharge measurement made on this day.
g Computed from once-daily wire-weight-gage readings.
k Computed using rate of change in stage as a factor.

Haskins Creek Reservoir near McMinnville, Oreg.

Location. —Lat 45°18'40", long 123°21'15", in NW¼ sec. 18, T. 3 S., R. 5 W., on control tower 250 ft above axis of dam and 11 miles northwest of McMinnville.
Drainage area. —7.1 sq mi, approximately.
Records available. —October 1951 to September 1954.
Gage. —Staff gage read once daily. Datum of gage is at mean sea level (surveys of city of McMinnville).
Extremes. —Maximum contents during year, 740 acre-ft May 26, June 15 (elevation, 835.3 ft); reservoir empty most of time Dec. 15 to Apr. 19.
1951-54: Maximum contents, 744 acre-ft Apr. 6-9, Dec. 10, 11, 1952 (elevation, 835.5 ft); reservoir empty most of time during winter months.
Remarks. —Dam is earth-fill construction, equipped with three siphon spillways, which act as overflow weirs until priming occurs (approximately 835.5 ft elevation). Capacity of reservoir is 733 acre-ft between elevations 761.5 ft, invert of outlet tunnel (about 5 ft in daimeter) and 835 ft, crest of siphon spillways. Rated capacity of each siphon is 350 cfs. Under normal operation, reservoir is filled in the spring (April or May), and drained when fall rains start. There is no planned storage during winter months, however, during periods of heavy runoff, inflow may be greater than capacity of outlet tunnel, and there may be some temporary storage.
Cooperation. —Elevations furnished by city of McMinnville.

Monthly elevations and contents, water year October 1953 to September 1954

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	829.4	611	-
Oct. 31	827.7	577	-34
Nov. 30	776.0	25	-552
Dec. 31	-	0	-25
Calendar year 1953	-	-	0
Jan. 31	-		0
Feb. 28	-	0	0
Mar. 31	-	0	0
Apr. 30	814.8	360	+360
May 31	835.1	735	+375
June 30	835.1	735	0
July 31	834.5	722	-13
Aug. 31	833.6	701	-21
Sept. 30	833.7	703	+2
Water year 1953-54	-	-	+92

†Elevation at 4 p. m.

Haskins Creek below reservoir, near McMinnville, Oreg.

Location.—Lat 45°18'40", long 123°20'55", in NE¼ sec. 18, T. 3 S., R. 5 W., on right bank 800 ft below dam of McMinnville water-supply reservoir and 11 miles northwest of McMinnville.
Drainage area.—7.1 sq mi, approximately.
Records available.—October 1951 to September 1954.
Gage.—Water-stage recorder and concrete control. Altitude of gage is 707 ft (revised) above mean sea level (topographic survey of 1955). Prior to Aug. 5, 1952, at site 600 ft upstream at different datum.
Extremes.—Maximum discharge during year, 352 cfs Feb. 12; minimum daily, 2.3 cfs Nov. 9. 1951-54: Maximum discharge, 558 cfs Apr. 9, 1952, when gate in outlet tunnel of reservoir failed; minimum daily, 0.3 cfs Oct. 1, 2, 1951.
Remarks.—Records good. All records presented herein include flow in pipeline which diverts 600 ft above station for McMinnville city water supply. Flow regulated by Haskins Creek Reservoir but during winter months reservoir is empty except when inflow exceeds the capacity of outlet tunnel.

Cooperation.—Gage heights for diversion furnished by city of McMinnville.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.1	4.7	52	39	69	56	23	3.2	10	7.1	4.6	3.7
2	9.1	4.7	46	44	73	49	24	3.2	8.6	6.3	4.3	3.7
3	9.6	4.7	46	52	74	47	43	3.2	7.7	6.3	4.3	3.7
4	9.0	*4.2	54	168	73	43	49	3.2	8.6	6.3	4.1	3.7
5	9.0	2.7	67	*222	71	39	73	3.2	7.7	6.3	4.5	3.6
6	9.0	2.7	85	171	71	37	76	3.3	7.7	6.2	4.9	3.6
7	9.0	2.7	138	143	69	37	63	3.3	7.7	5.9	5.1	3.2
8	9.0	2.7	195	113	66	50	68	3.3	8.6	5.6	4.9	3.2
9	9.0	2.3	190	93	66	121	57	3.3	8.8	5.9	4.3	3.2
10	9.0	3.1	*222	77	65	*90	55	3.3	*8.8	6.6	4.3	3.3
11	9.0	3.0	219	66	68	76	48	3.3	8.8	6.6	4.3	3.3
12	9.0	3.0	205	56	288	66	45	3.3	9.3	5.6	4.3	3.3
13	9.0	2.4	165	50	307	57	48	3.2	8.8	5.6	4.3	3.2
14	9.0	2.8	123	65	211	52	42	3.4	9.3	5.2	3.6	3.3
15	9.0	2.8	76	71	161	47	39	3.2	14	*4.9	3.6	3.4
16	9.0	34	60	63	143	44	35	3.2	14	4.7	3.6	3.4
17	9.0	103	50	56	145	39	33	3.2	11	4.6	3.2	3.4
18	9.0	102	*45	50	134	35	30	4.8	10	4.4	3.2	3.4
19	6.0	96	108	47	218	33	27	3.9	10	4.8	3.2	3.4
20	3.3	87	158	*42	270	31	17	3.6	11	4.4	3.2	3.4
21	2.7	80	119	69	291	30	*2.9	3.4	9.3	4.5	3.2	3.4
22	3.0	89	95	*216	198	28	3.1	3.4	8.8	4.5	3.2	3.4
23	5.1	106	74	148	138	27	3.2	5.8	8.8	4.4	3.2	3.4
24	3.9	108	62	109	111	26	3.2	7.8	7.9	5.1	*3.3	3.4
25	4.7	106	52	86	97	25	3.2	8.2	7.9	5.1	3.3	3.4
26	4.7	100	47	71	84	24	3.2	12	7.5	4.3	3.6	3.3
27	4.7	91	43	69	74	33	3.2	9.6	7.5	4.3	3.7	3.3
28	4.7	82	41	66	63	28	3.2	9.1	7.5	4.3	3.7	3.3
29	4.7	73	36	65	-------	25	3.2	8.3	7.1	4.3	3.7	3.3
30	4.7	62	35	62	-------	23	3.2	8.1	7.1	5.1	3.8	3.3
31	4.7	-------	33	63	-------	23	-------	11	-------	5.2	3.7	-------
Total	219.7	1,367.5	2,941	2,712	3,698	1,341	926.6	154.3	269.8	164.4	120.2	101.9
Mean	7.09	45.6	94.9	87.5	132	43.3	30.9	4.98	8.99	5.30	3.88	3.40
Ac-ft	436	2,710	5,830	5,380	7,330	2,660	1,840	306	535	326	238	202

Adjusted for change in contents in Haskins Creek Reservoir

Mean	6.54	36.3	94.3	87.5	132	43.3	37.0	11.1	8.99	5.09	3.53	3.43
Csm	0.921	5.11	13.3	12.3	18.6	6.10	5.21	1.56	1.27	0.717	0.497	0.483
In.	1.06	5.70	15.32	14.21	19.36	7.02	5.81	1.80	1.41	0.83	0.57	0.54
Ac-ft	402	2,160	5,800	5,380	7,330	2,660	2,200	681	535	313	217	204

Observed

Calendar year 1953: Max 359 Min. 2.3 Mean 39.5 Ac-ft 28,560
Water year 1953-54: Max 307 Min 2.3 Mean 38.4 Ac-ft 27,790

Adjusted

Calendar year 1953: Mean 39.5 Csm 5.56 In. 75.40 Ac-ft 28,560
Water year 1953-54: Mean 38.5 Csm 5.42 In. 73.63 Ac-ft 27,880

* Discharge measurement made on this day.

North Yamhill River at Pike, Oreg.

Location.—Lat 45°22'10", long 123°15'15", in NW¼ sec. 25, T. 2 S., R. 5 W., on right bank 500 ft downstream from Turner Creek, 0.5 mile southeast of Pike, and 4 miles northwest of Yamhill.

Drainage area.—66.8 sq mi.

Records available.—October 1948 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 192.66 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Aug. 21, 1950, at datum 1.02 ft higher.

Average discharge.—6 years, 267 cfs (193,300 acre-ft per year).

Extremes.—Maximum discharge during year, 4,390 cfs Feb. 12 (gage height, 8.59 ft); minimum, 11 cfs Aug. 18, 19, 23, 24, Sept. 10.

1948-54: Maximum discharge, 6,280 cfs Feb. 19, 1949 (gage height, 9.98 ft); minimum, 6.0 cfs Sept. 21, 22, 23, Oct. 7, 8, 1952.

Remarks.—Records good. Occasional diurnal fluctuations caused by small dams upstream; no seasonal regulation. Water supply for city of McMinnville is diverted from Haskins Creek above station and water supply for city of Yamhill is diverted from Turner Creek above station. Small diversions above station for irrigation.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
1.3	19	2.5	166	1.2	12	3.0	365
1.5	31	3.0	320	1.5	32	4.0	820
1.7	46	4.0	725	1.8	62	6.0	2,100
2.1	91	5.0	1,280	2.0	91	8.0	3,800
				2.5	200		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	54	25	312	284	665	372	150	98	62	45	14	19
2	40	25	306	357	655	337	167	96	57	40	14	16
3	30	24	351	530	600	306	316	96	54	38	14	15
4	27	*24	500	1,820	550	278	390	91	55	37	16	17
5	25	25	900	2,040	512	257	560	86	52	34	17	16
6	24	62	1,570	1,280	512	242	565	84	49	34	17	15
7	23	53	968	1,090	500	230	452	80	50	34	14	15
8	23	42	1,020	840	484	372	468	78	55	34	14	16
9	44	37	2,120	690	472	1,030	432	76	66	35	14	13
10	91	39	*1,620	560	448	*800	390	73	*55	39	12	12
11	45	44	1,050	472	510	590	348	72	54	38	12	16
12	37	43	850	408	3,010	480	334	70	60	33	12	26
13	32	46	670	365	2,410	412	362	68	55	30	12	19
14	30	56	525	477	1,460	368	312	65	55	28	14	18
15	28	63	416	570	1,130	337	284	61	82	*26	14	23
16	28	252	351	492	980	309	254	60	82	26	14	24
17	51	306	316	432	1,000	278	236	56	70	24	13	20
18	111	247	*302	400	968	257	218	54	63	24	12	19
19	68	299	993	351	1,710	248	203	52	69	24	12	17
20	50	285	1,270	*312	1,770	227	184	51	72	24	13	17
21	42	502	900	540	1,930	215	*155	51	61	26	14	16
22	37	1,120	680	*2,120	1,270	200	146	50	55	24	12	15
23	35	1,290	540	1,070	938	190	137	49	52	22	12	15
24	32	*635	444	780	755	182	130	52	49	20	*12	15
25	30	492	379	620	630	172	124	56	47	19	16	14
26	29	472	348	520	555	169	120	79	47	18	21	13
27	28	416	306	508	472	212	114	66	47	17	17	13
28	27	358	281	496	416	184	108	58	45	16	15	12
29	27	320	251	504	-------	169	105	55	41	16	15	12
30	27	302	227	540	-------	162	103	54	45	15	29	12
31	26	-------	215	600	-------	155	-------	68	-------	15	29	-------
Total	1,201	7,904	20,981	22,068	27,312	9,740	7,867	2,105	1,706	855	466	490
Mean	38.7	263	677	712	975	314	262	67.9	56.9	27.6	15.0	16.3
Cfsm	0.579	3.94	10.1	10.7	14.6	4.70	3.92	1.02	0.852	0.413	0.225	0.244
In.	0.67	4.40	11.68	12.29	15.21	5.42	4.38	1.17	0.95	0.48	0.26	0.27
Ac-ft	2,380	15,680	41,620	43,770	54,170	19,320	15,600	4,180	3,380	1,700	924	972

Calendar year 1953: Max 2,350 Min 8.2 Mean 297 Cfsm 4.45 In. 60.38 Ac-ft 215,100
Water year 1953-54: Max 3,010 Min 12 Mean 281 Cfsm 4.21 In. 57.18 Ac-ft 203,700

Peak discharge (base, 2,500 cfs).—Dec. 9 (3:30 p. m.) 3,750 cfs (7.94 ft); Jan. 22 (6 a. m.) 3,090 cfs (7.21 ft); Feb. 12 (11:30 a. m.) 4,390 cfs (8.59 ft); Feb. 19 (7:30 p. m.) 2,160 cfs (6.64 ft).

* Discharge measurement made on this day.

Willamette River at Wilsonville, Oreg.

Location.—Lat 45°17'35", long 122°46'15", in SE¼ sec. 23, T. 3 S., R. 1 W., in upstream side of pier of bridge at Wilsonville, 1¼ miles downstream from Corral Creek and 3 miles upstream from Molalla River. Prior to Apr. 15, 1954, at site a quarter of a mile upstream.

Drainage area.—8,400 sq mi, approximately.

Records available.— October 1948 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 50 ft above mean sea level, datum of 1929; gage readings have been reduced to elevations above mean sea level. Prior to Apr. 15, 1954, staff gage at site a quarter of a mile upstream at datum 50 ft lower. Supplementary staff gage at Butteville 4 miles upstream at datum 50 ft above mean sea level, datum of 1929. Records for the entire period of record obtained from gage at Butteville.

Average discharge.—6 years, 30,960 cfs (22,410,000 acre-ft per year).

Extremes.—Maximum discharge during year, 154,000 cfs Jan. 31 (elevation at Butteville, 79.2 ft); minimum daily, 6,200 cfs Aug. 3, 4, 6-9 (computed from records for stations at Salem and South Yamhill River near Whiteson).

1948-54: Maximum discharge, 248,000 cfs Jan. 21, 1953 (elevation at Butteville, 90.00 ft; elevation at Wilsonville, 87.8 ft); minimum daily, 3,600 cfs Nov. 29, 30, 1952.

Maximum stage known, about 105 ft at Wilsonville, Dec. 4, 1861.

Remarks.—Records excellent except those for periods of backwater from stoplogs, gates, and locks at dam, which are fair. Flow regulated at times by Lookout Point, Cottage Grove, Fern Ridge, Dorena, and Detroit Reservoirs. Many small diversions for irrigation above station.

Rating table, water year 1953-54, except periods of backwater from stoplogs, gates, and locks at dam at Oregon City (elevation, in feet, and discharge, in cubic feet per second)

53.0	6,750	70.0	88,500
56.0	16,400	80.0	160,000
60.0	32,000		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,000	7,000	58,100	35,300	136,000	32,600	19,200	14,300	13,500	12,500	6,600	7,200
2	9,600	7,000	53,900	33,100	117,000	29,700	19,200	13,600	17,000	12,500	6,400	7,400
3	10,000	7,000	54,300	35,800	97,800	27,900	19,800	13,000	15,000	12,500	6,200	7,600
4	9,600	7,000	66,200	45,400	82,600	25,400	26,100	12,800	14,000	12,500	6,200	7,600
5	8,500	6,500	81,000	68,400	74,900	23,100	39,600	13,300	13,500	11,500	6,400	7,600
6	8,000	7,000	101,000	80,800	66,400	21,000	55,800	13,500	14,500	11,000	6,200	7,600
7	8,000	8,000	117,000	74,800	60,800	19,700	63,900	13,400	14,500	10,500	6,200	7,600
8	7,500	11,000	126,000	64,600	55,700	23,300	59,800	13,400	14,500	10,500	6,200	7,600
9	7,000	13,000	128,000	57,100	51,200	32,600	54,900	13,900	14,500	10,000	6,200	7,600
10	7,500	9,500	135,000	47,600	47,200	51,400	52,500	14,000	16,500	9,600	6,400	7,600
11	9,000	9,500	140,000	41,500	*42,400	64,600	51,200	13,800	17,000	10,000	*6,600	7,600
12	10,000	9,500	136,000	37,300	48,400	62,900	40,300	14,000	16,000	10,000	6,600	7,600
13	9,500	8,500	123,000	*33,500	76,000	53,600	36,200	*13,900	15,500	9,600	6,600	8,400
14	8,600	9,500	107,000	29,800	99,200	42,600	45,400	13,300	15,000	9,000	6,600	9,200
15	7,600	8,500	89,200	32,400	96,000	34,300	*48,200	12,400	17,000	8,800	6,800	9,200
16	8,000	11,000	75,000	42,000	79,600	30,900	44,000	12,000	21,000	8,400	7,000	11,500
17	8,000	22,000	63,600	58,600	65,200	29,000	38,500	12,100	27,000	8,400	7,000	12,000
18	8,500	28,000	55,200	74,800	59,600	27,100	33,000	12,300	25,000	8,000	7,000	11,500
19	12,000	27,300	54,700	84,300	61,400	25,200	28,400	12,600	23,000	7,600	6,600	10,500
20	14,000	26,500	84,000	76,800	69,000	23,900	26,100	12,900	21,000	7,400	6,600	10,000
21	13,500	27,900	119,000	61,300	82,000	22,500	24,400	12,900	18,500	7,400	7,000	9,800
22	13,000	33,600	134,000	62,400	95,700	20,300	22,700	12,900	17,000	7,400	7,200	9,600
23	11,000	81,500	122,000	88,400	96,400	19,200	21,500	11,200	*16,000	7,400	7,400	9,200
24	10,500	113,000	94,400	97,800	83,300	18,200	20,300	10,700	15,000	7,400	7,200	9,200
25	10,500	*134,000	86,900	97,100	66,800	17,900	17,900	11,300	14,000	7,200	7,000	9,000
26	11,000	138,000	74,800	85,900	53,600	17,200	17,100	11,500	13,500	7,000	7,000	9,000
27	10,000	124,000	60,800	82,900	46,000	16,200	17,000	12,000	13,000	7,000	7,200	9,000
28	8,500	96,400	51,300	106,000	37,300	18,200	16,400	14,000	13,500	6,800	7,200	9,000
29	8,000	81,900	45,500	129,000	-------	22,900	15,500	13,000	13,000	6,600	7,200	8,600
30	7,500	69,200	41,300	149,000	-------	22,300	15,000	12,500	12,500	6,600	7,200	8,400
31	7,000	-------	38,500	151,000	-------	19,900	-------	12,500	-------	6,600	7,200	-------
Total	288,400	‡1,142.8	‡2,716.7	‡2,164.7	‡2,047.5	895,600	989,900	399,000	491,000	277,700	209,200	263,700
Mean	9,303	38,090	87,640	69,830	73,120	28,890	33,000	12,870	16,370	8,958	6,748	8,790
Ac-ft	572,000	‡2,267	‡5,388	‡4,294	‡4,061	‡1,776	‡1,963	791,400	973,900	550,800	414,900	523,000

Calendar year 1953: Max 238,000 Min 5,500 Mean 37,480 Csm 4.46 In. 60.57 Ac-ft 27,140,000
Water year 1953-54: Max 151,000 Min 6,200 Mean 32,560 Csm 3.88 In. 52.62 Ac-ft 23,580,000

* Discharge measurement made on this day.

‡ Expressed in thousands.

Note.--Backwater from stoplogs, gates, and locks at dam at Oregon City Oct. 1 to Nov. 16, May 26 to Sept. 30 (no gage-height record June 13-19); discharge, computed on basis of records for station at Salem, represents flow into the gage pool, which, because of pondage, may not represent flow passing gage.

Molalla River above Pine Creek, near Wilhoit, Oreg.

Location.—Lat 45°00'30", long 122°29'00", near line between secs. 30 and 31, T. 6 S., R. 3 E., on right bank, 1,700 ft upstream from Pine Creek and 5 miles southeast of Wilhoit.

Drainage area.—96 sq mi, approximately.

Records available.—October 1935 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 780 ft (by barometer). Prior to Oct. 1, 1945, at datum 2.02 ft higher.

Average discharge.—19 years, 527 cfs (381,500 acre-ft per year).

Extremes.—Maximum discharge during year, 8,340 cfs Dec. 9 (gage height, 13.80 ft), from rating curve extended above 5,500 cfs by logarithmic plotting; minimum, 51 cfs Sept. 10.
1935-54: Maximum discharge, 12,200 cfs Jan. 7, 1948 (gage height, 13.17 ft), from rating curve extended above 4,800 cfs on basis of shape of previous curve defined to 7,000 cfs; maximum gage height, 14.92 ft Jan. 9, 1953; minimum discharge, 19 cfs Aug. 30 to Sept. 2, 1940.

Remarks.—Records good. No regulation or diversion above station.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 9				Dec. 10 to Sept. 30			
4.0	72	6.0	1,080	3.7	45	5.0	620
4.2	128	8.0	2,700	3.9	90	6.0	1,280
4.5	250	12.0	6,500	4.2	195	10.0	4,600
5.0	530			4.5	340		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	397	89	1,090	584	1,690	578	305	285	788	315	85	*70
2	350	99	1,300	530	1,590	512	315	265	608	310	82	65
3	223	91	1,850	536	1,570	462	1,230	265	484	280	80	65
4	161	86	1,800	2,240	1,500	406	1,470	290	428	250	80	61
5	125	96	2,010	2,580	1,360	275	2,030	295	423	231	82	59
6	106	303	3,690	1,630	1,240	355	1,910	295	406	208	80	57
7	94	367	1,910	1,220	1,130	335	1,260	325	450	195	75	55
8	86	255	2,160	986	1,060	1,100	1,290	401	*456	187	72	57
9	84	218	*5,460	848	979	2,160	1,240	418	560	191	72	55
10	165	197	*3,720	758	854	1,990	986	365	548	354	70	53
11	161	205	1,940	686	824	1,200	860	360	494	355	65	65
12	125	223	2,070	614	2,510	874	830	340	456	295	65	159
13	109	197	1,570	572	2,660	710	1,760	300	450	245	65	127
14	96	210	1,210	692	2,000	620	1,360	275	418	213	65	102
15	91	522	993	740	1,410	566	986	290	889	190	65	155
16	84	1,460	824	909	1,170	*542	836	305	1,220	183	68	167
17	99	990	722	951	1,160	484	854	300	1,000	163	65	159
18	436	675	734	794	1,060	434	800	320	782	155	61	141
19	385	700	3,630	662	1,220	406	680	305	638	148	65	124
20	306	750	4,010	566	2,250	375	578	270	584	144	90	105
21	275	1,500	2,460	638	3,200	355	512	270	512	148	90	93
22	232	6,240	1,650	3,490	2,060	330	484	226	445	130	75	90
23	*189	4,250	1,200	2,530	1,370	320	472	204	390	*124	68	88
24	154	*2,170	923	1,570	1,100	315	445	200	350	120	78	80
25	132	1,420	758	1,110	937	295	418	236	325	114	82	75
26	122	1,040	680	923	854	285	380	462	300	111	93	70
27	102	1,120	644	*1,720	716	390	401	401	325	105	85	70
28	94	1,000	674	3,260	644	445	*370	340	305	99	75	68
29	91	954	710	2,530	---	370	335	340	275	96	70	65
30	84	984	638	2,180	---	335	320	462	265	90	70	63
31	84	---	572	1,870	---	320	---	677	---	90	82	63
Total	5,242	28,411	53,602	40,919	40,118	18,244	25,717	10,087	15,574	5,839	2,320	2,663
Mean	169	947	1,729	1,320	1,433	589	857	325	519	188	74.8	88.8
Cfsm	1.76	9.86	18.0	13.7	14.9	6.14	8.93	3.39	5.41	1.96	0.779	0.925
In.	2.03	11.01	20.77	15.85	15.54	7.07	9.96	3.91	6.03	2.26	0.90	1.03
Ac-ft	10,400	56,350	106,300	81,160	79,570	36,190	51,010	20,010	30,890	11,580	4,600	5,280

Calendar year 1953: Max 8,040 Min 42 Mean 748 Cfsm 7.79 In. 105.78 Ac-ft 541,600
Water year 1953-54: Max 6,240 Min 53 Mean 681 Cfsm 7.09 In. 96.36 Ac-ft 493,300

Peak discharge (base, 3,600 cfs).--Nov. 22 (about 6 p. m.) 7,500 cfs (about 13.0 ft); Dec. 6 (4 a. m.) 4,950 cfs (10.37 ft); Dec. 9 (5 p. m.) 8,340 cfs (13.80 ft); Dec. 19 (7 p. m.) 6,990 cfs (12.49 ft); Jan. 4 (5:30 p. m.) 3,820 cfs (9.15 ft); Jan. 22 (2:30 p. m.) 5,410 cfs (10.85 ft); Jan. 27 (9 to 10 p. m.) 3,680 cfs (9.00 ft); Feb. 21 (9 a. m.) 3,820 cfs (9.15 ft).

* Discharge measurement made on this day.

Molalla River near Canby, Oreg.

Location.—Lat 45°14'40", long 122°41'10", in NE¼ sec. 9, T. 4 S., R. 1 E., on downstream side of center pier of bridge, 1½ miles downstream from Milk Creek and 1½ miles south of Canby.
Drainage area.—323 sq mi.
Records available.—August 1928 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 105.00 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 24, 1933, staff gage at same site and datum.
Average discharge.—26 years, 1,105 cfs (800,000 acre-ft per year).
Extremes.—Maximum discharge during year, 18,800 cfs Nov. 23 (gage height, 11.95 ft); minimum daily, 120 cfs Sept. 10.
1928-54: Maximum discharge, 25,100 cfs Jan. 7, 1948 (gage height, 14.9 ft); minimum, 25 cfs Sept. 14, 1938; minimum daily, 38 cfs Sept. 7, 1935, Aug. 18, 23, 1940.
Remarks.—Records good except those for periods of no gage-height record and those below 170 cfs, which are fair. A few small diversions above station for irrigation.
Revisions (water years).—WSP 1248: 1929-30, 1932.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 19				Dec. 20 to Sept. 30			
0.5	170	5.0	3,460	0.2	110	3.0	1,690
1.0	340	7.0	6,200	.5	195	5.0	3,710
2.0	850	9.0	10,000	1.0	400	7.0	6,500
3.0	1,570	11.0	15,500	2.0	980	10.0	12,800

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	521	200	2,560	1,380	3,750	1,340	806	620	a1,400	758	169	185
2	676	251	2,820	1,280	3,330	1,220	788	578	a1,400	830	163	169
3	430	227	3,780	1,360	3,090	1,110	1,630	566	g1,100	752	160	g157
4	304	*203	5,180	3,540	2,870	1,000	2,340	596	g962	656	160	a150
5	237	209	4,620	*6,240	2,570	932	3,120	620	g962	578	157	a140
6	209	310	*8,020	3,970	2,300	878	3,890	602	g836	522	157	a130
7	188	724	5,730	2,920	2,090	836	2,800	602	g908	478	155	a130
8	173	535	5,070	2,310	1,930	1,490	2,570	698	g902	456	152	a130
9	173	438	11,100	1,980	1,790	2,680	2,590	764	g1,330	450	149	a130
10	248	380	10,000	1,790	1,590	4,320	2,180	710	g1,410	578	146	a120
11	372	420	5,120	1,600	1,450	2,840	1,920	668	*1,250	656	143	a150
12	276	407	4,480	1,440	3,060	2,120	1,780	650	1,120	538	143	189
13	234	384	3,750	1,320	4,760	1,740	3,040	578	1,070	483	143	248
14	212	368	2,950	1,480	4,010	1,500	2,980	527	968	430	143	195
15	200	575	2,440	1,810	2,900	*1,390	2,280	522	1,320	380	143	265
16	182	2,380	2,080	2,460	2,320	1,340	1,880	544	2,140	365	146	g385
17	182	2,540	1,830	2,880	2,270	1,190	1,760	544	2,000	328	143	g380
18	460	1,640	1,740	2,560	2,220	1,080	1,650	538	1,660	305	143	g305
19	754	1,520	4,490	2,090	2,100	994	1,430	527	1,390	293	157	265
20	575	1,720	10,400	1,750	3,610	938	1,230	494	1,220	297	179	237
21	560	1,830	6,350	1,600	5,580	872	1,110	505	1,060	314	209	223
22	466	8,950	4,150	*5,280	4,460	824	1,020	456	920	289	189	198
23	394	13,000	2,990	6,680	3,060	782	968	410	806	*254	169	189
24	340	5,600	2,310	4,050	2,410	770	920	a380	722	244	176	169
25	296	3,480	1,900	2,860	2,060	728	866	a380	656	230	198	160
26	265	2,710	1,700	2,560	1,920	680	818	a850	596	220	230	g155
27	244	2,650	1,630	4,320	1,630	818	*842	a850	686	212	209	g143
28	227	2,490	1,530	11,000	1,480	1,130	758	a700	692	209	192	g141
29	218	2,570	1,680	7,250	--------	1,010	698	a700	590	189	189	g135
30	209	2,410	1,520	5,650	--------	914	662	a900	584	176	182	g130
31	200	--------	1,400	4,530	--------	842	--------	a1,200	--------	173	*192	--------
Total	10,025	61,121	125,320	101,940	76,610	40,308	51,326	19,279	32,660	12,643	5,186	5,703
Mean	323	2,037	4,043	3,288	2,736	1,300	1,711	622	1,089	408	167	190
Cfsm	1.00	6.31	12.5	10.2	8.47	4.02	5.30	1.93	3.37	1.26	0.517	0.588
In.	1.15	7.04	14.43	11.74	8.82	4.64	5.91	2.22	3.76	1.46	0.60	0.66
Ac-ft	19,880	121,200	248,600	202,200	152,000	79,950	101,800	38,240	64,780	25,080	10,290	11,310

Calendar year 1953: Max 16,600 Min 78 Mean 1,733 Cfsm 5.37 In. 72.83 Ac-ft 1,255,000
Water year 1953-54: Max 13,000 Min 120 Mean 1,485 Cfsm 4.60 In. 62.43 Ac-ft 1,075,000

Peak discharge (base, 7,200 cfs).--Nov. 23 (2:30 a. m.) 18,800 cfs (11.95 ft); Dec. 6 (10 a. m.) 12,500 cfs (10.00 ft); Dec. 9 (12 p. m.) 16,700 cfs (11.35 ft); Dec. 20 (3 a. m.) 12,700 cfs (9.97 ft); Jan. 4 (11:30 p. m.) 7,800 cfs (7.77 ft); Jan. 22 (9 p. m.) 8,220 cfs (8.00 ft); Jan. 28 (9 a. m.) 12,100 cfs (9.73 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for station above Pine Creek, near Wilhoit.
g Computed from once-daily reading of wire-weight gage.

Pudding River near Mount Angel, Oreg.

Location.—Lat 45°03'50", long 122°49'45", in SE¼ sec. 8, T. 6 S., R. 1 W., on left bank on downstream side of Cline Bridge, 1½ miles west of Mount Angel and 4 miles upstream from Little Pudding River.

Drainage area.—204 sq mi.

Records available.—October 1939 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 119.76 ft above mean sea level, datum of 1929. Prior to Sept. 22, 1945, staff or wire-weight gages at same site and datum.

Average discharge.—14 years (1939-44, 1945-54), 709 cfs (513,300 acre-ft per year).

Extremes.—Maximum discharge during year, 5,500 cfs Jan. 28; maximum gage height, 25.03 ft Jan. 28; minimum discharge, 38 cfs Aug. 13.

1939-54: Maximum discharge, 15,000 cfs Feb. 17, 1949; maximum gage height, 30.38 ft Feb. 18, 1949; minimum discharge, 8 cfs Aug. 18, 22, 1951.

Remarks.—Records good except those for periods of no gage-height record, shifting control, or backwater from debris, which are fair. No regulation; small diversions for irrigation above station.

Revisions (water years).—WSP 1094: 1943. WSP 1218: Drainage area. WSP 1248: 1943.

Rating tables, water year 1953-54, except periods of shifting control or backwater from debris (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 23				Nov. 24 to Sept. 30			
1.4	64	16.0	2,360	1.0	41	10.0	1,240
2.0	107	20.0	3,400	2.0	103	15.0	2,160
4.0	313	24.0	4,900	3.0	186	19.0	3,100
8.0	925			5.0	418	25.0	5,300

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	201	92	a1,800	910	2,930	946	603	343	517	296	63	69
2	275	132	a2,000	864	2,450	848	578	320	418	296	61	58
3	186	123	a2,400	907	2,090	768	875	314	346	250	56	52
4	134	106	a2,800	1,630	1,770	699	1,130	313	325	222	55	51
5	109	105	a2,800	3,120	1,520	643	1,460	305	331	202	57	50
6	93	198	a4,200	2,650	1,300	597	1,870	289	309	185	58	47
7	79	416	4,140	2,130	1,160	556	1,800	277	334	180	57	45
8	71	313	3,490	1,820	1,040	832	1,580	272	322	182	52	50
9	67	257	3,910	1,530	963	1,400	1,500	265	481	176	52	56
10	103	228	*4,720	1,360	893	1,840	1,340	252	*498	243	49	47
11	204	242	3,970	1,180	839	1,650	1,170	238	454	278	44	50
12	165	232	3,400	1,030	1,400	1,380	1,050	247	421	223	41	86
13	127	218	2,890	926	2,180	1,160	1,460	227	436	192	42	138
14	108	201	2,370	905	2,400	1,040	1,450	207	402	173	46	101
15	97	251	1,950	994	1,990	*961	1,210	194	569	159	49	138
16	91	1,020	1,610	1,220	1,690	938	1,060	184	912	151	56	187
17	91	1,400	1,330	1,540	1,610	849	950	174	870	140	53	174
18	217	1,180	1,240	1,770	1,710	768	866	164	732	131	49	140
19	339	1,040	1,890	1,700	1,650	707	768	152	613	123	47	119
20	257	1,080	3,950	*1,440	2,400	664	683	145	571	119	57	102
21	*258	1,140	3,840	1,260	3,060	608	619	145	512	124	76	93
22	209	3,030	3,090	1,960	2,890	562	576	145	438	120	70	86
23	176	4,680	2,450	2,730	2,330	529	538	138	382	*106	60	83
24	154	*3,860	2,020	2,450	1,930	512	503	131	349	97	60	77
25	138	a2,800	1,680	2,120	1,620	488	468	141	314	92	70	73
26	124	a2,100	1,440	2,080	1,450	454	440	266	291	88	70	69
27	113	a1,700	1,320	2,820	1,250	585	450	304	320	79	66	64
28	106	a1,600	1,180	5,220	1,070	939	*425	233	314	75	63	60
29	97	a1,500	1,140	5,140	-------	832	387	206	262	71	58	59
30	98	a1,600	1,030	4,290	-------	712	365	244	244	67	59	57
31	97	-------	934	3,540	-------	638	-------	320	-------	64	*68	-------
Total	4,584	32,844	76,984	63,236	49,585	26,105	28,174	7,155	13,287	4,904	1,764	2,481
Mean	148	1,095	2,483	2,040	1,771	842	939	231	443	158	56.9	82.7
Cfsm	0.725	5.37	12.2	10.0	8.68	4.13	4.60	1.13	2.17	0.775	0.279	0.405
In.	0.84	5.99	14.03	11.53	9.04	4.76	5.14	1.30	2.42	0.89	0.32	0.45
Ac-ft	9,090	65,150	152,700	125,400	98,350	51,780	55,880	14,190	26,350	9,730	3,500	4,920

Calendar year 1953 : Max 8,500 Min 23 Mean 986 Cfsm 4.83 In. 65.60 Ac-ft 713,900
Water year 1953-54 : Max 5,200 Min 41 Mean 852 Cfsm 4.18 In. 56.71 Ac-ft 617,000

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for station at Aurora.

Note.--Shifting-control or backwater from debris Oct. 1 to Nov. 15

Pudding River at Aurora, Oreg.

Location.—Lat 45°14'00", long 122°45'00", in SE¼ sec. 12, T. 4 S., R. 1 W., on upstream side of highway bridge at Aurora, half a mile upstream from Mill Creek.

Drainage area.—479 sq mi.

Records available.—October 1928 to September 1954.

Gage.—Wire-weight gage read twice daily Oct. 1-30 and once daily thereafter. Datum of gage is 77.23 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 2, 1934, staff gage at same site and datum. June 1 to Sept. 15, 1947, temporary staff gage 40 ft upstream at same datum.

Average discharge.—26 years, 1,188 cfs (860,100 acre-ft per year).

Extremes.—Maximum daily discharge during year, 8,000 cfs Jan. 30, during period of no gage-height record; minimum, 84 cfs Aug. 14.

1928-54: Maximum discharge, 25,400 cfs Dec. 30, 1937 (gage height, 24.5 ft, from graph based on gage readings), from rating curve extended above 16,000 cfs; minimum, 37 cfs Sept. 9, 12, 1935.

Maximum stage known, 25.0 ft about Jan. 7, 1923 (discharge, 27,900 cfs, from rating curve extended above 16,000 cfs).

Remarks.—Records good except those for periods of no gage-height record, which are poor. Small diversions above station; slight regulation at times in summer by mills on tributaries.

Revisions (water years).—WSP 1094: 1923(M), 1931, 1934, 1936(M), 1938, 1943. WSP 1218: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
1.4	205	6.0	1,230	0.4	80	8.0	1,800
2.0	300	8.5	2,020	1.0	143	14.0	4,180
4.0	710			2.0	285	18.0	6,750
				4.0	660	20.0	9,200

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	195	a210	2,980	a1,800	a6,000	a1,900	a1,200	a650	534	400	98	149
2	381	a210	a3,400	a1,800	a5,500	a1,700	a1,150	a620	778	444	116	143
3	553	a290	a3,800	a1,700	a4,600	a1,500	a1,100	a570	682	490	115	121
4	424	a250	25,000	a2,000	a4,200	a1,400	a1,500	a560	560	410	107	117
5	309	a250	a5,500	a3,600	a3,600	a1,300	a1,900	a550	518	396	105	114
6	230	a300	a6,000	a6,000	a3,000	a1,200	a2,300	a540	516	356	104	108
7	188	415	a7,500	a5,500	a2,500	a1,100	a3,300	a520	520	321	93	111
8	165	a800	a7,000	a4,500	a2,200	a1,000	a3,100	a500	546	296	101	107
9	154	a650	6,510	a3,800	a2,000	a1,400	a2,800	a480	566	309	104	94
10	184	a550	*7,110	a3,400	a1,800	a2,000	a2,600	a460	798	316	103	114
11	302	a460	7,300	a3,000	a1,700	a3,000	a2,300	a440	*808	408	98	111
12	418	485	6,460	a2,500	a1,700	a2,800	a2,100	a420	705	468	87	110
13	349	501	5,680	a2,300	a2,500	a2,400	a1,900	a420	690	396	88	142
14	266	511	4,720	a2,100	a3,800	a2,200	a2,300	394	685	339	84	240
15	220	468	4,570	a1,900	a4,000	*1,890	a2,600	376	670	306	93	195
16	195	515	4,160	a2,100	a3,800	a1,800	a2,200	374	912	285	106	234
17	190	a1,600	3,500	a2,600	a3,200	a1,700	a1,900	352	1,320	266	102	310
18	208	a2,400	2,910	a3,200	a3,000	a1,550	a1,700	310	1,280	249	104	285
19	453	a2,000	4,180	a3,800	a3,200	a1,400	a1,500	309	1,090	*237	118	252
20	772	a1,800	4,650	*3,540	a3,200	a1,300	a1,350	297	958	222	114	219
21	*605	a1,900	6,170	a3,300	a4,000	a1,200	a1,200	285	902	216	108	194
22	557	1,960	a7,000	a2,900	a5,000	a1,100	a1,100	285	802	210	131	182
23	474	3,860	6,080	a3,900	a4,800	a1,000	a1,000	282	695	216	135	171
24	407	5,590	4,980	a5,000	a4,200	a950	a950	267	610	198	119	147
25	356	5,780	4,200	a4,800	a3,400	a900	a900	260	564	178	123	149
26	318	5,250	3,860	a4,000	a2,900	a850	a800	291	530	162	138	144
27	288	4,700	3,500	a4,200	a2,500	a850	a770	424	506	151	162	117
28	271	a3,600	2,840	a4,600	a2,200	a1,100	a770	500	508	147	145	119
29	252	a3,000	2,470	a6,500	-------	a1,500	*725	416	524	130	141	121
30	228	a2,800	2,050	a8,000	-------	a1,400	a680	394	460	124	130	117
31	217	-------	1,800	a7,000	-------	a1,300	-------	412	-------	111	*116	-------
Total	10,129	53,105	147,930	115,340	94,500	46,690	49,695	12,958	21,237	8,757	3,488	4,737
Mean	327	1,770	4,772	3,721	3,375	1,506	1,656	418	708	282	113	158
Cfsm	0.683	3.70	9.96	7.77	7.05	3.14	3.46	0.873	1.48	0.589	0.236	0.330
In.	0.79	4.12	11.49	8.96	7.34	3.63	3.86	1.01	1.65	0.68	0.27	0.37
Ac-ft	20,090	105,300	293,400	228,800	187,400	92,610	98,570	25,700	42,120	17,370	6,920	9,400

Calendar year 1953: Max 14,800 Min 57 Mean 1,823 Cfsm 3.81 In. 51.65 Ac-ft 1,320,000
Water year 1953-54: Max 8,000 Min 84 Mean 1,558 Cfsm 3.25 In. 44.17 Ac-ft 1,128,000

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for station near Mount Angel.

Tualatin River at Gaston, Oreg.

Location.—Lat 45°26'15", long 123°10'05", in W½ sec. 34, T. 1 S., R. 4 W., on right bank 1.5 miles west of Gaston.

Drainage area.—51 sq mi, approximately, at measuring section at Gaston.

Records available.—October 1940 to September 1954.

Gage.—Staff gage read twice daily. Altitude of gage is 175 ft (by barometer). Prior to May 20, 1942, water-stage recorder at site 1.5 miles downstream at datum 164.18 ft above mean sea level, datum of 1929. May 20, 1942, to Aug. 24, 1949, staff gage at present site at datum 1.00 ft higher.

Average discharge.—14 years, 195 cfs (141,200 acre-ft per year).

Extremes.—Maximum discharge during year, 4,120 cfs Dec. 9 (gage height, 11.9 ft, from graph based on gage readings); minimum, 8.4 cfs Sept. 30.

1940-54: Maximum discharge, 4,820 cfs Feb. 17, 1949 (gage height, 12.23 ft, present datum); maximum gage height, 13.88 ft Dec. 19, 1941, site and datum then in use; minimum discharge, 0.2 cfs Sept. 22, 23, 1951, Aug. 14, 15, Sept. 25, Oct. 8, 1952.

Remarks.—Records good. Slight diurnal fluctuation caused by log ponds upstream. Small diversions above station for irrigation. In 1949 city of Hillsboro began diverting about 5 cfs for municipal supply. Some water is diverted from Roaring Creek, upstream, for Forest Grove municipal supply.

Revisions.—WSP 1044: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 9				Dec. 10 to Sept. 30			
0.8	12	3.0	316	0.3	8.0	2.0	154
1.2	32	4.0	514	.5	13	4.0	575
1.6	64	6.0	774	.7	21	8.0	1,210
2.0	111	8.0	1,100	1.0	40	10.0	1,900
2.5	198	9.0	1,330	1.5	86	11.0	2,700
		10.3	1,870				

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	64	19	316	321	605	333	118	85	38	41	12	14
2	42	17	316	354	585	309	*126	83	36	34	11	12
3	29	16	350	521	514	280	318	85	39	30	11	11
4	24	12	489	1,150	465	251	392	81	39	26	11	11
5	20	18	726	*1,860	416	229	479	77	38	25	*13	11
6	17	34	1,020	1,210	401	211	507	72	34	25	12	11
7	16	58	584	*941	396	208	405	69	35	24	11	11
8	18	51	692	807	381	345	354	65	38	24	11	12
9	27	40	1,910	687	381	821	366	63	43	23	11	12
10	50	35	1,530	510	363	746	352	62	36	25	11	11
11	37	41	928	429	485	631	309	61	36	32	10	11
12	*29	40	853	368	2,380	500	304	59	39	24	10	18
13	24	45	626	337	2,350	381	335	*57	39	22	11	18
14	22	54	492	407	1,250	333	285	53	41	20	11	16
15	18	85	403	594	946	297	246	51	67	18	11	16
16	16	174	340	613	873	270	217	49	98	18	13	17
17	55	184	301	372	867	249	195	47	83	17	12	14
18	110	132	301	354	*841	220	177	43	*66	17	11	13
19	81	140	651	306	1,220	200	164	40	62	16	11	12
20	54	180	1,300	273	1,700	183	152	39	72	16	11	11
21	42	365	891	425	1,620	175	142	38	64	18	11	11
22	35	1,010	623	1,540	1,140	160	131	37	56	16	11	11
23	30	946	537	953	846	144	124	36	49	15	10	10
24	27	632	471	681	668	139	116	36	45	15	10	10
25	25	430	403	528	562	130	109	39	39	14	11	9.8
26	23	403	370	485	503	136	105	51	36	13	14	8.8
27	22	397	330	451	443	175	104	49	37	12	14	8.6
28	20	370	311	461	372	156	95	41	41	12	12	9.0
29	20	350	289	449	-------	147	90	38	32	12	12	9.2
30	20	320	263	473	-------	137	88	39	33	12	13	8.6
31	20	-------	261	543	-------	126	-------	40	-------	12	23	-------
Total	1,037	6,598	18,877	19,403	23,573	8,622	6,905	1,685	1,411	628	366	358.0
Mean	33.5	220	609	626	842	278	230	54.4	47.0	20.3	11.8	11.9
Cfsm	0.657	4.31	11.9	12.3	16.5	5.45	4.51	1.07	0.922	0.398	0.231	0.233
In.	0.76	4.81	13.77	14.15	17.19	6.29	5.04	1.23	1.03	0.46	0.27	0.26
Ac-ft	2,060	13,090	37,440	38,490	46,760	17,100	13,700	3,340	2,800	1,250	726	710

Calendar year 1953: Max 1,910 Min 4.9 Mean 238 Cfsm 4.67 In. 63.26 Ac-ft 172,100
Water year 1953-54: Max 2,380 Min 8.6 Mean 245 Cfsm 4.80 In. 65.26 Ac-ft 177,500

Peak discharge (base, 2,000 cfs).--Dec. 9 (about 8 p. m.) 4,120 cfs (11.9 ft); Jan. 22 (about 8 a. m.) 2,530 cfs (10.85 ft); Feb. 12 (about 5 p. m.) 4,100 cfs (11.85 ft); Feb. 19 (about 12 p. m.) 2,260 cfs (10.55 ft).

* Discharge measurement made on this day.

Scoggin Creek near Gaston, Oreg.

Location.—Lat 45°27'30", long 123°09'15", in NW¼ sec. 26, T. 1 S., R. 4 W., on left bank 100 ft upstream from highway bridge, 1½ miles upstream from mouth, and 1.7 miles northwest of Gaston.

Drainage area.—44.0 sq mi.

Records available.—October 1940 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 168.92 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1947, water-stage recorder at site 300 ft upstream at same datum. Oct. 1, 1947, to June 7, 1950, staff gage at site 150 ft upstream at same datum.

Average discharge.—14 years, 138 cfs (99,910 acre-ft per year).

Extremes.—Maximum discharge during year, 1,980 cfs Feb. 12 (gage height, 13.30 ft); minimum, 7.0 cfs Sept. 3.

1940-54: Maximum discharge, 3,460 cfs Feb. 17, 1949 (gage height, 15.53 ft); minimum, 1.2 cfs Aug. 22, 1941, Oct. 7, 8, 1943.

Remarks.—Records good except those for periods of no gage-height record, which are fair. Small diversions by pumping above station for irrigation. Part of water supply (about 1 cfs) for Hillsboro is diverted from Sein Creek above station; some diurnal fluctuation caused by log ponds above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

2.0	7.2	2.6	37	8.0	760
2.2	11.0	3.0	99	12.0	1,520
2.4	19	4.0	249	13.0	1,860

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	19	156	152	491	213	*87	a76	46	34	12	16
2	21	17	150	172	486	192	a150	a76	37	31	12	14
3	17	16	*168	259	432	175	a220	a76	35	28	11	7.6
4	14	14	252	911	390	160	a260	a74	37	26	11	7.9
5	13	15	449	*1,380	350	147	a300	a70	37	25	*13	8.8
6	12	31	765	1,150	334	140	a320	a66	35	25	13	8.3
7	12	36	600	813	333	135	a280	a66	35	25	15	9.0
8	11	29	530	635	322	196	a260	a66	36	25	15	12
9	18	24	992	500	327	630	a260	a66	42	25	12	12
10	74	21	1,210	406	311	536	a240	a69	35	28	10	11
11	33	27	661	329	302	375	a220	a58	33	29	10	12
12	*22	28	559	267	1,330	299	a230	a56	36	22	9.2	18
13	18	34	423	230	1,790	240	a240	*54	37	21	10	*17
14	17	38	335	297	1,190	203	a210	53	36	18	11	16
15	16	38	270	384	857	184	a190	50	58	18	12	18
16	15	97	223	333	740	169	a170	47	62	18	14	18
17	18	111	189	280	711	156	a160	44	49	19	13	17
18	90	82	181	259	*680	148	a140	41	*45	19	12	16
19	58	92	477	210	970	138	a130	40	42	18	12	15
20	35	106	1,080	185	1,260	131	a120	40	47	19	12	14
21	28	147	784	216	1,340	124	a110	40	42	21	12	13
22	24	719	519	1,210	1,000	119	a110	38	37	20	15	9.0
23	21	710	389	846	696	114	a105	37	35	18	12	12
24	19	408	308	590	533	109	a100	36	34	17	8.8	12
25	19	291	252	456	423	106	a95	37	33	16	11	12
26	19	291	217	390	359	102	a90	47	32	14	14	12
27	19	287	192	363	296	118	a85	41	33	14	13	12
28	19	232	172	353	250	104	a85	38	33	14	13	10
29	19	196	156	335	-------	96	a80	37	30	13	16	8.5
30	19	168	145	369	-------	a92	a80	40	31	11	18	7.7
31	18	-------	140	417	-------	a90	-------	52	-------	12	25	-------
Total	774	4,324	12,944	14,697	18,483	5,741	5,127	1,622	1,160	643	397.0	375.8
Mean	25.0	144	418	474	660	185	171	52.3	38.7	20.7	12.8	12.5
Cfsm	0.568	3.27	9.50	10.8	15.0	4.20	3.89	1.19	0.880	0.470	0.291	0.284
In.	0.65	3.65	10.94	12.42	15.62	4.85	4.33	1.37	0.98	0.54	0.34	0.32
Ac-ft	1,540	8,580	25,670	29,150	36,660	11,390	10,170	3,220	2,300	1,280	787	745

Calendar year 1953: Max 1,210 Min 8.3 Mean 174 Cfsm 3.95 In. 53.75 Ac-ft 126,200
Water year 1953-54: Max 1,790 Min 7.6 Mean 182 Cfsm 4.14 In. 56.01 Ac-ft 131,500

Peak discharge (base, 1,100 cfs).--Dec. 9 (11 p. m.) 1,800 cfs (12.83 ft); Dec. 20 (3 p. m.) 1,130 cfs (10.16 ft); Jan. 5 (12 p. m.) 1,390 cfs (11.45 ft); Jan. 22 (12 m. to 1 p. m.) 1,470 cfs (11.81 ft); Feb. 12 (8:30 p. m.) 1,980 cfs (13.30 ft); Feb. 21 (1 to 2 p. m.) 1,490 cfs (11.86 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for Tualatin River at Gaston and near Dilley.

Tualatin River near Dilley, Oreg.

Location. —Lat 45°28'30", long 123°07'25", in NW¼ sec. 24, T. 1 S., R. 4 W., on left bank 5 ft upstream from highway bridge, 1 mile from Dilley, and 1½ miles downstream from Scoggin Creek.
Drainage area. —133 sq mi.
Records available. —October 1940 to September 1954.
Gage. —Water-stage recorder. Datum of gage is 151.57 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to June 16, 1950, chain, wire-weight, or staff gages at several sites within 200 ft of present site at same datum.
Average discharge. —14 years, 396 cfs (286,700 acre-ft per year).
Extremes. —Maximum discharge during year, 6,210 cfs Feb. 13 (gage height, 13.24 ft); minimum, 9.5 cfs Aug. 3.
1940-54: Maximum discharge, 9,460 cfs Feb. 17, 1949 (gage height, 13.89 ft, from graph based on gage readings); minimum, 0.4 cfs Sept. 5, 1951.
Remarks. —Records good. Diversions above station for municipal water supply and irrigation, chiefly in Wapato Lake area. Diurnal fluctuation caused by dam below Gaston.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from aquatic vegetation and debris Dec. 5-14, 19-24; shifting-control method used Oct. 1-9)

Oct. 1 to Nov. 21		Nov. 22 to Sept. 30			
1.0	22	0.5	10	11.0	1,070
2.0	72	1.0	24	11.5	1,500
4.0	221	2.0	72	12.0	2,180
6.0	400	5.0	286	12.5	3,310
		10.0	740	13.2	6,000
		10.5	820		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	40	527	427	1,360	687	*232	174	104	82	16	33
2	61	42	529	447	1,360	618	234	170	83	66	16	28
3	44	36	*517	619	1,240	556	465	177	77	60	11	21
4	36	35	653	1,460	1,080	507	553	167	78	55	16	20
5	32	36	856	3,170	910	458	708	153	79	54	*21	21
6	27	72	1,540	3,170	823	424	806	149	73	50	21	20
7	26	126	1,680	2,220	794	393	743	145	73	51	21	20
8	25	94	1,400	1,930	762	510	702	145	78	50	20	22
9	28	80	*1,650	1,580	749	1,050	693	143	95	49	21	24
10	152	64	3,030	1,200	732	1,510	673	133	81	57	17	21
11	83	77	1,900	858	713	1,080	619	121	77	62	16	22
12	*54	75	1,580	731	2,270	808	564	120	80	51	14	34
13	42	86	1,310	660	5,570	721	585	*117	84	44	15	*37
14	36	108	976	663	3,580	652	543	109	80	38	17	31
15	32	117	774	829	2,250	596	490	103	118	32	18	35
16	31	270	695	784	1,920	543	445	101	163	32	21	35
17	33	361	604	714	1,840	493	404	94	141	33	19	32
18	186	253	557	710	*1,840	454	365	88	*113	34	20	31
19	174	270	708	679	2,050	418	334	83	102	32	20	30
20	104	360	1,880	619	3,520	388	311	82	122	32	21	27
21	80	387	1,840	622	3,460	362	289	83	109	34	24	27
22	64	1,060	1,420	*2,690	2,900	336	273	81	95	32	26	22
23	57	1,920	1,040	2,800	1,990	317	253	79	83	29	25	25
24	52	1,360	790	1,900	1,650	299	236	77	76	26	21	24
25	48	*804	705	1,480	1,370	284	225	79	71	27	22	24
26	46	734	630	1,230	1,130	268	216	105	70	23	26	23
27	44	723	572	1,060	886	319	210	104	73	20	26	22
28	41	667	512	1,090	753	302	197	87	71	20	26	21
29	36	601	463	1,000	-------	272	188	83	60	18	27	20
30	47	545	423	1,070	-------	254	183	85	62	13	28	19
31	44	-------	391	1,190	-------	239	-------	97	-------	16	52	-------
Total	1,856	11,403	32,152	39,602	49,502	16,118	12,739	3,534	2,671	1,222	664	771
Mean	59.9	380	1,037	1,277	1,768	520	425	114	89.0	39.4	21.4	25.7
Cfsm	0.450	2.86	7.80	9.60	13.3	3.91	3.20	0.857	0.669	0.296	0.161	0.193
In.	0.52	3.19	8.99	11.07	13.84	4.51	3.56	0.99	0.75	0.34	0.19	0.22
Ac-ft	3,680	22,620	63,770	78,550	98,190	31,970	25,270	7,010	5,300	2,420	1,320	1,530

Calendar year 1953: Max 3,220 Min 12 Mean 497 Cfsm 3.74 In. 50.71 Ac-ft 359,600
Water year 1953-54: Max 5,570 Min 11 Mean 472 Cfsm 3.55 In. 48.17 Ac-ft 341,600

Peak discharge (base, 4,000 cfs).--Jan. 22 (8 to 9 p. m.) 4,060 cfs (12.73 ft); Feb. 13 (9 a. m.) 6,210 cfs (13.24 ft).
* Discharge measurement made on this day.

Gales Creek near Forest Grove, Oreg.

Location.—Lat 45°33'20", long 123°11'05", in E½ sec. 21, T. 1 N., R. 4 W., on left bank at upstream side of bridge, 2½ miles southeast of village of Gales Creek and 4½ miles northwest of Forest Grove.

Drainage area.—66 sq mi, approximately.

Records available.—October 1940 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 202.81 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Sept. 13, 1941, at site 1.4 miles downstream at datum 15.33 ft lower. Sept. 13, 1941, to June 19, 1952, at downstream side of bridge at datum 0.44 ft higher.

Average discharge.—14 years, 220 cfs (159,300 acre-ft per year).

Extremes.—Maximum discharge during year, 3,360 cfs Feb. 12 (gage height, 7.75 ft); minimum, 15 cfs Aug. 1, 2, 11, 12, 13, 23 (gage height, 0.58 ft).

1940-54: Maximum discharge, 6,410 cfs Feb. 17, 1949 (gage height, 10.90 ft, from floodmark, site and datum then in use); minimum, 1 cfs Aug. 19, 1947.

Remarks.—Records fair. Small diversions for irrigation above station. Some diurnal fluctuation at low flow caused by log ponds upstream.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from tree or debris Dec. 10-17, Feb. 15-18)

Oct. 1 to Feb. 12				Feb. 13 to June 21				June 22 to Sept. 30	
0.8	14	2.0	250	0.8	42	1.6	149	0.6	16
1.0	32	3.0	660	1.2	85	2.0	250	.7	23
1.2	59	5.0	1,740	Note.—Same as preceding table above 2.0 ft.				.9	40
1.5	114	7.0	2,910						

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	27	244	292	685	383	*130	108	62	33	16	24
2	44	25	229	386	690	338	151	106	55	29	*16	20
3	30	24	274	625	615	302	292	104	55	27	17	18
4	24	24	*443	2,110	534	274	387	100	55	26	18	18
5	21	27	635	*2,600	488	250	498	97	55	25	20	18
6	19	51	1,220	2,050	463	229	516	92	55	24	19	18
7	19	51	954	1,490	451	218	443	89	54	24	18	17
8	19	41	830	1,140	439	338	455	86	55	24	17	17
9	38	36	1,720	830	439	983	447	84	57	25	17	17
10	88	36	*1,760	625	423	835	411	80	52	29	17	17
11	46	41	1,020	*510	427	615	375	79	51	29	16	19
12	35	38	795	427	2,290	488	348	78	54	26	16	27
13	27	44	601	371	2,890	411	371	75	54	23	17	25
14	26	55	498	488	1,930	355	310	*72	54	22	17	*22
15	24	64	407	588	1,430	327	282	71	68	22	18	26
16	*23	178	367	538	1,370	292	254	69	68	22	19	32
17	38	163	338	480	1,340	260	226	65	59	22	18	28
18	108	124	338	431	1,280	235	212	62	*53	24	18	24
19	72	131	891	355	*2,130	215	202	60	54	25	19	22
20	53	131	1,610	316	2,310	202	195	61	56	26	18	21
21	45	274	1,270	496	2,290	195	182	61	46	28	17	20
22	40	959	915	*2,050	1,640	182	166	60	37	26	16	18
23	35	910	705	1,370	1,200	172	157	59	34	24	16	17
24	32	534	565	942	920	164	149	56	30	20	17	16
25	30	*407	467	710	740	155	141	56	*29	22	20	16
26	29	407	419	574	610	149	134	60	29	20	20	16
27	27	423	363	520	516	178	127	62	29	20	20	16
28	26	363	327	*463	439	157	122	58	29	18	19	16
29	26	313	292	439	-------	145	115	56	28	17	17	17
30	26	274	260	471	-------	140	112	56	29	17	25	16
31	25	-------	244	547	-------	134	-------	59	-------	17	32	-------
Total	1,153	6,175	21,001	25,234	30,979	9,321	7,910	2,281	1,446	736	570	598
Mean	37.2	206	677	814	1,106	301	264	73.6	48.2	23.7	18.4	19.9
Cfsm	0.564	3.12	10.3	12.3	16.8	4.56	4.00	1.12	0.730	0.359	0.279	0.302
In.	0.65	3.48	11.83	14.22	17.46	5.25	4.46	1.29	0.81	0.41	0.32	0.34
Ac-ft	2,290	12,250	41,650	50,050	61,450	18,490	15,690	4,520	2,870	1,460	1,130	1,190

Calendar year 1953: Max 1,840 Min 11 Mean 282 Cfsm 4.27 In. 57.92 Ac-ft 203,900
Water year 1953-54: Max 2,890 Min 16 Mean 294 Cfsm 4.45 In. 60.52 Ac-ft 213,000

Peak discharge (base, 1,100 cfs).--Nov. 23 (3:30 p. m.) 1,170 cfs (3.96 ft); Dec. 6 (6:30 a. m.) 1,350 cfs (4.29 ft); Dec. 9 (6 p. m.) 2,790 cfs (6.80 ft); Dec. 20 (2 p. m.) 1,700 cfs (4.92 ft); Jan. 5 (6 a. m.) 2,660 cfs (6.58 ft); Jan. 22 (7 a. m.) 2,320 cfs (6.02 ft); Feb. 12 (11 p. m.) 3,360 cfs (7.75 ft); Feb. 19 (8:30 p. m.) 2,870 cfs (6.94 ft); Mar. 9 (11 a. m.) 1,270 cfs (4.15 ft).

* Discharge measurement made on this day.

McKay Creek near North Plains, Oreg.

Location. —Lat 45°37'35", long 122°58'30", in SE¼ sec. 30, T. 2 N., R. 2 W., on downstream end of left timber bridge bent, about 1¾ miles upstream from Jackson Creek and 2½ miles northeast of North Plains.

Drainage area. —27.6 sq mi.

Records available. —October 1940 to September 1943, October 1948 to September 1954.

Gage. —Water-stage recorder. Datum of gage is 172.57 ft above mean sea level, datum of 1929. October 1940 to September 1943 at datum 0.25 ft higher.

Average discharge. —9 years, 67.7 cfs (49,020 acre-ft per year).

Extremes. —Maximum discharge during year, 878 cfs Feb. 12 (gage height, 11.16 ft); minimum, 0.9 cfs Aug. 2.

1940-43, 1948-54: Maximum discharge, 2,100 cfs Feb. 17, 1949 (gage height, 11.23 ft); minimum, 0.4 cfs Aug. 17, 18, 22, 1951.

Remarks. —Records fair. Some diurnal fluctuation in summer caused by pumping for irrigation.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.5	4.8	73	54	252	61	26	21	13	9.7	1.6	4.0
2	6.7	4.7	78	53	268	53	32	20	12	7.7	1.5	3.3
3	4.9	4.9	92	69	232	48	49	22	11	7.0	1.9	3.3
4	3.8	5.0	141	410	190	43	73	21	11	6.6	2.6	3.7
5	3.6	6.2	183	*666	158	38	128	19	11	6.1	3.1	3.6
6	3.6	9.0	277	492	134	35	156	18	10	6.5	3.1	3.2
7	3.8	9.5	296	332	125	33	140	18	11	6.5	2.9	3.4
8	4.1	8.0	277	235	120	52	134	17	11	6.1	2.7	3.6
9	6.1	7.2	391	194	124	165	108	17	*11	6.5	3.0	3.0
10	16	7.1	592	156	121	238	94	16	10	7.6	2.0	2.8
11	9.1	8.9	372	130	118	*177	88	16	9.8	7.0	2.5	3.9
12	6.8	9.0	258	102	540	130	79	15	10	6.2	2.7	5.3
13	6.0	8.7	189	89	825	101	77	14	9.7	5.8	2.9	5.7
14	5.3	9.7	143	92	622	86	61	14	9.6	5.4	3.2	6.1
15	*5.2	10	106	100	366	82	56	14	13	4.9	2.8	7.2
16	5.0	26	a90	101	272	72	51	13	12	*5.2	2.8	7.6
17	7.2	36	a80	98	247	60	48	12	10	4.9	3.3	7.0
18	18	28	a90	100	231	55	46	11	9.7	4.8	2.8	5.7
19	13	32	a150	83	371	52	43	11	10	4.7	3.3	4.6
20	9.5	45	a360	69	718	49	39	11	11	4.8	4.6	3.9
21	8.0	48	*296	*94	612	44	37	11	9.6	5.6	4.1	3.4
22	7.1	170	237	668	442	43	36	11	8.4	5.2	3.2	2.8
23	6.5	226	172	560	266	40	*33	10	7.9	4.1	3.2	2.7
24	5.9	178	124	335	201	40	32	10	7.5	3.9	3.0	2.5
25	5.8	118	93	224	146	36	30	11	6.8	3.6	*4.2	2.4
26	5.5	113	82	173	116	33	28	15	7.0	3.7	4.1	2.1
27	5.3	136	69	164	87	33	28	13	7.4	3.2	3.7	2.2
28	5.2	120	65	*165	72	30	26	12	7.4	3.2	3.4	2.5
29	4.9	92	58	154	-------	29	23	12	6.6	3.0	3.2	2.8
30	4.8	82	51	171	-------	28	22	13	7.6	2.2	3.9	2.7
31	5.0	-------	49	203	-------	27	-------	14	-------	2.0	4.9	-------
Total	211.2	1,562.7	5,534	6,536	7,976	2,013	1,823	452	292.0	163.7	96.2	117.0
Mean	6.81	52.1	179	211	285	64.9	60.8	14.6	9.73	5.28	3.10	3.90
Cfsm	0.247	1.89	6.49	7.64	10.3	2.35	2.20	0.529	0.353	0.191	0.112	0.141
In.	0.28	2.11	7.46	8.81	10.75	2.71	2.46	0.61	0.39	0.22	0.13	0.16
Ac-ft	419	3,100	10,980	12,960	15,820	3,990	3,620	897	579	325	191	232

Calendar year 1953: Max 682 Min 1.5 Mean 79.2 Cfsm 2.87 In. 38.96 Ac-ft 57,380
Water year 1953-54: Max 825 Min 1.5 Mean 73.4 Cfsm 2.66 In. 36.09 Ac-ft 53,110

Peak discharge (base, 600 cfs).--Dec. 10 (3:30 a. m.) 648 cfs (11.01 ft); Jan. 5 (11 a. m.) 689 cfs (10.69 ft); Jan. 22 (12 m.) 862 cfs (11.13 ft); Feb. 12 (6 to 7 p. m.) 878 cfs (11.16 ft); Feb. 20 (6 a. m.) 777 cfs (10.96 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for Gales Creek near Forest Grove and Scoggin Creek near Gaston and weather records.

Tualatin River at Farmington, Oreg.

Location.—Lat 45°27'00", long 122°57'00", in SE¼ sec. 29, T. 1 S., R. 2 W., on left bank attached to timber bents at upstream side of highway bridge at Farmington, 5½ miles southeast of Hillsboro.

Drainage area.—568 sq mi.

Records available.—October 1939 to September 1954.

Gage.—Staff gage read twice daily. Datum of gage is 100.42 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1940, at datum 2.00 ft higher. Auxiliary staff gage read twice daily at highway bridge 6½ miles downstream.

Average discharge.—15 years, 1,338 cfs (968,700 acre-ft per year).

Extremes.—Maximum discharge during year, 13,200 cfs Feb. 15 (gage height, 33.30 ft); minimum daily, 38 cfs Aug. 14.

1939-54: Maximum discharge, 17,400 cfs Feb. 18, 1949; maximum gage height, 34.5 ft Feb. 18, 1949, from graph based on gage readings; minimum discharge, 6.8 cfs Aug. 26, 1951. Maximum stage known, about 37 ft at Farmington and 33.4 ft at gage near Scholls, Dec. 22 or 23, 1933.

Remarks.—Records good except those for periods of no gage-height record, which are fair. Slight regulation by log ponds and dam below Gaston have little effect at this station; considerable pondage between this station and station near Willamette. Some diversions by pumping for irrigation above station, chiefly at Wapato Lake, near Gaston.

Revisions (water years).—WSP 1248: 1941.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Dec. 10, Sept. 13-30)

3.0	36	8.0	622	22.0	3,850
3.5	69	12.0	1,320	30.0	8,470
5.0	217	18.0	2,520	33.0	12,500

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	88	133	1,960	2,030	5,540	4,820	794	562	310	210	48	120
2	173	134	1,700	1,740	5,270	4,300	784	536	300	220	46	180
3	190	134	1,600	1,850	5,240	3,550	889	536	275	222	46	110
4	150	132	1,640	2,620	4,900	3,210	1,250	550	284	210	46	100
5	124	131	1,820	*3,970	4,730	2,850	1,590	554	288	190	44	80
6	100	148	2,230	5,000	4,320	2,220	2,020	547	288	180	50	85
7	86	219	2,710	7,600	4,180	1,830	2,220	498	279	170	56	75
8	81	261	3,090	*8,530	3,780	1,700	2,260	456	270	160	56	70
9	157	237	*3,520	7,760	3,460	2,280	2,270	452	*273	170	56	70
10	265	226	4,650	6,980	3,270	2,620	2,200	420	290	170	56	75
11	361	208	*6,040	6,240	3,070	*2,960	2,120	400	288	180	54	85
12	330	204	7,770	5,530	3,520	3,200	2,000	380	280	169	48	90
13	222	218	7,140	5,080	5,020	3,320	1,900	360	280	160	44	127
14	186	234	6,440	4,500	9,900	3,200	1,800	360	301	140	38	142
15	118	273	5,680	4,120	12,400	3,020	1,710	340	305	130	44	140
16	*108	346	5,180	3,770	10,000	2,750	1,530	320	340	120	48	130
17	115	562	4,790	3,680	8,300	2,460	1,440	320	360	115	52	130
18	151	673	4,000	3,710	7,220	2,090	1,290	300	350	110	56	130
19	320	694	3,620	3,660	7,170	1,770	1,210	280	320	110	54	120
20	428	622	3,930	3,620	7,720	1,580	1,120	269	310	118	56	120
21	308	784	4,310	*3,210	10,700	1,440	1,020	251	320	105	58	110
22	222	989	4,810	4,460	11,400	1,300	*948	241	300	105	60	108
23	186	1,800	5,320	5,800	10,600	1,200	914	226	280	105	61	90
24	152	*2,190	5,170	8,980	8,720	1,130	872	234	250	105	58	100
25	151	2,340	4,850	8,430	7,150	1,060	824	250	230	105	*63	90
26	150	2,440	4,450	7,460	6,350	984	787	270	220	95	69	82
27	131	2,540	4,030	7,150	5,730	957	744	300	210	85	77	67
28	124	2,520	3,600	6,800	5,220	966	702	320	220	75	90	73
29	122	2,420	3,070	6,600	-------	940	678	300	220	65	97	65
30	122	2,070	2,680	6,500	-------	886	630	280	210	55	100	73
31	127	-------	2,190	5,930	-------	830	-------	290	-------	50	90	-------
Total	5,548	25,882	123,990	163,310	184,880	67,423	40,516	11,402	8,451	4,204	1,821	3,037
Mean	179	863	4,000	5,268	6,603	2,175	1,351	368	282	136	58.7	101
Cfsm	0.315	1.52	7.04	9.27	11.6	3.83	2.38	0.648	0.496	0.239	0.103	0.178
In.	0.36	1.69	8.12	10.69	12.11	4.41	2.65	0.75	0.55	0.28	0.12	0.20
Ac-ft	11,000	51,340	245,900	323,900	366,700	133,700	80,360	22,620	16,760	8,340	3,610	6,020

Calendar year 1953: Max 11,500 Min 25 Mean 1,641 Cfsm 2.89 In. 39.19 Ac-ft 1,188,000
Water year 1953-54: Max 12,400 Min 38 Mean 1,755 Cfsm 3.09 In. 41.93 Ac-ft 1,270,000

* Discharge measurement made on this day.

Note.--No gage-height record May 10-19, May 25 to June 2, June 8, 10, 12, 13, June 16 to July 2, July 4-11, July 13 to Aug. 20, Aug. 31 to Sept. 12, Sept. 16-21; discharge estimated on basis of records for stations at Dilley and near Willamette.

Tualatin River near Willamette, Oreg.

Location. —Lat 45°21'05", long 122°40'35", in SW¼ sec. 34, T. 2 S., R. 1 E., on left bank 300 ft upstream from county bridge, 1 mile northwest of Willamette, and 1¾ miles above mouth.
Drainage area. —710 sq mi.
Records available. —July 1928 to September 1954.
Gage. —Water-stage recorder. Datum of gage is 85.61 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 12, 1941, staff gage at datum 1.02 ft higher.
Average discharge. —26 years, 1,455 cfs (1,053,000 acre-ft per year).
Extremes. —Maximum discharge during year, 11,900 cfs Feb. 23; minimum daily, 23 cfs Aug. 11, 12. 1928-54: Maximum discharge, 29,300 cfs Dec. 1933; minimum daily, 20 cfs Aug. 8-10, 1952.
Remarks. —Records good except those for period of no gage-height record and those below 50 cfs, which are good. All records herein include flow of Oswego Canal, which diverts water 4½ miles above station for recreational use in Oswego Lake and development of power between outlet of that lake and Willamette River, to which water is returned. Several small diversions above station for irrigation. Some regulation in low-water season by flashboards on crest of diversion dam for Oswego Canal.
Revisions (water years). —WSP 1014: 1943. WSP 1184: 1947. WSP 1248: 1941.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	90	155	2,430	2,450	7,160	6,180	871	658	346	238	60	72
2	162	154	2,160	2,180	6,620	5,360	849	629	367	241	59	116
3	225	154	1,980	2,260	6,130	4,650	996	621	364	252	54	199
4	214	154	1,990	3,250	5,730	3,990	1,260	a620	346	239	52	205
5	177	156	2,120	4,860	5,380	3,380	1,830	a650	357	217	51	143
6	147	158	2,910	5,180	5,050	2,880	2,440	a660	359	200	49	119
7	128	167	3,600	5,700	4,710	2,340	2,710	a550	342	191	49	107
8	119	212	3,940	6,670	4,360	2,130	2,740	a550	336	181	51	108
9	127	265	4,670	7,280	4,050	2,500	2,740	a500	*348	175	53	104
10	216	260	5,700	7,560	3,780	3,160	2,650	a500	363	177	53	93
11	271	236	*5,770	7,390	3,580	3,550	2,520	a500	362	181	23	93
12	386	220	6,240	6,900	4,230	*3,690	2,380	a460	340	191	23	94
13	325	223	6,720	6,280	6,050	3,760	2,280	446	322	194	24	97
14	239	229	6,800	5,690	6,860	3,730	2,110	432	324	182	36	107
15	185	250	6,660	5,140	8,290	3,590	1,980	417	346	158	64	177
16	*166	385	6,160	4,640	10,300	3,340	1,810	397	364	142	57	197
17	161	599	5,600	4,240	10,700	3,050	1,640	378	399	132	51	190
18	181	820	5,020	4,360	9,920	2,670	1,470	364	435	124	52	188
19	213	855	4,830	4,470	9,210	2,260	1,340	339	415	*122	54	186
20	377	766	5,260	*4,250	9,030	1,900	1,230	319	377	121	55	177
21	394	820	5,140	4,010	9,260	1,680	1,130	304	357	121	56	166
22	320	1,190	5,050	5,800	10,500	1,500	1,060	301	357	118	57	157
23	262	1,960	5,170	6,670	11,600	1,380	*985	296	357	118	55	148
24	227	*2,470	5,330	6,860	11,500	1,260	928	288	308	118	55	139
25	207	*2,670	5,290	7,660	10,300	1,190	866	289	272	111	59	129
26	194	2,860	5,070	8,360	9,100	1,110	831	308	255	104	*82	123
27	185	2,980	4,740	9,100	7,970	1,070	805	328	248	95	92	120
28	177	2,970	4,280	9,370	7,060	1,050	775	368	242	92	101	118
29	169	2,820	3,810	9,060	-------	1,050	733	386	240	81	109	112
30	161	2,640	3,350	8,480	-------	989	692	365	240	72	103	107
31	153	-------	2,900	7,820	-------	916	-------	358	-------	65	67	-------
Total	6,558	29,796	140,690	183,940	208,430	81,305	46,651	13,521	10,068	4,753	1,806	4,091
Mean	212	993	4,538	5,934	7,444	2,623	1,555	436	336	153	58.3	136
Cfsm	0.299	1.40	6.39	8.36	10.5	3.69	2.19	0.614	0.473	0.215	0.082	0.192
In.	0.34	1.56	7.37	9.63	10.92	4.26	2.44	0.71	0.53	0.25	0.09	0.21
Ac-ft	13,010	59,100	279,100	364,800	413,400	161,300	92,530	26,820	19,970	9,430	3,580	8,110

Calendar year 1953: Max 11,700 Min 52 Mean 1,849 Cfsm 2.60 In. 35.35 Ac-ft 1,339,000
Water year 1953-54: Max 11,600 Min 23 Mean 2,004 Cfsm 2.82 In. 38.31 Ac-ft 1,451,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for stations at Dilley and at Farmington.

Clackamas River at Big Bottom, Oreg.

Location. —Lat 45°01'00", long 121°55'00", in SE¼ sec. 26, T. 6 S., R. 7 E., on right bank just downstream from Pot Creek at lower end of Big Bottom, half a mile upstream from site of proposed dam and 28 miles southeast of Estacada. Inflow between gage and measuring section 2,000 ft downstream is included in records.

Drainage area. —136 sq mi at measuring section 2,000 ft downstream.

Records available. —April 1920 to September 1954.

Gage. —Water-stage recorder. Datum of gage is 2,057.56 ft above mean sea level, datum of 1929 (Public Roads Administration benchmark).

Average discharge. —34 years, 469 cfs (339,500 acre-ft per year).

Extremes. —Maximum discharge during year, 5,050 cfs Dec. 19 (gage height, 7.81 ft), from rating curve extended above 2,200 cfs by logarithmic plotting; minimum, 253 cfs Nov. 1, 2, 3, 4, 5 (gage height, 1.82 ft).

1920-54: Maximum discharge, 6,750 cfs Mar. 31, 1931, Dec. 15, 1946, from rating curves extended above 3,500 and 1,700 cfs, respectively; maximum gage height, 8.63 ft Jan. 18, 1953; minimum discharge, 184 cfs Sept. 12, 1942.

Remarks. —Records excellent except those above 3,000 cfs, which are fair. No regulation or diversion above station.

Cooperation. —Water-stage-recorder graph and 12 discharge measurements furnished by Portland General Electric Co.

Revisions (water years). —WSP 1218: Drainage area. WSP 1248: 1943.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 19		Dec. 20 to Sept. 30	
1.8	247	1.9	260
2.5	485	2.5	450
3.5	940	3.5	900
5.0	1,850	5.0	1,850
5.3	2,090	6.5	3,370

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	352	259	565	545	686	632	422	*624	825	533	326	305
2	304	256	561	521	646	601	422	596	750	497	326	302
3	278	253	610	*513	619	578	637	596	745	*474	326	299
4	269	256	605	743	606	553	*790	619	735	460	323	299
5	266	256	605	905	592	533	970	619	720	443	323	299
6	262	291	*860	790	574	517	950	642	*686	436	320	299
7	259	294	686	735	557	509	815	691	650	426	*320	296
8	256	269	641	678	545	686	835	805	696	415	317	296
9	256	269	1,310	624	541	1,000	815	900	815	422	314	296
10	281	269	1,400	601	541	1,100	735	895	725	432	314	296
11	272	272	990	570	553	915	696	950	691	415	314	*302
12	266	272	1,040	537	890	810	691	905	810	401	314	341
13	259	266	930	521	1,200	735	950	845	760	390	311	311
14	259	269	815	537	1,020	686	985	835	710	387	311	305
15	259	288	765	521	900	660	885	885	880	377	317	317
16	256	449	677	505	815	628	860	940	915	371	317	317
17	269	387	628	482	775	596	930	990	825	368	314	293
18	331	334	628	478	730	565	985	1,080	750	362	311	302
19	294	331	2,070	454	720	549	935	1,130	715	359	332	299
20	288	328	3,270	432	885	533	875	1,050	715	356	329	299
21	281	356	1,710	457	1,140	513	835	940	696	359	323	296
22	272	*1,770	1,280	886	1,010	493	830	850	668	353	314	293
23	269	1,800	1,040	875	885	485	835	825	646	347	311	293
24	266	1,090	900	725	820	478	815	840	614	344	311	290
25	*262	810	800	650	785	464	800	810	592	341	311	287
26	259	659	745	619	755	457	775	875	583	338	314	287
27	256	700	700	642	700	478	785	785	565	335	311	290
28	256	618	664	725	*668	471	760	720	545	332	308	290
29	256	561	628	820	-------	450	705	755	517	329	305	290
30	256	553	583	800	-------	440	664	795	533	329	305	290
31	256	-------	553	*730	-------	429	-------	795	-------	326	308	-------
Total	8,425	14,785	29,259	19,621	21,158	18,544	23,987	25,587	21,077	12,057	9,800	8,979
Mean	272	493	944	633	756	598	800	825	703	389	316	299
Cfsm	2.00	3.62	6.94	4.65	5.56	4.40	5.88	6.07	5.17	2.86	2.32	2.20
In.	2.30	4.04	8.00	5.37	5.79	5.07	6.56	7.00	5.76	3.30	2.68	2.46
Ac-ft	16,710	29,330	58,030	38,920	41,970	36,780	47,580	50,750	41,810	23,910	19,440	17,810

Calendar year 1953: Max 5,320 Min 253 Mean 611 Cfsm 4.49 In. 61.00 Ac-ft 442,500
Water year 1953-54: Max 3,270 Min 253 Mean 584 Cfsm 4.29 In. 58.33 Ac-ft 423,000

Peak discharge (base, 1,200 cfs).--Nov. 22 (8 p. m.) 2,710 cfs (5.93 ft); Dec. 9 (8:30 p. m.) 2,150 cfs (5.37 ft); Dec. 19 (10:30 p. m.) 5,050 cfs (7.81 ft); Feb. 13 (6 to 7 a. m.) 1,250 cfs (4.11 ft); Feb. 21 (12 m.) 1,230 cfs (4.09 ft); Mar. 9 (11 p. m.) 1,210 cfs (4.05 ft).

* Discharge measurement made on this day.

Oak Grove Fork above powerplant intake, Oreg.

Location.—Lat 45°04'30", long 121°57'00", in SW¼ sec. 3, T. 6 S., R. 7 E., on right bank just upstream from Spring Creek, two-thirds of a mile upstream from Kink Creek, 1 mile upstream from intake of power development of Portland General Electric Co., and 24 miles southeast of Estacada. Records include flow of Spring Creek.

Drainage area.—126 sq mi, includes that of Spring Creek.

Records available.—May 1909 to December 1923 (incomplete), December 1923 to September 1954. Published as both Oak Grove Fork of Clackamas River at proposed intake, near Cazadero and Oak Grove Fork of Clackamas River at intake, near Cazadero May 1909 to September 1910, as Oak Grove Fork of Clackamas River at intake, near Cazadero October 1910 to September 1921, and as Oak Grove Fork at Portland Electric Power Co.'s intake October 1921 to September 1929.

Gage.—Water-stage recorder. Datum of gage is 2,052.31 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. May 21, 1909, to Nov. 17, 1911, staff gage and Mar. 26, 1912, to Sept. 30, 1923, water-stage recorders, at various sites three-quarters of a mile downstream, below Kink Creek, at different datum.

Average discharge.—30 years (1924-54), 483 cfs (349,700 acre-ft per year).

Extremes.—Maximum discharge during year, 1,840 cfs Dec. 19 (gage height, 3.82 ft); minimum, 319 cfs Nov. 5.

1909-54: Maximum discharge, 5,000 cfs Jan. 7, 1923 (gage height, 5.45 ft, site and datum then in use), computed from flow at stations on Clackamas River; minimum, 236 cfs Oct. 15, 16, 18, 1931 (gage height, 1.42 ft).

Remarks.—Records excellent except those above 900 cfs, which are good. No diversion above station; no regulation.

Cooperation.—Water-stage-recorder graph and 12 discharge measurements furnished by Portland General Electric Co.

Revisions (water years).—WSP 1248: 1909, 1910(M), 1916, 1918, 1923, 1932.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	367	336	555	610	565	620	502	669	876	624	431	395
2	353	332	620	590	565	610	507	*658	825	598	425	395
3	350	328	647	*580	565	595	*570	664	811	578	425	395
4	346	328	615	652	565	585	600	674	797	*559	431	395
5	346	332	*615	722	560	580	669	674	*797	546	425	395
6	346	350	740	692	555	570	680	692	804	540	425	389
7	346	336	630	669	550	565	636	722	790	526	425	389
8	346	332	615	636	550	630	664	776	783	520	*425	389
9	342	332	1,010	615	550	728	658	821	818	526	419	389
10	350	332	1,050	600	550	758	630	842	797	533	413	377
11	342	332	835	585	555	704	630	863	769	514	425	401
12	342	328	998	570	674	664	642	856	804	500	425	*407
13	342	325	886	570	780	642	734	842	776	494	425	395
14	339	328	782	595	720	620	764	842	755	488	419	395
15	339	328	728	580	692	620	740	856	811	481	419	419
16	336	367	680	565	664	610	746	878	818	474	419	413
17	336	339	647	550	658	590	794	910	804	468	413	401
18	*353	332	625	540	630	580	828	961	762	468	413	395
19	350	339	1,170	525	642	575	794	1,030	748	462	425	389
20	353	339	1,610	512	722	565	758	1,010	741	462	431	389
21	342	*361	1,240	516	814	555	758	988	720	468	425	389
22	336	920	1,020	686	*776	550	764	940	706	462	413	389
23	336	998	894	674	728	545	770	916	685	455	413	383
24	336	746	800	625	710	540	764	908	671	449	413	377
25	332	610	734	600	704	535	752	892	657	449	413	377
26	332	550	710	590	686	530	740	988	650	449	413	377
27	336	570	686	590	658	545	752	956	644	443	407	377
28	336	535	686	580	*647	530	728	876	650	443	407	377
29	332	540	674	595	-------	516	698	876	624	437	401	377
30	332	530	636	575	-------	512	686	892	618	437	401	371
31	332	-------	615	565	-------	507	-------	884	-------	437	401	-------
Total	10,606	13,055	24,753	18,554	18,035	18,276	20,958	26,356	22,511	15,290	12,965	11,706
Mean	342	435	798	599	644	590	699	850	750	493	418	390
Cfsm	2.71	3.45	6.33	4.75	5.11	4.68	5.55	6.75	5.95	3.91	3.32	3.10
In.	3.13	3.85	7.31	5.48	5.32	5.39	6.19	7.78	6.64	4.51	3.83	3.46
Ac-ft	21,040	25,890	49,100	36,800	35,770	36,250	41,570	52,280	44,650	30,330	25,720	23,220

Calendar year 1953: Max 3,040 Min 320 Mean 602 Cfsm 4.77 In. 64.70 Ac-ft 434,900
Water year 1953-54: Max 1,610 Min 325 Mean 584 Cfsm 4.63 In. 62.89 Ac-ft 422,600

Peak discharge (base, 940 cfs).--Nov. 22 (6:30 p. m.) 1,580 cfs (3.62 ft); Dec. 9 (7:30 p. m.) 1,360 cfs (3.43 ft); Dec. 19 (10 p. m.) 1,840 cfs (3.82 ft); May 18 (11 p. m.) 1,040 cfs (2.92 ft).

* Discharge measurement made on this day.

Clackamas River above Three Lynx Creek, Oreg.

Location. —Lat 45°07'30", long 122°04'20", in NE¼ sec. 21, T. 5 S., R. 6 E., on right bank just downstream from powerplant, 500 ft upstream from Three Lynx Creek and 17 miles southeast of Estacada.

Drainage area. —479 sq mi.

Records available. —April 1909 to December 1913, October 1921 to September 1954.

Gage. —Water-stage recorder. Datum of gage is 1,091.69 ft above mean sea level, datum of 1929, supplementary adjustment of 1947 (levels by Portland General Electric Co.). Apr. 23, 1909, to Jan. 4, 1914, staff gage at about same site and datum.

Average discharge. —37 years, 1,918 cfs (1,389,000 acre-ft per year).

Extremes. —Maximum discharge during year, 25,700 cfs Dec. 19 (gage height, 12.38 ft), from rating curve extended above 15,000 cfs by logarithmic plotting; minimum, 425 cfs Sept. 26 (gage height, 0.65 ft); minimum daily, 716 cfs Oct. 31.

1909-13, 1921-54: Maximum discharge, 34,800 cfs Mar. 31, 1931 (gage height, 15.5 ft), from rating curve extended above 11,000 cfs; minimum observed, 357 cfs Sept. 15, 1949; minimum daily, 536 cfs Oct. 22, 1930.

Remarks. —Records excellent except those for periods of no gage-height record, which are good. Water diverted from Oak Grove Fork is used in powerplant on Clackamas River just above station. Considerable diurnal fluctuation during periods of low flow.

Cooperation. —Water-stage-recorder graph and 12 discharge measurements furnished by Portland General Electric Co.

Revisions (water years). —WSP 1184: Drainage area. WSP 1248: 1910(M), 1912, 1948-50(M).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,110	760	2,810	2,250	3,400	2,650	1,540	a2,100	3,370	1,950	970	868
2	1,060	911	2,960	2,120	3,280	2,450	1,530	a2,000	2,860	1,800	977	850
3	884	754	3,760	2,110	3,180	2,310	2,640	a2,000	2,760	1,750	956	844
4	819	743	a3,800	3,890	3,200	2,160	3,790	a2,100	2,660	1,650	935	*882
5	801	748	a3,800	5,590	3,180	2,070	4,980	a2,200	2,560	1,600	904	857
6	789	925	a6,000	4,370	3,040	*2,020	4,940	a2,300	2,440	1,530	858	867
7	783	1,090	4,060	3,720	2,860	1,940	3,840	2,460	2,350	1,480	965	957
8	765	946	3,560	3,260	2,760	3,200	3,730	3,080	2,410	*1,410	944	934
9	754	890	9,190	2,900	2,860	6,260	3,700	3,560	2,860	1,450	930	846
10	*851	884	8,600	2,630	2,850	6,240	*3,250	3,390	2,640	1,520	922	859
11	851	*932	5,180	2,440	2,780	4,460	2,980	a3,400	2,500	1,490	917	864
12	813	925	5,420	2,230	6,330	3,610	2,880	3,280	2,700	1,430	917	981
13	801	897	*4,840	2,120	*8,690	3,130	4,410	3,020	2,630	1,350	904	905
14	789	897	4,010	2,300	6,120	2,800	4,610	a2,700	2,500	1,350	*910	874
15	783	1,060	3,560	2,270	4,640	2,600	3,880	3,120	3,280	1,250	917	921
16	777	2,450	a3,200	2,160	3,970	2,470	3,600	3,440	3,970	1,200	909	921
17	807	2,100	a3,000	2,030	3,690	2,270	3,980	a3,700	3,570	1,180	872	882
18	1,190	1,560	a2,800	1,950	3,460	2,120	4,230	a3,900	3,160	1,150	944	869
19	1,200	1,610	11,100	1,800	3,400	2,030	3,840	3,930	2,880	1,100	926	847
20	1,090	1,610	16,100	a1,700	4,820	1,950	3,400	3,640	2,800	1,090	938	823
21	1,040	1,980	8,690	1,800	7,020	1,880	3,170	3,300	2,710	1,110	907	808
22	960	13,600	5,780	5,440	5,560	1,800	3,090	2,950	2,540	1,060	851	808
23	911	10,900	4,500	5,300	4,370	1,770	3,130	2,800	2,440	1,080	856	790
24	819	5,580	3,770	*3,770	3,880	1,720	3,040	2,870	2,260	1,060	849	780
25	832	3,900	3,240	3,080	3,650	1,680	*2,920	2,820	2,160	1,050	850	780
26	795	2,950	2,940	2,720	3,520	1,600	2,750	3,260	2,100	1,040	897	771
27	771	2,970	2,720	2,870	3,160	1,860	2,760	2,980	2,040	1,010	890	779
28	765	2,690	2,660	3,940	2,910	1,860	a2,700	2,640	2,030	995	870	779
29	754	2,530	2,640	4,330	-------	1,690	a2,500	2,640	1,880	995	850	792
30	726	2,470	2,390	4,150	-------	1,620	a2,300	*2,950	1,920	980	858	786
31	716	-------	2,250	3,630	-------	1,580	-------	3,030	-------	971	876	-------
Total	26,806	72,262	149,310	94,870	112,600	77,800	100,110	91,560	78,980	40,081	28,069	25,524
Mean	865	2,409	4,816	3,060	4,021	2,510	3,337	2,954	2,633	1,293	905	851
Cfsm	1.81	5.03	10.1	6.39	8.39	5.24	6.97	6.17	5.50	2.70	1.89	1.78
In.	2.08	5.61	11.59	7.37	8.74	6.04	7.77	7.11	6.13	3.11	2.18	1.98
Ac-ft	53,170	143,300	296,200	188,200	223,300	154,300	198,600	181,600	156,700	79,500	55,670	50,630

Calendar year 1953: Max 24,600 Min 716 Mean 2,683 Cfsm 5.60 In. 76.03 Ac-ft 1,942,000
Water year 1953-54: Max 16,100 Min 716 Mean 2,460 Cfsm 5.14 In. 69.71 Ac-ft 1,781,000

Peak discharge (base, 8,100 cfs).--Nov. 22 (6 p. m.) 19,200 cfs (10.59 ft); Dec. 9 (6 p. m.) 15,600 cfs (9.49 ft); Dec. 19 (10:30 p. m.) 25,700 cfs (12.38 ft); Jan. 22 (5:30 p. m.) 8,620 cfs (6.95 ft); Feb. 13 (2 a. m.) 9,740 cfs (7.41 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage and records for station near Cazadero.

Clackamas River near Cazadero, Oreg.

Location.—Lat 45°14'30", long 122°16'20", in NE¼ sec. 11, T. 4 S., R. 4 E., on right bank half a mile upstream from backwater from Cazadero Dam of Portland General Electric Co. and 2½ miles southeast of Cazadero.

Records available.—April 1908 to September 1954. Published as "at Estacada" April to December 1908.

Gage.—Water-stage recorder. Datum of gage is 532.0 ft above mean sea level (levels by Portland General Electric Co.); gage readings have been reduced to elevations above mean sea level. Apr. 6 to Dec. 31, 1908, staff gage at site 5 miles downstream at different datum. Jan. 1 to Nov. 19, 1909, staff gages, and Nov. 20, 1909, to Oct. 9, 1922, water-stage recorder, at site half a mile downstream at datum 532.0 ft lower. Oct. 10 to Nov. 14, 1922, staff gage at present site and datum.

Average discharge.—46 years, 2,663 cfs (1,928,000 acre-ft per year).

Extremes.—Maximum discharge during year, 33,700 cfs Dec. 20 (elevation, 550.00 ft); minimum daily, 695 cfs Oct. 31 (elevation, 534.15 ft); minimum daily, 885 cfs Oct. 31.

1908-54: Maximum discharge, 60,800 cfs Mar. 31, 1931 (elevation, 556.5 ft), by computation of peak flow over dam, from data furnished by Portland General Electric Co.; minimum, 410 cfs Oct. 20, 1925, Sept. 28, 1930 (elevation, 523.03 ft), caused by shutdown in powerplant at Three Lynx; minimum daily, 587 cfs Aug. 17, 1930.

Remarks.—Records good except those for periods of no gage-height record, which are fair. Some diurnal fluctuation during low flow caused by Oak Grove powerplant. Oregon City diverts about 3,300 acre-ft annually from South Fork Clackamas River for municipal water supply.

Cooperation.—Water-stage recorder graph and 12 discharge measurements furnished by Portland General Electric Co.

Revisions (water years).—WSP 1184: Drainage area. WSP 1248: 1908-9, 1910(M), 1916, 1917(M), 1922(M), 1923, drainage area (former site).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,440	960	4,790	3,330	5,770	3,790	2,040	2,710	4,650	2,900	1,200	1,070
2	1,410	1,100	5,490	3,150	5,690	3,480	2,030	2,580	3,950	2,720	1,190	1,070
3	1,140	944	6,760	3,140	5,530	3,230	3,490	2,590	3,670	2,530	1,170	1,000
4	1,040	922	6,800	5,590	5,440	3,020	4,950	2,710	3,500	2,300	1,170	*1,080
5	988	932	6,760	8,850	5,350	2,840	6,320	2,790	3,500	2,170	1,100	1,000
6	966	1,140	9,780	6,350	5,120	*2,700	6,700	2,890	3,450	2,040	1,040	1,040
7	949	1,390	6,720	5,390	4,840	2,570	5,230	3,140	3,460	1,940	1,140	1,030
8	932	1,180	6,550	4,740	4,590	4,000	5,060	*3,790	3,440	1,840	1,120	1,090
9	922	1,110	13,700	4,200	4,500	7,740	5,000	4,350	4,010	1,930	1,140	945
10	*1,050	1,090	14,500	3,880	4,400	8,480	*4,400	4,150	3,780	*2,040	1,090	1,100
11	1,060	*1,150	a8,000	3,560	4,180	5,790	4,010	4,200	3,520	1,960	1,120	1,030
12	1,040	1,140	8,350	3,280	7,330	4,850	3,900	4,010	3,630	1,870	1,100	1,200
13	960	1,090	*7,320	3,070	*12,200	4,190	5,660	3,680	3,520	1,760	1,060	1,120
14	938	1,100	6,420	3,240	9,380	3,750	6,000	3,500	3,340	1,740	*1,120	1,080
15	927	1,260	5,680	3,580	6,950	3,520	5,150	3,700	4,090	1,660	1,130	1,340
16	922	3,120	4,960	3,420	5,940	3,360	4,740	a4,100	5,340	1,600	1,130	1,280
17	927	3,090	4,430	3,140	5,500	3,080	5,030	a4,300	4,980	1,510	1,090	1,250
18	1,350	2,140	4,260	2,960	5,220	2,860	5,230	a4,500	4,420	1,490	1,100	1,190
19	1,520	2,180	13,100	a2,700	4,760	2,720	4,810	a4,600	3,950	1,480	1,200	1,130
20	1,380	2,350	23,400	2,430	5,960	2,590	4,290	a4,310	3,740	1,450	1,190	1,100
21	1,340	2,480	12,400	2,400	8,850	2,470	a4,100	a3,900	3,520	1,510	1,250	1,060
22	1,200	18,000	8,480	6,290	8,750	2,390	a4,000	a3,600	3,280	1,440	1,120	1,080
23	1,120	18,100	6,170	8,880	6,580	2,320	a4,000	a3,400	3,100	1,400	1,130	1,050
24	1,020	8,720	5,150	*5,730	5,710	2,270	a3,900	a3,400	2,850	1,370	1,110	1,030
25	1,020	6,180	4,410	4,640	5,230	2,190	3,630	a3,400	2,740	1,340	1,150	1,020
26	976	4,860	4,040	4,130	5,000	2,040	3,470	a3,900	2,610	1,300	1,130	1,010
27	966	4,860	3,870	4,180	4,560	2,540	3,460	3,800	2,610	1,280	1,140	1,000
28	916	4,540	3,800	7,180	4,150	2,680	3,340	a3,500	2,670	1,270	1,070	985
29	910	4,400	4,020	7,150	-------	2,370	3,070	a3,700	2,400	1,250	1,080	980
30	922	4,110	3,610	6,950	-------	2,220	2,920	*3,840	2,490	1,220	1,060	970
31	885	-------	3,360	6,110	-------	2,130	-------	4,080	-------	1,200	1,140	-------
Total	33,136	105,638	227,080	143,640	167,480	104,180	129,930	113,120	106,210	53,510	34,980	32,330
Mean	1,069	3,521	7,325	4,634	5,981	3,361	4,331	3,649	3,540	1,726	1,128	1,078
Cfsm	1.63	5.36	11.1	7.05	9.10	5.12	6.59	5.55	5.39	2.63	1.72	1.64
In.	1.88	5.98	12.85	8.13	9.48	5.90	7.35	6.40	6.01	3.03	1.98	1.83
Ac-ft	65,720	209,500	450,400	284,900	332,200	206,600	257,700	224,400	210,700	106,100	69,380	64,130

Calendar year 1953: Max 35,200 Min 885 Mean 3,704 Cfsm 5.64 In. 76.52 Ac-ft 2,682,000
Water year 1953-54: Max 23,400 Min 885 Mean 3,428 Cfsm 5.22 In. 70.82 Ac-ft 2,482,000

Peak discharge (base, 11,000 cfs).--Nov. 22 (8 p. m.) 30,500 cfs (548.93 ft); Dec. 9 (9:30 p. m.) 22,700 cfs (546.15 ft); Dec. 20 (12:30 a. m.) 33,700 cfs (550.00 ft); Feb. 13 (7 to 9 a. m.) 12,800 cfs (542.21 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage and records for station at Big Bottom.

Johnson Creek at Sycamore, Oreg.

Location.—Lat 45°28'40", long 122°30'25", in lot 2, SW¼ sec. 13, T. 1 S., R. 2 E., on right bank a third of a mile southwest of Sycamore station and 2½ miles east of city limits of Portland.
Drainage area.—28.2 sq mi.
Records available.—June 1940 to September 1954.
Gage.—Water-stage recorder and concrete control with steel weir for low flows. Datum of gage is 228.47 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.
Average discharge.—14 years, 53.2 cfs (38,520 acre-ft per year).
Extremes.—Maximum discharge during year, 1,590 cfs Jan. 22 (gage height, 12.23 ft); minimum, 1.7 cfs Sept. 30 (gage height, 0.94 ft).
1940-54: Maximum discharge, 2,110 cfs Feb. 10, 1949 (gage height, 13.77 ft, from floodmark); minimum, 0.2 cfs Aug. 14-16, 18-22, 1940, Aug. 2, 21, 22, 1941.
Remarks.—Records good except those for periods of shifting control or backwater from debris and those below 10 cfs, which are fair. Small diversions above station for irrigation; slight diurnal fluctuation at low flow caused by recreational ponds upstream.

Rating table, water year 1953-54, except periods of shifting control or backwater from debris
(gage height, in feet, and discharge, in cubic feet per second)

0.9	1.3	3.0	106
1.0	2.2	5.0	290
1.1	4.5	7.5	590
1.5	22	9.5	920
2.0	46	11.0	1,240

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	3.8	123	77	129	53	20	11	28	29	2.9	6.1
2	4.5	3.8	139	80	99	46	23	9.4	16	18	2.7	4.3
3	4.0	4.3	246	143	80	38	84	11	13	13	2.7	3.8
4	2.4	3.6	278	*494	67	*32	105	12	12	11	2.7	4.0
5	1.8	4.9	262	433	57	29	208	12	17	9.9	2.7	3.8
6	2.4	4.9	522	217	50	28	220	10	18	8.6	2.7	3.6
7	2.0	4.9	272	150	44	25	144	9.0	15	8.6	2.7	3.6
8	2.2	4.5	*292	112	40	148	112	7.8	16	8.2	2.7	3.4
9	2.9	3.6	*482	93	36	214	87	7.4	46	*8.2	2.2	3.4
10	7.0	4.0	447	82	32	241	77	7.0	35	9.9	2.4	3.4
11	4.5	4.5	225	67	34	176	60	7.0	30	9.4	2.4	5.3
12	4.0	3.1	176	57	163	115	52	7.0	26	7.4	2.4	4.5
13	3.6	4.0	124	53	352	86	119	6.6	24	6.6	*2.4	4.5
14	3.4	5.3	96	74	242	68	83	6.1	22	5.7	2.4	4.3
15	3.6	9.0	77	214	153	60	*66	5.3	114	4.9	2.4	4.5
16	3.1	87	64	197	121	60	54	4.9	129	4.9	2.4	7.0
17	4.0	69	56	154	149	48	45	4.3	106	4.5	2.7	6.6
18	7.8	56	73	230	128	40	38	4.3	71	4.5	2.7	5.3
19	*7.0	62	406	*182	137	36	32	4.5	54	4.3	3.8	4.5
20	5.3	71	461	119	232	32	28	4.0	55	4.3	4.5	3.8
21	4.5	67	261	136	320	28	24	3.8	38	4.5	5.7	3.8
22	4.3	370	167	*1,080	202	24	21	3.6	29	4.5	4.3	3.6
23	3.8	402	116	420	135	22	18	3.6	22	4.0	4.0	3.6
24	3.8	194	92	263	102	22	16	3.4	19	3.6	4.9	3.1
25	3.4	131	73	202	80	19	15	6.1	16	3.6	5.7	2.9
26	2.7	142	73	239	93	17	14	*15	15	3.4	5.3	2.9
27	3.1	178	77	694	72	26	17	14	15	3.4	4.5	2.2
28	2.9	123	86	580	61	43	13	8.2	14	3.1	4.0	2.1
29	2.7	107	88	340	-------	30	12	9.0	12	3.1	3.8	2.1
30	2.4	98	72	239	-------	24	11	15	16	3.1	3.6	1.9
31	2.9	-------	62	172	-------	22	-------	17	-------	3.1	6.1	-------
Total	119.0	2,225.2	5,988	7,593	3,410	1,852	1,818	249.3	1,043	220.3	106.4	117.9
Mean	3.84	74.2	193	245	122	59.7	60.6	8.04	34.8	7.11	3.43	3.93
Cfsm	0.136	2.63	6.84	8.69	4.33	2.12	2.15	0.285	1.23	0.252	0.122	0.139
In.	0.16	2.93	7.90	10.01	4.50	2.44	2.40	0.33	1.38	0.29	0.14	0.16
Ac-ft	236	4,410	11,880	15,060	6,760	3,670	3,610	494	2,070	437	211	234

Calendar year 1953: Max 844 Min 1.6 Mean 74.0 Cfsm 2.62 In. 35.64 Ac-ft 53,610
Water year 1953-54: Max 1,080 Min 1.8 Mean 67.8 Cfsm 2.40 In. 32.63 Ac-ft 49,070

Peak discharge (base, 450 cfs).--Nov. 22 (12 p. m.) 555 cfs (7.43 ft); Dec. 6 (4 a. m.) 656 cfs (8.37 ft); Dec. 9 (11:30 p. m.) 673 cfs (8.24 ft); Dec. 19 (8 p. m.) 729 cfs (8.56 ft); Jan. 4 (5 p. m.) 730 cfs (8.57 ft); Jan. 22 (1 p. m.) 1,590 cfs (12.23 ft); Jan. 27 (6:30 p. m.) 1,100 cfs (10.38 ft).
* Discharge measurement made on this day.
Note.--Shifting-control method used or backwater from debris Nov. 22, 23, Dec. 3-11, 19-21, Jan. 4, 5, 23-28, Feb. 12-14, 21, Mar. 10, Apr. 5.

Salmon Creek near Battle Ground, Wash.

Location.—Lat 45°46'25", long 122°26'35", in NE¼SW¼ sec. 4, T. 3 N., R. 3 E., on left bank 100 ft upstream from highway bridge, 150 ft downstream from Rock Creek, and 4 miles east of Battle Ground.

Drainage area.—18.3 sq mi.

Records available.—October 1943 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 354.88 ft above mean sea level (river-profile survey). Prior to Oct. 1, 1950, staff gage at same site at datum 1.0 ft higher. Oct, 1, 1950, to June 24, 1953, staff gage and crest-stage indicator at same site and datum.

Average discharge.—10 years (1944-54), 63.8 cfs (46,190 acre-ft per year).

Extremes.—Maximum discharge during year, 1,500 cfs Jan. 22 (gage height, 4.02 ft), from rating curve extended above 310 cfs; minimum, 3.0 cfs Sept. 30; minimum gage height, 1.05 ft Oct. 6, 7.

1943-54: Maximum discharge, that of Jan. 22, 1954; minimum observed, 1.3 cfs Aug. 20, 22, 28-30, Sept. 5-9, 13, 14, 1949, Sept. 14-16, 22, 1951.

Remarks.—Records good except those for periods of no gage-height record, which are poor. No regulation or diversion.

Revisions (water years).—WSP 1044: 1944.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1-26		Oct. 27 to Sept. 30					
1.0	3.1	1.1	3.0	1.5	22	2.5	278
1.2	5.7	1.2	4.8	1.6	34	2.8	440
1.4	12	1.3	8.1	1.8	65	3.1	640
1.6	30	1.4	13.5	2.0	108	3.5	1,010
				2.2	164		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12.5	11	126	79	140	60	23	19.5	43	37	6.4	5.0
2	8.7	11	*184	75	118	53	37	18.5	37	29	6.1	*4.5
3	5.9	9.5	270	81	101	48	55	21	33	24	7.1	4.3
4	5.4	8.5	302	481	87	42	81	20	30	21	7.6	5.0
5	3.9	12	416	397	77	40	146	18.5	40	19.5	7.1	4.5
6	3.8	13	494	217	69	37	129	16	55	17.5	7.1	4.3
7	3.8	14	330	152	62	34	99	15	75	17.5	6.7	4.3
8	3.9	12	362	111	56	83	90	15	62	16.5	6.7	4.8
9	4.9	11	670	92	50	143	77	14.5	53	20	5.5	4.1
10	21	12	578	77	47	140	65	13.5	47	26	5.8	4.1
11	10.5	14	320	65	48	*113	58	15	42	20	5.5	6.7
12	7.5	17	253	56	124	90	58	15	38	16	5.8	8.6
13	6.4	16	188	60	206	75	67	13.5	36	15	6.4	6.7
14	*5.7	15	143	81	178	63	60	12.5	35	14.5	6.4	5.5
15	5.2	30	113	92	131	63	55	11.5	100	14.5	5.5	7.1
16	5.0	160	92	92	111	60	48	11	86	14.5	6.4	8.1
17	5.2	150	79	83	108	51	45	11	80	13	5.5	6.1
18	29	110	71	92	113	47	41	10	70	11.5	5.5	5.8
19	21	100	209	79	195	44	38	*9.6	70	11.5	5.8	5.0
20	15	100	358	63	297	41	*37	10	80	14.5	7.1	4.5
21	11	110	302	130	265	38	34	11	55	16	6.4	4.1
22	10	350	202	986	198	37	31	9.5	45	12.5	5.0	4.1
23	8.7	320	*149	400	146	34	30	9.0	*38	11	5.5	4.1
24	7.7	*155	118	232	116	33	28	9.5	37	11	8.1	3.9
25	7.5	124	96	161	96	30	25	11	31	10.5	9.1	3.9
26	7.2	118	90	137	90	29	24	25	31	10	6.7	3.6
27	6.5	143	79	278	77	37	24	17	35	9.1	5.5	3.6
28	6.2	126	114	*302	69	30	22	15	30	9.1	5.2	3.3
29	6.2	106	121	221	-------	28	20	18	25	8.6	5.0	3.3
30	10	*108	*99	188	-------	25	20	22	31	*8.1	5.0	3.2
31	8.0	-------	83	164	-------	24	-------	55	-------	7.1	5.5	-------
Total	273.3	2,486.0	7,011	5,724	3,375	1,672	1,567	492.6	1,470	486.0	193.0	146.1
Mean	8.82	82.9	226	185	121	53.9	52.2	15.9	49.0	15.7	6.23	4.87
Cfsm	0.482	4.53	12.3	10.1	6.61	2.95	2.85	0.869	2.68	0.858	0.340	0.266
In.	0.56	5.05	14.25	11.63	6.86	3.40	3.18	1.00	2.99	0.99	0.39	0.30
Ac-ft	542	4,930	13,910	11,350	6,690	3,320	3,110	977	2,920	964	383	290

Calendar year 1953: Max 800 Min 2.8 Mean 79.9 Cfsm 4.37 In. 59.26 Ac-ft 57,840
Water year 1953-54: Max 986 Min 3.2 Mean 68.2 Cfsm 3.73 In. 50.60 Ac-ft 49,390

Peak discharge (base, 470 cfs).---Dec. 6 (1:30 a. m.) 688 cfs (3.21 ft); Dec. 9 (3 p. m.) 1,000 cfs (3.51 ft); Jan. 4 (10 p. m.) 640 cfs (3.10 ft); Jan. 22 (8:30 a. m.) 1,500 cfs (4.02 ft); Jan. 27 (6:30 p. m.) 488 cfs (2.88 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 27 to Nov. 23, May 20 to June 22; discharge estimated on basis of recorded range in stage and records for stations on nearby streams.

Lewis River near Cougar, Wash.

Location. —Lat 46°03'30", long 122°12'40" (revised), in SE¼ sec. 29, T. 7 N., R. 5 E., on left bank 1 mile downstream from Swift Creek and 4 miles east of Cougar.
Drainage area. —481 sq mi.
Records available. —July 1910 to March 1912 (gage heights only), June 1924 to September 1954.
Gage. —Water-stage recorder. Datum of gage is 576.4 ft above mean sea level (river-profile survey). July 1910 to March 1912 staff gage at approximately present site at different datum. June 19 to Aug. 25, 1924, staff gage and Aug. 26, 1924, to Dec. 27, 1934, water-stage recorder, opposite present site at datum 2.0 ft higher.
Average discharge. —30 years (1924-54), 2,844 cfs (2,059,000 acre-ft per year).
Extremes. —Maximum discharge during year, 21,400 cfs Dec. 9 (gage height, 10.63 ft); minimum, 908 cfs Sept. 30 (gage height, 3.29 ft).
1910-12, 1924-54: Maximum discharge, 54,400 cfs Dec. 21, 1933 (gage height, 15.7 ft, datum then in use), from rating curve extended above 15,000 cfs; minimum, 454 cfs Oct. 21, 1931 (gage height, 0.01 ft, datum then in use).
Flood of Dec. 17 or 18, 1917, reached a stage of 14.0 ft (discharge, 45,000 cfs).
Remarks. —Records good. No regulation or diversion.
Revisions (water years). —WSP 904: 1939. WSP 964: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

3.3	915	6.0	4,570
3.6	1,150	7.0	6,940
4.0	1,530	8.0	9,950
5.0	2,800	10.0	18,200

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,630	1,110	*5,020	2,890	2,410	3,790	2,230	3,020	4,780	4,260	1,730	1,110
2	1,380	1,130	4,910	2,880	2,470	3,490	2,320	2,920	4,490	3,880	1,720	1,090
3	1,160	1,060	5,290	2,840	*2,470	3,230	3,660	2,900	4,530	3,630	1,660	1,080
4	1,060	1,050	5,130	3,560	2,470	3,020	4,590	3,060	4,610	3,520	1,600	1,060
5	998	1,090	5,660	5,780	2,480	2,840	6,490	3,150	4,380	3,630	1,540	1,050
6	960	1,400	5,430	8,260	2,510	2,710	6,510	3,400	4,340	3,560	1,520	1,040
7	938	1,570	6,460	7,320	2,540	2,590	5,590	4,040	4,120	3,680	1,490	1,040
8	922	1,430	5,630	6,360	2,590	3,870	5,590	5,110	4,020	3,470	1,460	1,090
9	968	1,350	14,200	5,450	2,710	8,860	5,290	5,920	4,000	3,310	1,420	1,050
10	1,240	1,330	14,700	4,760	2,720	8,770	4,760	6,110	4,060	4,160	1,400	1,050
11	1,130	1,430	10,000	4,160	2,710	7,130	4,360	6,280	3,980	4,280	1,380	1,140
12	1,020	1,440	9,810	3,720	4,710	5,900	4,380	5,990	4,100	3,640	1,360	1,150
13	982	1,370	7,630	3,440	7,770	5,040	6,620	5,520	4,120	3,370	1,340	1,100
14	960	1,450	6,360	3,730	7,290	4,400	6,620	5,270	4,040	3,400	1,340	1,050
15	*945	2,590	5,500	3,490	6,140	*3,940	5,870	5,520	5,870	3,360	1,330	1,130
16	930	3,400	4,850	3,180	5,680	3,590	5,430	6,240	6,670	3,120	1,310	1,140
17	1,110	3,100	4,320	3,000	5,780	3,290	5,590	7,020	5,700	2,950	1,290	1,180
18	1,760	2,710	4,220	2,860	5,400	3,060	5,610	*7,710	4,930	2,800	1,280	1,130
19	1,530	2,760	8,320	2,620	5,990	2,860	*5,310	8,120	4,720	2,710	1,280	1,070
20	1,410	2,780	13,900	2,370	8,470	2,720	4,850	7,490	5,630	2,550	1,420	1,040
21	1,370	3,450	10,600	2,450	11,300	2,570	4,530	6,440	5,780	2,380	1,340	1,020
22	1,280	3,350	7,890	5,150	9,950	2,450	4,420	5,610	*5,590	*2,210	1,280	998
23	1,230	8,000	6,260	4,340	7,770	2,380	4,400	5,310	5,380	2,180	1,260	982
24	1,200	6,670	5,130	3,610	6,590	2,330	4,320	5,540	4,910	2,180	1,230	975
25	1,150	6,970	4,320	3,210	5,820	2,270	4,200	5,380	4,780	2,100	1,240	975
26	1,120	7,160	3,830	2,980	5,240	2,440	3,960	5,270	4,800	2,050	1,250	960
27	1,090	7,320	3,400	2,800	4,630	3,020	3,790	4,760	4,800	1,990	1,210	952
28	1,050	6,510	3,420	2,590	4,200	2,680	3,640	4,260	4,570	1,910	1,170	938
29	1,050	5,680	*3,100	2,450	-------	2,450	3,400	4,080	4,200	1,850	1,160	922
30	1,120	5,450	2,830	2,370	-------	2,340	3,210	4,140	4,360	1,800	*1,150	915
31	1,090	-------	2,680	2,370	-------	2,280	-------	2,570	-------	1,760	1,130	-------
Total	35,783	102,110	200,800	116,990	140,810	112,310	141,540	160,150	142,260	91,690	42,290	31,427
Mean	1,154	3,404	6,477	3,774	5,029	3,623	4,718	5,166	4,742	2,958	1,364	1,048
Cfsm	2.40	7.08	13.5	7.85	10.5	7.53	9.81	10.7	9.86	6.15	2.84	2.18
In.	2.77	7.89	15.53	9.05	10.89	8.68	10.94	12.38	11.00	7.09	3.27	2.43
Ac-ft	70,970	202,500	398,300	232,000	279,300	222,800	280,700	317,700	282,200	181,900	83,880	62,330

Calendar year 1953: Max 20,800 Min 757 Mean 3,805 Cfsm 7.91 In. 107.39 Ac-ft 2,755,000
Water year 1953-54: Max 14,700 Min 915 Mean 3,611 Cfsm 7.51 In. 101.92 Ac-ft 2,615,000

Peak discharge (base, 9,000 cfs).--Nov. 22 (4 p. m.) 10,200 cfs (8.06 ft); Dec. 6 (3 a. m.) 9,060 cfs (7.73 ft); Dec. 9 (7:15 p. m.) 21,400 cfs (10.63 ft); Dec. 20 (9 a. m.) 14,600 cfs (9.23 ft); Feb. 21 (1 p. m.) 12,800 cfs (8.77 ft); Mar. 9 (10 to 12 p. m.) 9,380 cfs (7.83 ft).
* Discharge measurement made on this day.

Reservoirs in Lewis River basin, Wash.

Yale Reservoir.—Lat 45°57'50", long 122°20'00", in NE¼ sec. 32, T. 6 N., R. 4 E., at left end of Yale Dam on Lewis River just upstream from intake, 500 ft upstream from powerhouse, 1 mile upstream from Canyon Creek, and 3 miles southeast of Yale. Drainage area, 596 sq mi. Records available, August 1952 to September 1954. Gage, water-stage recorder. Datum of gage is at mean sea level (levels by Pacific Power & Light Co.). Prior to Feb. 1, 1954, indicating gage at same site and datum. Maximum contents during year, 402,080 acre-ft Mar. 13 (elevation, 490.08 ft); minimum observed, 250,900 acre-ft Oct. 30 (elevation, 443.89 ft). Maximum contents during period 1952-54, that of Mar. 13, 1954; minimum observed since reservoir was first filled, that of Oct. 30, 1953.

Reservoir is formed by rock-fill dam; storage began July 31, 1952. Usable capacity, 189,530 acre-ft between elevations 430 ft (lower limit for economic operation) and 490 ft (top of spillway gates). Dead storage, 212,250 acre-ft (corrected). Records given herein represent total contents. Water used by Pacific Power & Light Co. for power development. Records of stage and data from which capacity table was computed furnished by Pacific Power & Light Co.

Lake Merwin.—Lat 45°57'25", long 122°33'15", in SW¼ sec. 34, T. 6 N., R. 2 E., on dam on Lewis River at Ariel. Drainage area, 730 sq mi. Records available, March 1931 to September 1954. Gage, water-stage recorder. Datum of gage is at mean sea level (levels by Pacific Power & Light Co.). Maximum contents during year, 423,200 acre-ft during period Jan. 1-3 (elevation, 239.73 ft, from recorded range in stage); minimum, 365,100 acre-ft Nov. 13 (elevation, 224.66 ft). Maximum contents during period 1931-54, not determined; minimum observed since reservoir was first filled, 164,200 acre-ft Dec. 5, 1936 (elevation, 166.7 ft).

Reservoir is formed by concrete arch dam completed in 1931. Usable capacity, 246,000 acre-ft between elevations 165 ft (lower limit of regulation set by Federal Power Commission) and 235 ft (top of spillway gates). Dead storage, 159,050 acre-ft. Records given herein represent total contents. Water used for power.

Monthly elevation and contents, water year October 1953 to September 1954

Date	Yale Reservoir			Lake Merwin		
	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	474.78	346,930	-	232.9	396,410	-
Oct. 31	444.72	253,240	-93,690	226.7	372,650	-23,760
Nov. 30	476.03	351,050	+97,810	232.1	393,310	+20,660
Dec. 31	478.16	358,700	+7,650	239.6	422,800	+29,490
Calendar year 1953	-	-	+51,090	-	-	+107,400
Jan. 31	466.44	319,070	-39,630	237.0	412,480	-10,320
Feb. 28	489.38	399,520	+80,450	239.3	421,610	+9,130
Mar. 31	468.49	325,870	-73,650	233.8	399,910	-21,700
Apr. 30	479.45	362,940	+37,070	232.1	393,310	-6,600
May 31	484.25	380,200	+17,260	237.7	415,250	+21,940
June 30	488.38	395,760	+15,560	239.4	422,010	+6,760
July 31	487.29	391,640	-4,120	237.6	414,850	-7,160
Aug. 31	488.68	396,880	+5,240	237.7	415,250	+400
Sept. 30	488.53	396,140	-740	236.7	411,290	-3,960
Water year 1953-54	-	-	+49,210	-	-	+14,880

†Elevation at 12 p. m.

Lewis River at Ariel, Wash.

Location. —Lat 45°57'10", long 122°33'45", in NW¼NE¼ sec. 4, T. 5N., R. 2E., on right bank at Ariel, half a mile downstream from Ariel Dam and powerplant and 3 miles upstream from Cedar Creek.

Drainage area. —731 sq mi.

Records available. —July to November 1909 (gage heights only, for November), July 1922 to September 1954. Published as "near Ariel" 1922-29. Prior to October 1952, discharge measurements made at site half a mile downstream; low discharges not equivalent due to local inflow.

Gage. —Water-stage recorder. Datum of gage is 44 ft above mean sea level, unadjusted (levels by Pacific Power & Light Co.). July to November 1909 staff gage at site 4 miles upstream at different datum. July 27 to Oct. 28, 1922, and July 31, 1923, to Apr. 20, 1930, staff gages at site half a mile downstream at datums 3.90 and 0.90 ft higher, respectively, than present datum.

Average discharge. —31 years (1923-54), 4,637 cfs (3,357,000 acre-ft per year), adjusted for storage in Lake Merwin Reservoir since March 1931 and Yale Reservoir since August 1952.

Extremes. —Maximum discharge during year, 41,700 cfs Dec. 9 (gage height, 17.67 ft); minimum not determined, occurred sometime during October, July, August, or September, when river surface was below intake; minimum daily, 750 cfs Aug. 7, 8, 14, 15, 21, 22, Sept. 4-6, 11, 12, 23-26.

1909, 1922-54: Maximum discharge, 129,000 cfs Dec. 22, 1933 (gage height, 35.0 ft, from floodmarks), from rating curve extended above 56,000 cfs on basis of computation of peak flow over dam; no flow at times June 30, July 1-3, 6-9, 1931 (caused by regulation during construction of Ariel Dam); minimum daily discharge, 1 cfs July 6, 1931.

Remarks. —Records good except those for October and July to September and those for period of no gage-height record, which are fair. No diversion. Flow regulated by Lake Merwin and Yale Reservoir (see preceding page).

Cooperation. —Gage-height record collected in cooperation with Pacific Power & Light Co.

Revisions (water years). —WSP 884: 1938. WSP 984: 1936-37, 1940-42.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,710	888	8,150	8,020	7,920	7,300	7,330	7,390	5,530	5,670	840	2,320
2	a5,750	3,370	*7,800	8,010	7,890	7,120	7,330	7,060	5,880	5,580	3,950	2,260
3	*a4,800	3,040	7,820	8,150	7,900	6,760	7,120	6,210	5,560	4,830	*3,520	2,270
4	*3,370	2,860	8,130	9,980	7,570	6,790	5,900	6,810	5,320	1,660	3,230	a750
5	4,740	2,660	7,900	12,000	7,460	6,580	6,270	6,230	4,980	3,640	2,760	a750
6	2,880	2,640	8,720	10,500	6,450	6,440	6,570	6,320	3,770	5,610	2,070	a750
7	2,870	1,330	10,700	9,640	6,800	6,160	6,760	6,400	5,140	5,590	a750	1,930
8	2,320	918	10,900	9,190	7,380	6,540	6,770	6,150	5,180	5,640	a750	1,950
9	2,320	2,930	27,300	8,400	7,640	6,570	7,060	6,150	5,170	5,590	2,020	1,780
10	2,160	3,010	25,000	8,000	6,920	13,100	6,790	5,950	5,240	3,580	1,920	1,350
11	2,040	2,890	15,400	7,980	6,710	7,940	6,820	6,180	4,720	2,150	1,870	a750
12	2,840	2,700	19,300	7,980	6,830	*7,900	6,650	6,320	3,100	5,030	1,120	a750
13	2,990	a3,270	13,700	7,960	6,050	7,890	7,200	6,300	2,360	4,260	1,120	1,670
14	3,050	a1,330	10,500	7,960	5,570	7,640	6,780	6,140	5,190	4,310	a750	1,330
15	*3,160	a900	9,640	7,980	6,580	7,670	6,940	5,930	5,360	5,240	a750	1,350
16	3,180	a4,500	9,020	7,960	6,640	6,530	6,830	5,670	8,420	5,250	1,140	1,590
17	3,110	a5,200	8,920	7,960	6,040	6,710	6,510	6,010	8,680	4,510	1,060	2,250
18	2,830	a5,450	9,180	7,940	5,610	6,660	6,850	6,160	7,490	2,170	1,060	2,010
19	3,170	a5,600	12,100	7,940	5,430	6,950	*6,230	6,080	7,350	4,190	1,220	896
20	3,160	a6,000	24,000	7,940	5,190	6,750	6,910	6,300	6,960	4,120	1,080	1,520
21	4,370	5,970	16,100	7,940	18,900	6,580	6,690	5,480	8,100	4,210	a750	1,670
22	5,960	6,210	12,500	8,250	15,500	6,760	7,110	4,640	7,660	3,590	a750	1,380
23	5,780	8,030	10,200	9,820	12,700	7,250	6,940	2,780	*7,310	3,070	1,760	a750
24	5,360	7,800	9,500	8,250	10,400	7,250	6,900	5,290	6,870	1,110	1,870	a750
25	5,200	7,660	8,630	8,280	9,760	7,050	6,570	5,380	6,330	a800	2,000	a750
26	5,760	6,730	9,030	7,940	9,140	7,120	6,860	5,460	5,620	3,220	2,000	a750
27	5,520	7,870	9,120	*7,940	7,770	7,290	7,320	5,370	5,180	2,730	1,990	2,330
28	4,570	7,880	9,230	7,940	7,160	7,230	6,910	5,570	7,340	3,720	1,700	2,050
29	3,960	7,410	8,950	7,940	-------	7,130	6,900	5,170	6,410	3,150	976	1,680
30	3,810	8,080	*8,820	7,960	-------	7,600	7,410	2,630	6,050	3,200	2,040	1,150
31	1,290	-------	8,090	7,940	-------	7,160	-------	4,250	-------	3,360	*2,200	-------
Total	118,030	135,126	364,350	261,690	225,910	224,420	205,230	177,780	178,270	120,780	51,016	43,486
Mean	3,807	4,504	11,750	8,442	8,068	7,239	6,841	5,735	5,942	3,896	1,646	1,450
Ac-ft	234,100	268,000	722,700	519,100	448,100	445,100	407,100	352,600	353,600	239,600	101,200	86,250
(†)	-117,400	+118,500	+37,140	-49,950	+89,580	-95,350	+30,470	+39,200	+22,320	-11,280	+5,640	-4,700
	Adjusted for change in reservoir contents											
Mean	1,898	6,495	12,360	7,631	9,682	5,689	7,354	6,372	6,317	3,713	1,737	1,370
Cfsm	2.60	8.89	16.9	10.4	13.2	7.78	10.1	8.72	8.64	5.08	2.38	1.87
In.	2.99	9.91	19.49	12.03	13.79	8.97	11.22	10.05	9.64	5.86	2.74	2.09
Ac-ft	116,700	386,500	759,800	469,200	537,700	349,800	437,600	391,800	375,900	228,300	106,800	81,550

Observed

Calendar year 1953: Max 38,800 Min 639 Mean 6,138 Ac-ft 4,440,000
Water year 1953-54: Max 27,300 Min 750 Mean 5,770 Ac-ft 4,177,000

Adjusted

Calendar year 1953: Mean 6,357 Cfsm 8.70 In. 118.03 Ac-ft 4,602,000
Water year 1953-54: Mean 5,859 Cfsm 8.02 In. 108.78 Ac-ft 4,242,000

* Discharge measurement made on this day.

† Change in contents, in acre-feet, in Lake Merwin and Yale Reservoirs. Records furnished by Pacific Power & Light Co.

a No gage-height record; discharge estimated on basis of power records at dam.

Cedar Creek near Ariel, Wash.

Location.—Lat 45°55'50", long 122°31'40", in W½ sec. 11, T. 5 N., R. 2 E., on right bank at downstream side of highway bridge, 1½ miles upstream from Pup Creek and 2½ miles southeast of Ariel.

Drainage area.—41.3 sq mi.

Records available.—June 1951 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 286.9 ft above mean sea level (by planetable traverse).

Extremes.—Maximum discharge during year, 1,900 cfs Dec. 9 (gage height, 7.54 ft); minimum, 14.5 cfs Sept. 27; minimum gage height, 1.79 ft Oct. 7, 8.
1951-54: Maximum discharge, that of Dec. 9, 1953; minimum, 4.6 cfs Sept. 16, 1951; minimum gage height, 1.65 ft Nov. 25, 1952.

Remarks.—Records good except those for period of shifting control, which are fair. No regulation. Some diversion for domestic use and irrigation above station.

Rating table, water year 1953-54, except period of shifting control
(gage height, in feet, and discharge, in cubic feet per second)

1.7	13	3.5	289
1.9	28	4.0	415
2.2	58	5.0	724
2.6	112	6.0	1,130
3.0	182	7.0	1,620

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	32	396	282	459	280	115	84	65	90	32	*18
2	*43	32	448	266	445	251	143	80	54	78	*31	*18.5
3	26	31	562	278	412	229	210	87	49	71	32	19.5
4	22	31	692	a540	380	210	219	82	51	66	32	21
5	18.5	37	1,030	a700	347	192	257	76	58	63	30	20
6	17	49	1,240	a820	318	176	299	73	89	60	29	17
7	16.5	51	1,020	658	291	169	284	68	87	59	26	18
8	17	42	1,020	544	268	311	315	65	74	58	26	18.5
9	20	36	1,520	470	251	360	303	64	70	66	25	18.5
10	84	37	*1,500	404	229	*340	282	62	66	79	24	18.5
11	45	44	1,060	352	219	313	257	62	64	65	22	25
12	32	45	1,080	311	404	291	255	60	63	57	22	26
13	27	44	767	301	459	273	291	57	60	54	24	25
14	*26	47	622	354	428	257	240	51	60	51	23	22
15	24	82	511	354	399	248	223	49	114	51	25	22
16	23	176	431	315	404	242	*206	48	106	50	24	24
17	38	208	380	294	391	215	194	46	103	49	23	22
18	77	182	360	306	393	198	180	44	94	47	22	24
19	62	217	569	262	568	188	174	*42	109	44	22	20
20	54	202	679	234	669	194	165	42	123	46	28	18
21	46	278	629	313	843	171	149	41	104	50	27	16.5 *
22	41	559	553	a1,400	710	158	138	40	*99	45	22	16
23	38	553	499	a1,200	596	143	128	39	93	42	22	16.5
24	35	*450	442	a800	508	136	120	39	89	39	22	16.5
25	34	407	378	616	450	128	117	46	86	38	28	16
26	32	383	354	529	428	133	109	68	86	38	24	15
27	32	402	315	556	354	169	106	49	97	37	21	15
28	30	354	367	*535	315	138	98	44	90	35	20	15
29	32	344	*311	493	-------	125	94	49	79	34	18.5	15
30	32	378	280	487	-------	120	89	56	90	33	18.5	15
31	32	-------	268	467	-------	118	-------	76	-------	32	18.5	-------
Total	1,115.0	5,733	20,283	15,441	11,938	6,476	5,760	1,789	2,472	1,627	763.5	572.0
Mean	36.0	191	654	498	426	209	192	57.7	82.4	52.5	24.6	19.1
Cfsm	0.872	4.62	15.8	12.1	10.3	5.06	4.65	1.40	2.00	1.27	0.596	0.462
In.	1.00	5.16	18.26	13.90	10.75	5.83	5.19	1.61	2.23	1.47	0.69	0.52
Ac-ft	2,210	11,370	40,230	30,630	23,680	12,840	11,420	3,550	4,900	3,230	1,510	1,130

Calendar year 1953: Max 1,520 Min 12 Mean 228 Cfsm 5.52 In. 74.93 Ac-ft 165,100
Water year 1953-54: Max 1,520 Min 15 Mean 203 Cfsm 4.92 In. 66.61 Ac-ft 146,700

Peak discharge (base, 850 cfs).--Dec. 9 (8 p. m.) 1,900 cfs (7.54 ft); probably Jan. 6 (time and discharge unknown); Jan. 22 (time unknown) 1,620 cfs (6.99 ft); Feb. 21 (8:30 to 10 a. m.) 931 cfs (5.49 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for stations on nearby streams.
Note.--Shifting-control method used Aug. 15 to Sept. 30.

East Fork Lewis River near Heisson, Wash.

Location.—Lat 45°50'10", long 122°27'50", in N½ sec. 17, T. 4 N., R. 3 E., on right bank 60 ft downstream from Basket Creek, 1½ miles northeast of Heisson, and 20 miles upstream from mouth.

Drainage area.—125 sq mi.

Records available.—September 1929 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 366.8 ft above mean sea level (from river-profile survey).

Average discharge.—25 years, 736 cfs (532,800 acre-ft per year).

Extremes.—Maximum discharge during year, 12,400 cfs Dec. 9 (gage height, 11.03 ft); minimum, 71 cfs Sept. 10 (gage height, 0.58 ft).

1929-54: Maximum discharge, 15,600 cfs Dec. 22, 1933 (gage height, 12.3 ft), from rating curve extended above 12,000 cfs; minimum, 29 cfs Nov. 3, 1935 (gage height, 0.04 ft).

Remarks.—Records good. No regulation or diversion.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.6	73	3.0	745
.8	98	3.5	1,000
1.1	146	4.0	1,310
1.5	225	5.0	2,090
2.0	360	7.0	4,370
2.5	530	9.0	7,800

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	427	225	1,760	912	1,620	860	430	330	642	462	132	89
2	303	255	2,010	928	1,730	750	469	309	506	411	128	*83
3	216	223	2,640	1,020	*1,490	678	1,160	336	434	375	133	85
4	166	207	2,980	2,840	1,340	610	1,590	351	408	345	133	89
5	135	228	3,900	4,130	1,190	566	2,120	357	420	318	130	84
6	122	318	5,120	2,940	1,140	530	1,940	357	627	295	126	80
7	111	363	3,070	2,240	1,120	498	1,430	408	855	288	120	79
8	104	318	2,760	1,810	1,030	1,420	1,430	441	709	278	115	90
9	109	288	7,290	1,460	956	2,860	1,360	417	606	306	112	79
10	347	278	4,520	1,190	865	*2,460	1,110	372	510	477	106	75
11	295	278	2,990	1,000	795	1,580	939	384	452	396	104	95
12	225	280	3,660	865	1,960	1,190	885	354	417	336	104	152
13	191	258	2,490	815	3,470	988	1,850	306	384	303	106	144
14	*170	300	1,880	1,070	2,540	860	1,550	290	369	282	106	109
15	157	1,130	1,490	1,170	1,810	800	1,140	298	882	272	105	134
16	142	2,020	1,230	1,030	1,640	740	*966	303	1,150	262	102	166
17	191	1,780	1,060	885	1,770	655	972	298	1,040	240	101	139
18	618	1,260	994	825	1,750	598	895	292	845	225	98	144
19	614	1,290	2,910	696	2,590	586	785	*280	795	216	102	128
20	502	1,300	4,260	614	3,950	518	673	258	906	225	137	117
21	402	1,600	3,110	811	4,840	476	610	245	780	262	118	106
22	342	4,860	2,200	5,300	3,030	452	590	221	664	212	102	101
23	298	3,380	1,690	3,040	2,100	441	582	210	574	193	102	99
24	268	2,210	1,340	2,050	1,710	434	546	218	*502	183	118	92
25	240	*1,850	1,080	1,550	1,480	414	506	240	448	177	148	86
26	214	1,730	966	1,280	1,390	438	458	390	427	170	120	84
27	195	1,850	850	1,450	1,140	750	441	295	494	160	105	83
28	181	1,680	1,050	1,520	988	668	411	252	494	155	95	83
29	181	1,420	*1,060	1,400	-------	562	384	285	424	148	93	80
30	210	1,480	906	1,440	-------	494	360	360	441	*144	90	75
31	203	-------	820	1,500	-------	458	-------	611	-------	137	98	-------
Total	7,879	34,659	74,086	49,871	51,434	25,334	28,582	10,066	18,205	8,253	3,489	3,050
Mean	254	1,155	2,390	1,606	1,837	817	953	325	607	266	113	102
Cfsm	2.03	9.24	19.1	12.8	14.7	6.54	7.62	2.60	4.86	2.13	0.904	0.816
In.	2.34	10.31	22.04	14.81	15.30	7.54	8.50	3.00	5.42	2.46	1.04	0.91
Ac-ft	15,630	68,750	146,900	98,740	102,000	50,250	56,690	19,970	36,110	16,370	6,920	6,050

Calendar year 1953: Max 7,820 Min 56 Mean 1,012 Cfsm 8.10 In. 109.91 Ac-ft 732,800
Water year 1953-53: Max 7,290 Min 75 Mean 863 Cfsm 6.90 In. 93.67 Ac-ft 624,400

Peak discharge (base, 6,100 cfs).--Dec. 6 (2:30 a. m.) 6,800 cfs (8.49 ft); Dec. 9 (4 p. m.) 12,400 cfs (11.03 ft); Jan. 22 (10:30 a. m.) 7,560 cfs (8.88 ft); Feb. 21 (8:30 a. m.) 6,140 cfs (6.12 ft).

* Discharge measurement made on this day.

Kalama River below Italian Creek, near Kalama, Wash.

Location (revised).—Lat 46°02'40", long 122°48'50", in NE¼SW¼ sec. 33, T. 7 N., R. 1 W., on right bank 2⅝ miles northeast of Kalama, 3 miles upstream from mouth, and 5 miles downstream from Italian Creek.

Drainage area.—201 sq mi.

Records available.—September 1946 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 20 ft (from topographic map). Prior to Oct. 7, 1952, staff gage and crest-stage indicator at site about 70 ft downstream at same datum.

Average discharge.—8 years, 1,273 cfs (921,600 acre-ft per year).

Extremes.—Maximum discharge during year, 16,000 cfs Dec. 9 (gage height, 14.93 ft); minimum, 252 cfs Sept. 10; minimum gage height, 2.41 ft Sept. 7, 10.

1946-54: Maximum discharge, that of Dec. 9, 1953; minimum, 174 cfs Nov. 8-10, 1952; minimum gage height observed, 1.76 ft Sept. 13, 1951.

Remarks.—Records good except those for periods of shifting control, which are fair. Small diversion for fish hatchery returned to stream above gage.

Rating tables, water year 1953-54, except periods of shifting control (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 8				Dec. 9 to Sept. 30			
2.5	380	5.0	2,320	2.3	200	6.0	3,200
3.0	675	6.0	3,250	2.8	540	8.0	5,380
3.5	1,030	9.0	6,850	3.4	960	10.0	8,060
4.0	1,430			4.0	1,410	12.0	11,000
				5.0	2,260		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,000	446	2,350	1,350	2,020	1,580	897	785	1,010	855	414	*304
2	817	462	2,550	1,360	2,100	1,450	960	771	869	806	407	291
3	636	446	2,810	1,510	2,100	1,340	1,800	792	820	764	407	291
4	544	435	2,970	3,220	2,100	1,250	2,390	792	834	736	407	298
5	484	484	4,220	5,660	2,090	1,170	2,950	799	827	694	400	284
6	446	831	6,910	6,200	2,040	1,130	2,610	813	995	680	393	278
7	408	1,020	4,400	4,160	2,010	1,090	2,030	862	1,100	666	386	265
8	402	831	3,450	3,390	*1,960	1,580	2,150	1,030	981	652	379	298
9	440	714	*2,580	2,690	1,860	3,780	2,120	1,100	883	666	372	272
10	1,120	668	*7,850	2,230	1,730	3,530	1,890	1,030	827	806	365	258
11	761	668	4,380	1,900	1,590	2,480	1,680	1,010	792	806	358	298
12	616	630	4,840	1,670	3,900	*1,960	*1,570	974	792	736	351	344
13	520	598	3,540	1,560	5,920	1,680	2,330	890	757	694	351	317
14	462	616	2,760	1,750	4,230	1,510	2,100	834	736	659	358	284
15	424	1,220	2,230	1,850	3,150	1,420	1,710	862	1,200	631	351	310
16	*402	2,150	2,010	1,700	2,990	1,390	1,510	918	1,510	610	351	358
17	526	*1,900	1,790	1,550	2,970	1,260	1,500	*959	1,470	589	344	358
18	1,330	1,450	1,780	1,430	2,830	1,170	1,460	960	1,290	568	337	400
19	1,100	1,720	3,180	1,280	3,890	1,120	1,350	932	1,200	547	337	358
20	902	1,850	4,890	1,180	5,670	1,070	1,230	862	1,390	547	351	344
21	754	1,890	3,520	1,390	6,570	1,030	1,140	813	*1,270	568	344	330
22	662	4,910	2,720	4,380	4,780	981	1,100	757	1,140	526	324	317
23	598	3,460	2,220	3,210	3,410	953	1,080	729	1,020	512	330	317
24	550	2,520	1,860	2,410	2,780	932	1,040	750	932	498	324	310
25	502	2,270	1,620	1,980	2,430	897	1,010	757	876	491	386	304
26	474	2,230	1,510	1,740	2,200	918	967	876	848	*477	358	291
27	446	2,160	1,380	1,740	1,910	1,160	925	827	890	463	337	284
28	430	1,980	*1,530	1,730	1,730	1,080	890	750	855	449	317	284
29	430	1,740	1,500	1,620	-------	1,000	848	743	785	442	310	272
30	446	2,030	1,390	1,670	-------	953	820	806	820	*435	310	*272
31	430	-------	1,300	1,890	-------	918	-------	1,000	-------	421	324	-------
Total	19,062	44,329	99,130	71,400	82,960	43,782	46,057	26,763	29,719	18,994	11,083	9,191
Mean	615	1,478	3,198	2,303	2,963	1,412	1,535	863	991	613	358	306
Cfsm	3.06	7.35	15.9	11.5	14.7	7.02	7.64	4.29	4.93	3.05	1.78	1.52
In.	3.53	8.20	18.34	13.21	15.35	8.10	8.52	4.95	5.50	3.51	2.05	1.70
Ac-ft	37,810	87,930	196,600	141,600	164,500	86,840	91,350	53,080	58,950	37,670	21,980	18,230

Calendar year 1953: Max 9,580 Min 266 Mean 1,499 Cfsm 7.46 In. 101.24 Ac-ft 1,085,000
Water year 1953-54: Max 9,580 Min 258 Mean 1,377 Cfsm 6.85 In. 92.96 Ac-ft 996,500

Peak discharge (base, 6,000 cfs).--Dec. 6 (4:30 a. m.) 8,240 cfs (9.99 ft); Dec. 9 (6 p. m.) 16,000 cfs (14.93 ft); Jan. 6 (2:30 a. m.) 7,470 cfs (9.58 ft); Feb. 13 (6 to 8 a. m.) 6,240 cfs (8.68 ft); Feb. 21 (11:30 a. m.) 7,570 cfs (9.65 ft).

* Discharge measurement made on this day.

Note.--Shifting-control method used Oct. 2 to Dec. 5, Sept. 3-30.

Lake Creek near Packwood, Wash.

Location (revised).—Lat 46°35'45", long 121°34'05", in SW¼ sec. 21, T. 13 N., R. 10 E. (unsurveyed), on left bank 500 ft downstream from outlet of Packwood Lake and 5 miles east of Packwood.

Drainage area.—18.8 sq mi.

Records available.—September 1911 to September 1924, September 1930 to October 1942, October 1949 to May 1954 (discontinued). Published as "at outlet of Packwood Lake, near Lewis" 1911-24.

Gage.—Water-stage recorder. Altitude of gage is 2,850 ft (from topographic map). Prior to Aug. 3, 1918, staff gages at several sites at or within 100 ft of present site at various datums. Aug. 3, 1918, to Sept. 30, 1942, water-stage recorder at site 110 ft upstream at different datum.

Average discharge.—29 years (1911-24, 1930-42, 1949-53), 99.8 cfs (72,250 acre-ft per year).

Extremes.—Maximum discharge during period October 1953 to May 1954, 379 cfs Dec. 20 (gage height, 3.63 ft); minimum, 37 cfs Oct. 29 (gage height, 1.81 ft).

1911-24, 1930-42, 1949-54: Maximum discharge, 1,400 cfs Dec. 22, 1933 (gage height, 5.9 ft); minimum, 18 cfs Nov. 30 to Dec. 2, 1952 (gage height, 1.51 ft).

Maximum stage, estimated by observer, 6.0 ft Dec. 18, 1917, datum then in use (discharge not determined).

Remarks.--Records good October to January, fair thereafter. Natural regulation in Packwood Lake.

Revisions (water years).—WSP 394: 1912. WSP 739: Drainage area.

Rating table, Oct. 1, 1953, to May 18, 1954 (gage height, in feet, and discharge, in cubic feet per second)

1.8	36	3.1	232
2.1	63	3.5	340
2.4	99	4.0	495
2.7	145		

Discharge, in cubic feet per second, water year October 1953 to May 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	106	64	128	92	54	82	50	74				
2	92	63	120	89	53	78	53	72				
3	80	56	116	89	55	73	58	72				
4	68	51	112	100	57	70	67	73				
5	60	48	112	103	60	66	76	76				
6	54	48	120	105	64	63	74	85				
7	51	48	112	107	68	62	70	106				
8	*49	45	100	*107	73	73	70	147				
9	50	43	163	100	75	91	67	192				
10	66	42	247	91	75	110	63	218				
11	75	46	213	85	75	109	60	225				
12	67	48	244	80	89	102	68	201				
13	60	46	218	79	100	92	87	179				
14	54	47	181	89	100	86	91	168				
15	50	60	154	91	92	82	90	185				
16	47	75	143	85	89	79	90	222				
17	47	72	131	78	87	74	112	267				
18	57	*63	128	73	87	70	124	337				
19	60	60	173	68	95	66	124	-				
20	58	57	355	63	116	64	116	-				
21	55	60	317	66	128	61	109	-				
22	49	95	227	84	116	59	103	-				
23	46	118	179	81	106	58	100	-				
24	43	114	145	75	106	57	98	-				
25	42	122	122	70	109	56	96	-				
26	40	140	112	68	107	65	94	-				
27	39	156	102	68	96	66	89	-				
28	38	154	106	64	90	60	85	-				
29	39	142	107	59	-------	56	80	-				
30	51	135	100	56	-------	53	76	-				
31	57	-------	95	55	-------	51	-------	-	-------			-------
Total	1,750	2,318	4,882	2,520	2,422	2,234	2,540	-				
Mean	56.5	77.3	157	81.3	86.5	72.1	84.7	-				
Cfsm	3.01	4.11	8.35	4.32	4.60	3.84	4.51	-				
In.	3.46	4.59	9.66	4.99	4.79	4.42	5.02	-				
Ac-ft	3,470	4,600	9,680	5,000	4,800	4,430	5,040	-				

Calendar year 1953: Max 436 Min 24 Mean 112 Cfsm 5.96 In. 81.15 Ac-ft 81,340
Water year 1953-54: Max - Min - Mean - Cfsm - In. - Ac-ft -

* Discharge measurement made on this day.

Cowlitz River at Packwood, Wash.

Location. —Lat 46°36'40", long 121°40'45", in SE¼ sec. 16, T. 13 N., R. 9 E., on right bank 100 ft upstream from Forest Service bridge, half a mile upstream from Skate Creek, and half a mile northwest of Packwood.

Drainage area. —287 sq mi.

Records available. —July 1911 to December 1919, September 1929 to September 1954. Published as "at Lewis" 1911-19.

Gage. —Water-stage recorder. Datum of gage is 1,048.0 ft above mean sea level (Bureau of Public Roads benchmark). July 1, 1911, to Dec. 31, 1919, staff gages at sites about 1 mile upstream at different datums. Sept. 30, 1929, to Jan. 2, 1930, staff gage at present site and datum.

Average discharge. —33 years, 1,605 cfs (1,162,000 acre-ft per year).

Extremes. —1933-34: Maximum discharge during year, 36,600 cfs Dec. 21 (gage height, 13.0 ft), from rating curve extended above 12,600 cfs; mininum, 235 cfs Sept. 26, 27 (gage height, 2.48 ft).

1953-54: Maximum discharge during year, 10,900 cfs Dec. 9 (gage height, 9.30 ft); minimum, 434 cfs Oct. 27, 28 (gage height, 3.26 ft).

1911-19, 1929-54: Maximum discharge, that of Dec. 21, 1933; minimum, 130 cfs Nov. 29, 1952 (gage height, 2.55 ft).

Revisions. —The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
444	1916	July 2, 1916	13,000	7.7
464	1917	June 17, 1917	9,400	6.2
484	1918	Dec. 18, 1917	28,800	[a]11.9

a Estimated by observer.

Remarks. —Records good. Small diversions for domestic use. No regulation.

Revisions (water years). —WSP 884: 1938. Revised figures of discharge for the water year 1934, superseding those published in WSP 767, are given herein.

Discharge, in cubic feet per second, water year October 1933 to September 1934

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,260	2,820	795	3,200	2,670	1,830	3,390	1,670	1,420	1,040	615	510
2	1,070	8,730	784	2,940	2,530	6,570	2,670	1,670	1,230	1,040	718	524
3	958	7,310	762	4,900	2,400	4,000	2,210	1,740	1,200	980	680	531
4	886	4,440	720	4,900	2,140	3,100	1,930	2,660	1,340	970	601	552
5	806	3,240	998	4,470	1,960	4,060	1,800	4,680	1,540	1,030	587	545
6	751	2,480	4,140	3,480	1,840	5,390	1,860	3,110	1,740	1,050	636	510
7	740	2,050	*3,560	2,840	1,840	3,730	2,300	2,510	1,840	980	575	458
8	710	1,740	2,520	2,360	1,840	3,020	2,590	2,140	1,780	864	559	380
9	622	1,500	*11,100	2,070	1,780	2,530	2,280	1,860	1,840	848	580	380
10	586	1,360	18,600	2,070	1,660	2,340	2,070	1,800	1,900	864	594	385
11	550	1,200	10,700	1,860	1,540	2,200	2,210	2,070	2,020	856	587	341
12	518	1,090	8,240	1,800	1,460	2,340	2,590	2,000	2,020	856	587	532
13	486	970	5,900	1,860	1,380	2,530	3,110	2,140	1,840	848	601	672
14	456	898	3,990	1,860	1,320	2,600	3,200	2,360	1,660	872	608	531
15	421	839	2,930	1,670	1,250	2,600	2,930	2,670	1,530	880	629	421
16	1,230	828	2,260	1,960	1,220	2,400	2,760	2,510	1,310	1,180	672	415
17	1,290	773	2,700	2,440	1,180	2,140	2,280	2,000	1,310	1,120	650	397
18	2,470	720	5,390	2,140	1,150	2,020	2,210	1,670	1,360	840	601	385
19	4,420	720	4,670	4,040	1,150	1,960	2,670	1,600	1,110	792	587	363
20	4,640	730	6,800	5,120	*1,140	1,960	3,200	1,530	1,050	748	601	336
21	2,620	1,450	21,500	4,570	1,100	1,960	3,680	1,420	1,110	658	622	330
22	6,350	2,010	24,200	10,100	1,060	1,960	3,970	1,530	1,160	594	622	325
23	2,440	1,920	11,700	12,200	1,050	1,960	3,870	2,000	977	594	636	310
24	5,390	1,640	5,640	5,470	1,040	1,840	3,200	2,360	898	*636	636	270
25	4,320	1,420	4,200	3,970	990	1,720	2,930	2,280	916	718	650	255
26	3,140	1,270	3,730	3,390	961	1,660	2,670	2,440	907	848	658	240
27	3,350	1,190	3,400	2,840	1,110	2,490	2,760	2,670	848	898	665	240
28	6,220	1,050	3,180	2,590	1,200	5,530	2,590	2,760	872	889	688	245
29	6,570	934	3,910	2,510	-------	8,400	2,140	2,930	864	792	622	255
30	4,560	850	4,200	2,510	-------	6,300	1,800	2,510	952	695	559	280
31	3,350	-------	3,560	2,590	-------	4,720	-------	1,800	-------	622	524	-------
Total	80,180	58,172	186,779	110,720	41,961	97,860	79,870	69,090	40,544	26,602	19,148	11,918
Mean	2,586	1,939	6,025	3,572	1,499	3,157	2,662	2,229	1,351	858	618	397
Cfsm	9.01	6.76	21.0	12.4	5.22	11.0	9.28	7.77	4.71	2.99	2.15	1.38
In.	10.39	7.54	24.21	14.30	5.44	12.68	10.35	8.96	5.26	3.45	2.48	1.54
Ac-ft	159,000	115,400	370,500	219,600	83,230	194,100	158,400	137,000	80,420	52,760	37,980	23,640

Calendar year 1933: Max 24,200 Min 320 Mean 2,460 Cfsm 8.57 In. 116.10 Ac-ft 1,778,000
Water year 1933-34: Max 24,200 Min 240 Mean 2,254 Cfsm 7.85 In. 106.60 Ac-ft 1,632,000

* Discharge measurement made on this day.

Cowlitz River at Packwood, Wash. —Continued

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 21, Mar. 11-20, May 24 to Aug. 25)

3.4	410	5.0	1,630
3.7	545	6.0	3,120
4.0	725	7.0	5,010
4.5	1,120	8.0	7,340

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,120	974	2,060	1,300	746	1,160	624	1,050	2,430	4,600	2,220	1,020
2	780	802	1,920	1,230	795	1,030	624	1,030	2,220	4,000	2,200	990
3	660	660	1,870	1,180	862	958	781	1,070	2,420	3,910	1,910	942
4	600	589	1,710	1,240	958	894	1,050	1,340	2,980	4,190	1,590	878
5	556	562	1,640	1,560	1,120	870	1,590	1,580	2,700	4,600	1,590	832
6	525	584	2,050	2,490	1,290	855	1,530	1,880	2,460	4,660	1,700	767
7	486	618	1,700	*2,460	1,440	825	1,320	2,460	2,510	5,140	1,820	767
8	530	606	1,490	2,180	1,590	974	1,260	3,610	2,490	4,660	1,780	902
9	*606	600	6,190	1,840	1,590	2,300	1,190	4,540	2,600	4,000	1,640	886
10	1,050	612	5,540	1,580	1,490	3,140	1,080	4,720	3,050	5,030	1,560	926
11	767	739	3,490	1,370	1,370	2,440	1,030	4,800	3,140	4,950	1,500	1,050
12	624	718	4,060	1,230	2,060	1,950	1,130	4,150	3,490	4,300	1,530	894
13	567	666	2,980	1,130	3,190	1,650	2,460	3,400	3,650	4,250	1,600	810
14	525	692	2,650	1,220	2,620	1,440	2,680	3,220	3,420	4,880	1,780	767
15	500	1,310	2,490	1,130	2,050	1,310	2,160	3,760	4,970	4,840	1,550	802
16	468	1,460	2,200	1,020	*1,790	1,200	1,960	4,880	4,720	4,270	1,380	788
17	530	*1,160	1,950	966	1,640	1,090	2,750	5,640	3,630	4,060	1,280	818
18	934	950	1,910	926	1,520	*1,010	2,930	6,650	3,020	3,890	1,290	870
19	746	910	3,330	870	1,560	958	2,480	6,700	3,190	3,810	1,420	781
20	686	862	6,670	802	2,190	926	2,090	5,370	5,890	3,200	1,700	686
21	612	926	4,460	825	2,880	878	*1,890	4,150	5,960	*2,540	1,520	686
22	550	2,730	3,100	910	2,540	825	1,870	3,470	5,870	2,280	1,420	673
23	505	2,200	2,420	886	2,010	802	1,850	3,540	5,440	2,730	1,520	654
24	482	1,840	1,980	855	1,880	781	1,850	3,890	4,780	2,970	*1,210	706
25	459	2,540	1,650	802	1,820	746	1,760	3,510	4,760	2,780	1,030	760
26	446	2,650	1,510	767	1,640	774	1,630	*3,040	4,970	2,720	1,020	739
27	442	2,800	1,350	732	1,440	825	1,450	2,490	4,880	2,590	950	712
28	442	2,380	1,560	712	1,300	753	1,360	2,130	4,250	2,320	926	*642
29	442	2,360	1,540	660	-------	699	1,230	1,960	4,100	2,220	1,030	578
30	556	2,380	1,400	673	-------	666	1,140	2,090	4,680	2,150	1,080	510
31	802	-------	1,320	725	-------	648	-------	2,250	-------	2,130	1,080	-------
Total	18,999	38,880	80,190	36,271	47,381	35,377	48,749	104,370	114,670	114,670	45,826	23,836
Mean	613	1,296	2,587	1,170	1,692	1,141	1,625	3,367	3,822	3,699	1,478	795
Cfsm	2.14	4.52	9.01	4.08	5.90	3.98	5.66	11.7	13.3	12.9	5.15	2.77
In.	2.46	5.04	10.39	4.70	6.14	4.58	6.32	13.52	14.86	14.86	5.94	3.09
Ac-ft	37,680	77,120	159,100	71,940	93,980	70,170	96,690	207,000	227,400	227,400	90,890	47,280

Calendar year 1953: Max 8,660 Min 332 Mean 1,882 Cfsm 6.56 In. 89.02 Ac-ft 1,363,000
Water year 1953-54: Max 6,700 Min 442 Mean 1,943 Cfsm 6.77 In. 91.90 Ac-ft 1,407,000

Peak discharge (base, 8,000 cfs).--Dec. 9 (5 p. m.) 10,900 cfs (9.30 ft).
* Discharge measurement made on this day.

Johnson Creek below Glacier Creek, near Packwood, Wash.

Location.—Lat 46°32'30", long 121°37'15", in sec. 12, T. 12 N., R. 9 E., near right bank 4½ miles upstream from mouth and 5 miles southeast of Packwood.
Drainage area.—42.8 sq mi.
Records available.—July 1951 to May 1954 (discontinued).
Gage.—Water-stage recorder. Altitude of gage is 1,980 ft (from topographic map).
Extremes.—Maximum discharge during period October 1953 to September 1954, 815 cfs May 18 (gage height, 5.70 ft), from rating curve extended above 400 cfs; minimum, 36 cfs Oct. 29 (gage height, 3.13 ft).
1951-54: Maximum discharge, 894 cfs Jan. 31, 1953 (gage height, 5.82 ft), from rating curve extended above 400 cfs; minimum, 21 cfs probably Nov. 27 to Dec. 2, 1952 (gage height, 2.85 ft, from recorded range in stage).
Remarks.—Records good except those for periods of no gage-height record, which are fair. No known diversion. No regulation.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

3.1	34	4.4	243
3.3	50	4.8	371
3.5	71	5.2	534
3.8	111	5.7	815
4.1	168		

Discharge, in cubic feet per second, water year October 1953 to May 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73	46	173	173	96	175	96	158				
2	63	46	173	164	100	164	96	153				
3	56	43	170	155	110	151	114	164				
4	52	41	160	153	130	141	145	177				
5	48	41	162	177	150	136	177	194				
6	46	44	180	211	170	132	168	224				
7	44	45	153	221	190	126	153	300				
8	42	43	145	208	200	145	155	416				
9	*42	42	531	189	190	298	149	512				
10	52	43	489	175	170	350	139	534				
11	48	45	364	162	230	291	139	512				
12	44	44	464	151	280	249	164	460				
13	41	42	340	143	350	219	294	404				
14	40	44	297	143	300	196	288	401				
15	40	60	284	132	250	186	252	472				
16	39	83	269	126	220	173	260	548				
17	40	*72	255	120	210	162	323	629				
18	46	64	255	116	201	*151	326	756			†108	
19	46	67	461	110	196	143	297	708				
20	45	64	726	102	249	138	263	592				
21	43	82	520	105	303	130	246	507				
22	42	208	397	175	278	125	246	468				
23	40	182	329	115	246	121	243	476				
24	40	164	288	110	252	120	240	481				
25	38	194	249	105	246	116	227	439				
26	38	214	224	100	227	116	211	393				
27	38	230	201	96	201	114	198	346				
28	37	208	216	93	186	108	184	316				
29	37	191	204	90	-------	104	175	310				
30	41	186	189	90	-------	100	166	316				
31	41	-------	180	95	-------	98	-------	350	-------			-------
Total	1,382	2,878	9,048	4,305	5,931	4,978	6,134	12,716				
Mean	44.6	95.9	292	139	212	161	204	410				
Cfsm	1.04	2.24	6.82	3.25	4.95	3.76	4.77	9.58				
In.	1.20	2.50	7.86	3.74	5.15	4.33	5.33	11.05				
Ac-ft	2,740	5,710	17,950	8,540	11,760	9,870	12,170	25,220				

Calendar year 1953: Max 726 Min 33 Mean 196 Cfsm 4.58 In. 62.15 Ac-ft 141,900
Water year 1953-54: Max - Min - Mean - Cfsm - In. - Ac-ft -

Peak discharge (base, 540 cfs).--Dec. 10 (3 p. m.) 782 cfs (5.65 ft); Dec. 12 (1 a. m.) 548 cfs (5.23 ft); Dec. 20 (3 a. m.) 802 cfs (5.68 ft); May 18 (5 p. m.) 815 cfs (5.70 ft).
* Discharge measurement made on this day.
† Result of discharge measurement.
Note.--No gage-height record Jan. 20 to Feb. 17, May 31; discharge estimated on basis of recorded range in stage and records for stations on nearby streams.

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Cispus River near Randle, Wash.

Location.—Lat 46°26'50", long 121°51'35", in NW¼ sec. 18, T. 11 N., R. 8 E. (unsurveyed), on left bank 60 ft upstream from bridge to Tower Rock ranger station, 4 miles downstream from North Fork, and 8 miles southeast of Randle.

Drainage area.—321 sq mi.

Records available.—October 1910 to February 1912, September 1929 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 1,221.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Mar. 1, 1912, staff gage at site 1 mile upstream at different datum. Sept. 28 to Oct. 31, 1929, staff gage and Nov. 1, 1929, to Nov. 26, 1949, Oct. 1-24, 1950, water-stage recorder, at site 450 ft upstream at datum 0.26 ft higher.

Average discharge.—26 years (1910-11, 1929-54), 1,307 cfs (946,200 acre-ft per year).

Extremes.—Maximum discharge during year, 5,980 cfs Dec. 9 (gage height, 7.61 ft); minimum, 382 cfs Oct. 16, 17 (gage height, 3.27 ft).

1910-12, 1929-54: Maximum discharge, 20,000 cfs Dec. 22, 1933 (gage height, 12.7 ft, site and datum then in use), from rating curve extended above 8,000 cfs; minimum, 183 cfs Dec. 30, 1936; minimum gage height, 2.55 ft Oct. 25, 1942, site and datum then in use.

Remarks.—Records excellent except those for period of shifting control, which are fair, and those for periods of no gage-height record, which are poor. No regulation or diversion above station.

Revisions (water years).—WSP 794: 1934. WSP 1288: Drainage area.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	702	454	1,740	1,350	982	1,400	769	1,360	2,540	2,910	1,240	700
2	574	466	1,690	1,290	1,080	1,300	761	1,320	2,440	2,660	1,240	678
3	492	442	1,700	1,240	1,180	1,200	991	1,310	2,500	2,530	1,200	662
4	454	424	1,610	1,400	1,300	1,150	1,450	1,510	2,670	2,470	1,130	640
5	436	424	1,620	1,980	1,410	1,100	2,000	1,600	2,530	2,530	1,080	618
6	418	460	2,040	2,830	1,490	1,050	1,920	1,810	2,420	2,510	1,060	610
7	406	473	1,760	2,600	1,590	1,000	1,690	2,210	2,330	2,670	1,050	602
8	406	466	1,590	2,260	1,670	1,200	1,690	2,940	2,320	2,530	1,040	595
9	418	454	3,590	1,990	1,660	2,000	1,660	3,530	2,440	2,300	1,010	602
10	581	466	4,520	1,790	1,560	3,500	1,530	3,850	2,530	2,490	955	655
11	506	532	3,150	*1,580	1,460	2,800	1,450	4,010	2,530	2,590	937	610
12	442	553	3,160	1,440	2,340	2,300	1,500	3,600	2,660	2,360	928	581
13	418	553	2,660	1,370	3,560	1,900	2,130	3,120	2,730	2,240	902	574
14	*400	567	2,350	1,350	3,020	1,700	2,420	2,980	2,630	2,320	928	581
15	394	822	2,210	1,250	2,420	1,600	2,170	3,210	*3,260	2,350	884	602
16	382	1,060	2,060	1,170	2,110	1,450	2,080	3,770	3,560	2,180	859	610
17	442	983	1,900	1,120	*2,030	1,350	2,490	4,260	3,160	2,070	834	610
18	686	857	1,810	1,070	1,880	*1,240	2,690	4,750	2,830	1,980	817	610
19	648	*839	2,450	991	1,790	1,180	2,500	5,170	2,770	1,920	834	600
20	610	798	5,110	884	1,930	1,130	2,240	4,620	3,320	*1,840	982	580
21	602	793	3,900	946	2,800	1,060	*2,070	3,840	3,600	1,700	928	560
22	546	2,140	3,000	1,390	2,690	1,020	2,050	3,240	3,580	1,540	859	540
23	512	2,090	2,470	1,360	2,270	982	2,070	3,160	3,470	1,550	859	540
24	492	1,800	2,130	1,150	2,100	964	2,050	3,350	3,160	1,560	*801	520
25	473	1,940	1,870	1,070	2,000	928	1,990	3,200	3,140	1,510	761	520
26	454	2,220	1,710	1,020	1,850	928	1,880	*2,940	3,240	1,480	761	520
27	442	2,250	1,560	973	1,700	955	1,740	2,580	3,200	1,430	722	510
28	436	2,100	1,610	919	1,500	884	1,650	2,290	2,940	1,370	708	*500
29	424	1,900	1,530	884	-------	825	1,540	2,190	2,740	1,310	722	490
30	430	1,820	1,420	876	-------	809	1,450	2,300	2,940	1,280	722	469
31	430	-------	1,350	937	-------	801	-------	2,400	-------	1,250	715	-------
Total	15,056	31,146	71,270	42,480	53,480	41,706	54,621	92,420	86,180	63,430	28,468	17,489
Mean	486	1,038	2,299	1,370	1,906	1,345	1,821	2,981	2,873	2,046	918	583
Cfsm	1.51	3.23	7.16	4.27	5.94	4.19	5.67	9.29	8.95	6.37	2.86	1.82
In.	1.71	3.61	8.26	4.92	6.18	4.83	6.33	10.71	9.98	7.35	3.30	2.03
Ac-ft	29,860	61,780	141,400	84,260	105,900	82,720	108,300	183,300	170,900	125,800	56,470	34,690

Calendar year 1953: Max 6,500 Min 358 Mean 1,505 Cfsm 4.69 In. 63.65 Ac-ft 1,090,000
Water year 1953-54: Max 5,170 Min 382 Mean 1,637 Cfsm 5.10 In. 69.24 Ac-ft 1,185,000

Peak discharge (base, 3,400 cfs).--Dec. 9 (8 p. m.) 5,980 cfs (7.61 ft); Dec. 20 (8:30 a. m.) 5,430 cfs (7.34 ft); Feb. 13 (6 a. m. to 2 p. m.) 3,630 cfs (6.36 ft); probably Mar. 10 (time unknown) 4,130 cfs (6.65 ft); May 11 (4 to 7 a. m.) 4,080 cfs (6.62 ft); May 19 (4 to 6 a. m.) 5,330 cfs (7.29 ft); June 15 (12 p. m.) 3,770 cfs (6.44 ft); June 21 (2 a. m.) 3,670 cfs (6.38 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Feb. 24 to Mar. 16, Sept. 17-27; discharge estimated on basis of recorded range in stage, weather records, and records for stations on nearby streams. Shifting-control method used Nov. 11 to Dec. 9.

Cowlitz River near Kosmos, Wash.

Location.—Lat 46°28'00", long 122°07'20", in SE¼ sec. 1, T. 11 N., R. 5 E., on right bank half a mile downstream from Tumwater Creek, 1½ miles downstream from Cispus River, and 4 miles southeast of Kosmos.
Drainage area.—1,042 sq mi.
Records available.—November 1947 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 759.29 ft above mean sea level (levels by city of Tacoma). Prior to Dec. 3, 1948, staff gage at site half a mile upstream at different datum.
Average discharge.—6 years, 5,203 cfs (3,767,000 acre-ft per year).
Extremes.—Maximum discharge during year, 24,800 cfs Dec. 10 (gage height, 14.35 ft); minimum, 1,230 cfs Oct. 17 (gage height, 3.60 ft).
1947-54: Maximum discharge, 33,800 cfs Feb. 11, 1951 (gage height, 16.60 ft); minimum, 518 cfs Nov. 29, 1952 (gage height, 2.34 ft).
Remarks.—Records excellent. No regulation or diversion.
Revisions.—WSP 1218: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

3.6	1,230	8.0	6,350
4.0	1,530	10.0	10,600
5.0	2,380	14.0	23,400
6.0	3,460		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,560	1,780	6,450	5,000	3,630	5,440	2,780	4,360	7,780	9,900	4,280	2,300
2	2,180	1,880	6,130	4,780	3,900	5,000	2,730	4,170	7,440	9,220	4,370	2,240
3	1,790	1,680	6,320	4,650	4,250	4,610	3,190	4,120	7,360	8,460	4,140	2,190
4	1,590	1,530	6,200	5,230	4,700	4,360	4,120	4,470	8,200	8,420	3,790	2,140
5	1,470	1,490	6,120	6,350	5,230	4,090	6,020	4,880	7,980	8,810	3,560	2,040
6	1,370	1,560	7,540	9,200	5,680	3,910	6,320	5,410	7,500	8,840	3,530	1,960
7	1,310	1,680	7,020	9,620	6,150	3,710	5,750	6,370	7,400	9,500	3,580	1,900
8	1,290	1,670	6,120	8,840	6,500	3,970	5,510	8,660	7,420	9,280	3,570	1,920
9	1,360	1,620	12,300	7,700	6,570	7,140	5,410	11,400	7,420	8,110	3,460	1,960
10	1,750	1,610	22,800	6,790	6,230	11,400	5,080	12,600	7,680	8,330	3,290	1,980
11	1,950	1,730	15,600	6,040	5,810	9,480	4,780	12,900	7,720	9,400	3,160	2,160
12	1,640	1,790	16,000	*5,480	7,170	7,680	4,780	12,000	7,980	8,460	3,110	2,090
13	1,470	1,780	13,600	5,110	11,800	6,660	6,780	10,300	8,460	7,820	3,070	1,950
14	1,380	1,730	11,100	5,180	11,100	5,920	9,010	9,300	8,220	8,150	3,120	1,860
15	*1,320	2,250	9,900	5,080	8,880	5,430	8,040	9,800	*9,650	8,750	3,120	1,860
16	1,270	3,510	8,840	4,650	7,620	5,050	7,220	11,900	12,000	7,980	2,930	1,910
17	1,270	3,440	7,820	4,390	7,150	4,640	8,040	13,900	10,500	7,480	2,780	1,940
18	1,850	2,970	7,310	4,170	*6,760	4,320	9,220	15,400	9,060	7,110	2,720	1,990
19	2,060	*2,800	8,570	3,900	6,450	*4,040	8,640	17,100	8,440	7,020	2,760	1,960
20	1,890	2,760	18,100	3,560	7,860	3,830	*7,580	15,200	10,500	*6,540	3,100	1,850
21	1,850	2,680	16,600	3,540	10,500	3,640	6,860	12,400	12,900	5,800	3,160	1,790
22	1,700	5,850	12,500	4,630	11,100	3,460	6,570	10,400	12,500	5,170	2,860	1,760
23	1,590	7,680	9,980	4,560	9,200	3,340	6,490	9,720	12,300	5,200	2,900	1,740
24	1,510	6,420	8,110	4,230	8,130	3,270	6,440	10,400	11,000	5,430	2,780	1,710
25	1,420	6,350	6,950	3,930	7,700	3,160	6,280	10,200	10,400	5,260	*2,570	1,720
26	1,370	7,880	6,280	3,750	7,260	3,150	6,000	9,350	10,800	5,140	2,480	1,730
27	1,330	7,820	5,720	3,580	6,520	3,460	5,570	*8,220	10,800	4,980	2,390	1,700
28	1,300	7,640	5,650	3,460	5,960	3,230	5,240	7,110	10,100	4,710	2,280	*1,670
29	1,270	6,790	5,840	3,270	-------	3,030	4,900	6,570	9,010	4,490	2,270	1,590
30	1,300	6,760	5,380	3,230	-------	2,930	4,610	6,720	9,700	4,420	2,340	1,510
31	1,460	-------	5,050	3,450	-------	2,850	-------	7,020	-------	4,320	2,340	-------
Total	48,870	107,130	291,900	157,350	199,810	146,200	179,960	292,350	278,220	222,500	95,810	57,120
Mean	1,576	3,571	9,416	5,076	7,136	4,716	5,999	9,431	9,274	7,177	3,091	1,904
Cfsm	1.51	3.43	9.04	4.87	6.85	4.53	5.76	9.05	8.90	6.89	2.97	1.83
In.	1.74	3.82	10.42	5.62	7.13	5.22	6.42	10.43	9.93	7.94	3.42	2.04
Ac-ft	96,930	212,500	579,000	312,100	396,300	290,000	356,900	579,900	551,800	441,300	190,000	113,300

Calendar year 1953: Max 24,400 Min 1,100 Mean 5,418 Cfsm 5.20 In. 70.58 Ac-ft 3,922,000
Water year 1953-54: Max 22,800 Min 1,270 Mean 5,691 Cfsm 5.46 In. 74.13 Ac-ft 4,120,000

Peak discharge (base, 16,000 cfs).--Dec. 10 (5 a. m.) 24,800 cfs (14.35 ft); Dec. 20 (4 p. m.) 19,800 cfs (13.03 ft); May 19 (10:30 a. m.) 17,600 cfs (12.42 ft).
* Discharge measurement made on this day.

Cowlitz River at Mossyrock, Wash.

Location.—Lat 46°33'00", long 122°29'30", in SE¼ sec. 1, T. 12 N., R. 2 E., on left bank 200 ft upstream from Harmony Bridge and 1½ miles (revised) north of Mossyrock.

Drainage area.—1,170 sq mi.

Records available.—January 1912 to September 1917 (incomplete), March 1926 to September 1935, August 1946 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 357.31 ft above mean sea level (levels by city of Tacoma). Prior to Sept. 18, 1913, chain gage on Harmony Bridge 200 ft downstream at different datum. Sept. 18, 1913, to Sept. 30, 1917, Mar. 12, 1926, to Dec. 10, 1933, staff gage within 100 ft of present site at different datum. Dec. 11, 1933, to Mar. 8, 1934, stage determined from reference marks on bridge and staff-gage readings at various sites just upstream from bridge at different datums. Mar. 9, 1934, to Sept. 30, 1935, wire-weight gage on bridge at different datum.

Average discharge.—22 years, 5,360 cfs (3,880,000 acre-ft per year).

Extremes.—Maximum discharge during year, 29,800 cfs Dec. 10 (gage height, 18.45 ft); minimum, 1,260 cfs Oct. 17 (gage height, 3.78 ft).

1912-17, 1926-35, 1946-54: Maximum discharge observed, 83,500 cfs (revised) Dec. 22, 1933 (gage height, 37.53 ft, revised, average of high-water marks, site and datum then in use), from rating curve extended above 20,000 cfs; *minimum*, 543 cfs Nov. 30, 1952 (gage height, 3.06 ft).

Revisions.—The maximum discharge and gage height for the water year 1934 have been revised to 83,500 cfs Dec. 22, 1933 (gage height, 37.53 ft, average of high-water marks, site and datum then in use), from rating curve extended above 20,000 cfs, superseding figures published in WSP 769.

Remarks.—Records good except those for periods of no gage-height record, which are fair. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,310	*1,720	7,570	5,810	4,430	6,480	3,210	4,670	8,420	10,900	4,470	2,350
2	2,410	1,970	7,150	5,540	4,670	5,890	3,170	4,440	8,230	10,500	4,500	a2,300
3	2,040	1,790	7,450	5,420	4,990	5,420	3,590	4,360	7,920	9,420	4,370	a2,250
4	1,660	1,620	7,720	6,280	5,440	5,100	4,500	4,640	*8,720	9,180	4,070	a2,200
5	1,510	1,560	7,840	9,700	6,000	4,790	6,570	5,020	8,800	9,520	3,780	a2,100
6	1,420	1,630	9,660	11,500	6,520	4,550	7,260	5,550	8,280	9,860	3,700	a2,050
7	1,350	1,750	*9,190	12,300	7,040	4,340	6,530	6,500	8,070	10,200	3,720	a2,000
8	1,310	1,780	7,970	11,300	7,540	4,580	6,160	8,740	8,110	10,300	3,700	a2,000
9	1,370	1,710	13,000	9,720	7,660	7,090	6,060	12,000	8,060	9,100	3,640	a2,000
10	1,760	1,670	28,400	8,460	7,300	13,000	5,700	13,800	8,280	8,890	3,480	*2,020
11	2,140	1,740	21,500	*7,380	6,770	11,400	5,330	14,100	8,400	10,400	3,320	2,170
12	1,770	1,860	20,400	6,570	7,660	9,090	5,300	13,500	8,590	9,400	3,240	2,190
13	1,560	1,860	17,900	6,030	13,400	7,740	7,160	11,500	9,160	*8,660	3,180	2,050
14	1,450	1,800	14,500	6,160	13,900	6,820	10,200	10,200	9,060	8,830	3,200	1,950
15	1,400	2,140	12,700	6,080	11,400	6,160	9,230	10,300	10,200	9,580	3,260	1,930
16	1,330	3,530	11,200	5,570	*9,240	5,700	8,170	12,500	13,600	8,870	*3,100	2,000
17	1,310	3,890	9,890	5,200	8,600	5,260	8,780	14,800	12,200	8,260	3,000	2,080
18	1,620	3,350	8,980	4,910	8,100	4,880	10,200	16,500	10,500	7,770	2,970	2,100
19	2,140	3,140	9,830	4,600	7,720	4,600	9,680	18,600	9,520	7,640	2,990	2,100
20	2,010	3,140	20,200	4,240	9,340	4,380	8,530	17,300	11,200	7,160	3,120	1,980
21	1,950	3,080	20,700	4,130	12,300	4,200	7,560	14,700	14,500	6,440	3,270	1,900
22	1,790	5,560	16,000	5,580	13,900	3,980	7,110	11,700	14,200	5,720	3,030	1,840
23	1,650	8,560	12,600	5,550	11,500	*3,840	7,030	10,700	14,000	5,530	3,020	1,810
24	1,550	7,320	10,300	5,120	10,100	3,730	6,890	11,300	12,500	5,740	3,000	1,780
25	1,470	6,910	8,470	4,740	9,440	3,600	6,720	11,400	11,700	5,620	a2,800	1,780
26	1,410	8,530	7,520	4,500	8,870	3,570	6,400	10,700	11,800	5,450	a2,650	1,790
27	1,370	8,580	6,760	4,340	7,930	3,920	5,920	9,400	12,000	5,260	*2,570	1,750
28	1,320	8,600	6,620	4,200	7,160	3,740	*5,680	7,940	11,500	5,010	2,400	1,730
29	1,280	7,700	6,920	4,010	--------	3,480	5,250	7,200	10,100	4,770	2,350	1,670
30	1,310	7,560	6,300	3,950	--------	3,390	4,940	7,160	10,400	4,640	2,360	*1,600
31	1,410	--------	5,870	4,200	--------	3,280	--------	7,480	--------	4,550	2,410	--------
Total	50,380	116,050	361,110	193,090	238,920	168,000	198,830	318,700	308,020	243,170	100,670	59,470
Mean	1,625	3,868	11,650	6,229	8,533	5,419	6,628	10,280	10,270	7,844	3,247	1,982
Csm	1.39	3.31	9.96	5.32	7.29	4.63	5.66	8.79	8.78	6.70	2.78	1.69
In.	1.60	3.69	11.48	6.14	7.59	5.34	6.32	10.13	9.79	7.73	3.20	1.89
Ac-ft	99,930	230,200	716,300	383,000	473,900	333,200	394,400	632,100	610,900	482,300	199,700	118,000

Calendar year 1953: Max 28,400 Min 1,130 Mean 6,021 Csm 5.15 In. 69.84 Ac-ft 4,359,000
Water year 1953-54: Max 28,400 Min 1,280 Mean 6,456 Csm 5.52 In. 74.90 Ac-ft 4,674,000

Peak discharge (base, 16,000 cfs).--Dec. 10 (8:30 a. m.) 29,800 cfs (18.45 ft); Dec. 20 (8:30 p.m.) 23,200 cfs (15.46 ft); May 19 (3 p. m.) 19,100 cfs (13.57 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for stations near Kosmos and near Mayfield.

West Fork Tilton River near Morton, Wash.

Location.—Lat 46°36'45", long 122°14'45", in NE¼ sec. 13, T. 13 N., R. 4 E., on left bank three-quarters of a mile upstream from mouth and 4 miles northeast of Morton.
Drainage area.—16.4 sq mi.
Records available.—June 1950 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 1,150 ft (from topographic map).
Extremes.—1952-53: Maximum discharge during water year, 1,570 cfs Jan. 22 (gage height, 5.12 ft); minimum, 4.7 cfs Oct. 29 (gage height, 0.88 ft).
1953-54: Maximum discharge during water year, 3,240 cfs Dec. 9 (gage height, 6.56 ft), caused by release of water held upstream as result of slide; minimum, 13 cfs Aug. 12-14, 18; minimum gage height, 1.48 ft Oct. 8.
1950-54: Maximum discharge, that of Dec. 9, 1953; minimum, that of Oct. 29, 1952; minimum gage height, 0.87 ft Aug. 25, Sept. 20-24, 1951.
Remarks.—Records good except those for periods of fragmentary or no gage-height record, which are poor. Logging company diverts small amount. No regulation.
Revisions.—Revised figures of discharge for the water year 1953, superseding those published in WSP 1288, are given herein.

Discharge, in cubic feet per second, water year October 1952 to September 1953

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.6	14	*7.2	82	696	57	107	109	77	59	16	20
2	5.4	8.7	17	470	458	55	97	102	70	53	15.5	19
3	5.4	7.4	27	502	696	50	93	100	66	50	15.5	17
4	5.4	7.0	67	253	462	49	84	115	63	45	*15	15.5
5	5.2	6.7	61	174	348	49	84	146	59	42	14.5	14.5
6	5.0	6.5	40	144	379	49	80	150	59	40	15.5	14
7	5.0	6.3	64	219	516	54	73	137	76	37	15	14
8	5.0	5.8	78	593	371	83	66	135	74	39	14	14
9	5.2	5.8	54	915	249	104	61	117	70	34	14	13
10	5.4	9.5	87	458	182	105	58	98	73	31	13.5	12.5
11	5.2	16.5	112	964	139	142	58	88	68	30	13	12
12	5.2	15.5	646	747	114	146	61	83	73	28	13	12
13	5.2	23	340	*550	100	115	*65	86	111	28	12.5	12
14	5.0	26	212	415	94	97	64	84	94	30	12	11.5
15	5.0	24	147	450	89	98	65	76	81	27	12	11
16	5.0	16.5	112	674	126	146	77	70	70	25	12	*10
17	5.0	14	92	881	131	131	83	69	63	24	12	10
18	5.0	12.5	75	894	*107	111	88	88	58	23	11.5	9.9
19	5.0	12	63	862	92	102	105	*112	59	23	11.5	9.9
20	*5.6	11.5	53	550	83	97	133	111	64	22	11.5	9.6
21	6.5	11	54	458	76	92	150	118	58	21	12	9.2
22	5.4	10.5	53	700	72	107	150	125	53	21	11.5	9.2
23	5.6	10	48	1,140	65	194	225	112	50	20	11.5	10.5
24	8.5	9.8	42	545	62	246	184	146	48	19.5	14	9.9
25	6.0	9.5	38	427	60	222	146	135	45	19.5	14.5	9.2
26	5.4	9.3	36	292	59	159	148	121	43	19	22	9.2
27	5.2	9.0	33	231	60	148	197	142	44	18	53	9.6
28	*4.8	a8	37	228	61	159	170	121	42	17.5	36	32
29	5.6	a7.5	58	672	-------	137	128	111	56	17	29	18.5
30	10.5	a7	110	843	-------	139	118	98	69	17	24	122
31	14.5	-------	98	1,060	-------	126	-------	86	-------	17	22	-------
Total	181.8	340.8	2,961.2	17,393	5,947	3,569	3,218	3,391	1,936	896.5	519.0	500.7
Mean	5.86	11.4	95.5	561	212	115	107	109	64.5	28.9	16.7	16.7
Cfsm	0.357	0.695	5.82	34.2	12.9	7.01	6.52	6.65	3.93	1.76	1.02	1.02
In.	0.41	0.77	6.72	39.44	13.49	8.09	7.30	7.69	4.39	2.03	1.18	1.14
Ac-ft	361	676	5,870	34,500	11,800	7,080	6,380	6,730	3,840	1,780	1,030	993

Calendar year 1952: Max 1,180 Min 4.8 Mean 74.1 Cfsm 4.52 In. 61.32 Ac-ft 53,640
Water year 1952-53: Max 1,140 Min 4.8 Mean 112 Cfsm 6.83 In. 92.65 Ac-ft 81,040

Peak discharge (base, 800 cfs).--Dec. 12 (9 a. m.) 854 cfs (4.25 ft); Jan. 2 (10 p. m.) 807 cfs (4.18 ft); Jan. 11 (1 p. m.) 1,450 cfs (4.99 ft); Jan. 18 (3 p. m.) 1,020 cfs (4.44 ft); Jan. 22 (12 p. m.) 1,570 cfs (5.12 ft); Jan. 31 (2 p. m.) 1,360 cfs (4.89 ft); Feb. 3 (8 a. m.) 813 cfs (4.13 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for stations on nearby streams.

West Fork Tilton River near Morton, Wash.—Continued

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	152	144	261	110	156	114	75	58	110	57	16.5	15
2	111	125	279	108	178	98	80	69	90	50	16.5	14.5
3	74	96	f391	108	190	89	415	64	75	45	17	15
4	55	78	334	f211	211	82	551	82	80	41	16.5	16.5
5	44	74	f492	606	238	76	502	86	70	39	16.5	16.5
6	37	154	669	*765	255	75	362	97	90	36	16	15
7	*32	184	344	435	271	69	238	129	120	36	15	15
8	33	131	f279	322	259	220	230	170	105	32	14.5	17.5
9	55	104	f1,610	214	220	500	199	172	90	37	14	17
10	217	87	748	163	*182	450	170	149	80	101	13.5	16
11	121	63	524	134	f154	*f224	158	156	70	80	13.5	31
12	86	67	734	112	f578	160	242	140	65	66	13.5	29
13	67	58	372	107	607	129	607	116	65	56	13	27
14	57	59	263	193	390	108	349	108	60	50	13.5	25
15	48	117	230	160	248	97	220	127	110	45	14	30
16	40	184	205	127	220	87	193	136	*156	40	14	29
17	45	157	178	108	263	76	214	138	154	36	14	31
18	130	126	238	95	230	68	185	142	134	34	13.5	60
19	120	144	f570	82	f466	66	154	127	127	32	15	51
20	f98	*148	864	74	f815	63	*125	101	205	*32	18	45
21	87	279	496	93	f944	62	116	82	163	32	21	38
22	74	275	291	234	507	60	121	72	125	28	17	33
23	63	359	196	147	304	58	119	75	100	26	18	29
24	57	252	154	116	252	56	116	81	84	24	17	26
25	49	273	123	f98	f211	54	108	75	75	22	*17.5	24
26	44	258	107	84	f196	75	97	95	67	21	22	22
27	41	264	93	76	158	150	84	*82	66	21	20	*21
28	38	240	116	74	136	100	76	67	58	19.5	18	21
29	40	217	112	71	-------	85	69	62	51	19	17	20
30	60	258	100	95	-------	80	63	70	50	18	16.5	20
31	87	-------	95	132	-------	75	-------	100	-------	17.5	16.5	-------
Total	2,262	5,275	11,468	5,454	8,839	3,706	6,238	3,218	2,895	1,193.0	498.5	770.0
Mean	73.0	176	370	176	316	120	208	104	96.5	38.5	16.1	25.7
Cfsm	4.45	10.7	22.6	10.7	19.3	7.32	12.7	6.34	5.88	2.35	0.982	1.57
In.	5.13	11.96	26.01	12.37	20.04	8.40	14.15	7.30	6.56	2.71	1.13	1.75
Ac-ft	4,490	10,460	22,750	10,820	17,530	7,350	12,370	6,380	5,740	2,370	989	1,530

Calendar year 1953: Max 1,610 Min 9.2 Mean 154 Cfsm 9.39 In. 127.85 Ac-ft 111,800
Water year 1953-54: Max 1,610 Min 13 Mean 142 Cfsm 8.66 In. 117.51 Ac-ft 102,800

Peak discharge (base, 800 cfs).--Dec. 6 (12:15 a. m.) 976 cfs (4.38 ft); Dec. 9 (1:30 p. m.) 3,240 cfs (6.56 ft); Dec. 11 (11 to 12 p. m.) 1,120 cfs (4.75 ft); Dec. 20 (2 a. m.) 1,060 cfs 4.68 ft); Jan. 6 (3:30 a. m.) 976 cfs (4.57 ft); Feb. 21 (about 4 a. m.) about 1,170 cfs.

* Discharge measurement made on this day.

f Fragmentary gage-height record; discharge computed from partly estimated gage heights.

Note.--No gage-height record Oct. 16-19; Mar. 8-10, Mar. 23 to Apr. 2, May 30 to June 15, Aug. 19-24, Sept. 9-26, 28-30; discharge estimated on basis of records for Tilton River near Cinebar.

Tilton River near Cinebar, Wash.

Location.—Lat 46°34'35", long 122°31'15", in SW¼ sec. 26, T. 13 N., R. 2 E., on left bank 1,000 ft downstream from Cinnabar Creek, 2 miles southeast of Cinebar, and 2½ miles upstream from mouth.

Drainage area.—158 sq mi.

Records available.—February 1941 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 397.6 ft above mean sea level (river-profile survey). Prior to Apr. 18, 1941, staff gage at same site and datum.

Average discharge.—13 years, 903 cfs (653,700 acre-ft per year).

Extremes.—Maximum discharge during year, 22,500 cfs Dec. 9 (gage height, 15.00 ft), from rating curve extended above 9,200 cfs; minimum, 145 cfs Aug. 13, 14; minimum gage height, 4.36 ft Oct. 8.

1941-54: Maximum discharge, that of Dec. 9, 1953; minimum, 60 cfs Sept. 21-24, 1951 (gage height, 3.54 ft).

Remarks.—Records excellent. Several small diversions for municipal and domestic use above station. No regulation.

Revisions.—Revised figures of discharge, in cubic feet per second, for periods in the water years 1946-47, superseding those published in WSP 1064 and 1094 are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1946		1946-Con.		1946-Con.		1946-Con.	
Aug. 20	134	Sept. 1	140	Sept. 28	115	Oct. 10	145
21	130	2	130	29	120	11	135
22	128	3	130	30	140	12	125
23	126	4	150	Oct. 1	155	13	120
24	126	5	210	2	145	14	115
25	126	6	170	3	145	15	115
26	125	22	135	4	155	16	115
27	125	23	130	5	160	17	110
28	124	24	125	6	150	18	110
29	124	25	120	7	160	19	150
30	130	26	115	8	160		
31	130	27	115	9	150		

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
August 1946	4,487	179	124	145	0.918	1.06	8,900
September	4,089	210	102	136	0.861	.96	8,110
Water year 1945-46	369,116	6,800	92	1,011	6.40	86.88	732,200
October 1946	17,463	3,900	110	563	3.56	4.11	34,640
Calendar year 1946	408,584	11,700	102	1,119	7.08	96.16	810,400
Water year 1946-47	344,201	11,700	92	943	5.97	81.00	682,600

Tilton River near Cinebar, Wash.—Continued

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 9				Dec. 10 to Sept. 30			
4.4	200	7.0	1,650	4.4	140	7.0	1,580
4.8	312	8.0	2,750	4.7	220	8.0	2,700
5.2	460	10.0	6,050	5.1	360	9.0	4,200
6.0	880	13.0	14,200	5.5	530	11.0	8,310
				6.0	800		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	736	600	1,890	1,130	1,360	1,230	620	500	854	645	193	182
2	595	635	2,090	1,100	1,500	1,080	650	480	734	600	185	170
3	424	518	2,710	1,110	1,580	968	1,870	480	660	540	190	175
4	322	444	2,920	1,940	1,700	890	2,830	505	*686	495	190	211
5	266	*432	3,790	4,020	1,780	824	3,010	520	615	464	188	188
6	228	630	5,440	4,970	1,820	770	2,400	535	782	440	185	175
7	205	958	*3,290	3,500	1,890	716	1,800	620	926	420	175	165
8	212	742	2,670	3,080	1,860	1,390	1,640	818	848	412	168	226
9	322	600	13,400	2,320	1,670	2,760	1,560	908	740	416	160	211
10	1,220	514	7,870	1,850	1,430	2,500	1,360	818	670	585	155	*190
11	880	468	4,790	*1,540	1,240	1,710	1,240	866	620	560	150	282
12	610	428	6,680	1,320	2,580	1,330	1,280	860	595	*495	148	268
13	472	384	4,040	1,230	3,060	1,140	3,040	722	570	452	145	260
14	388	366	2,920	1,750	2,400	980	2,260	645	530	420	148	244
15	338	514	2,440	1,660	1,830	914	1,650	670	944	396	152	285
16	306	938	2,110	1,380	*1,640	860	1,370	734	1,210	372	162	282
17	325	1,020	1,850	1,210	1,730	770	1,360	746	1,230	348	*160	384
18	625	832	2,080	1,090	1,700	704	1,280	782	1,150	324	148	530
19	620	893	3,340	956	2,200	665	1,170	734	1,060	306	196	464
20	575	1,020	5,730	860	4,680	625	1,020	640	1,300	313	352	408
21	514	1,180	3,990	884	4,880	600	920	555	1,160	364	257	364
22	456	3,120	2,740	2,030	3,540	570	872	485	968	306	214	324
23	396	2,230	2,080	1,530	2,460	*550	818	472	830	278	232	299
24	356	1,600	1,680	1,280	2,090	535	788	500	722	260	226	274
25	325	1,520	1,400	1,100	1,890	520	740	520	655	247	226	254
26	303	1,520	1,280	988	1,870	640	716	746	615	241	288	241
27	284	1,540	1,140	926	1,570	1,120	670	764	640	232	285	229
28	269	1,480	1,320	914	1,390	842	615	600	610	223	241	217
29	264	1,330	1,320	866	-------	710	*575	550	535	214	217	205
30	356	1,590	1,180	944	-------	645	540	580	520	208	199	199
31	388	-------	1,080	1,190	-------	615	-------	782	-------	199	196	-------
Total	13,580	30,046	101,260	50,668	59,340	30,173	40,664	20,137	23,979	11,775	6,131	7,906
Mean	438	1,002	3,266	1,634	2,119	973	1,355	650	799	380	198	264
Cfsm	2.77	6.34	20.7	10.3	13.4	6.16	8.58	4.11	5.06	2.41	1.25	1.67
In.	3.20	7.07	23.83	11.93	13.97	7.10	9.57	4.74	5.64	2.77	1.44	1.86
Ac-ft	26,940	59,600	200,800	100,500	117,700	59,850	80,660	39,940	47,560	23,360	12,160	15,680

Calendar year 1953: Max 13,400 Min 99 Mean 1,154 Cfsm 7.30 In. 99.17 Ac-ft 835,700
Water year 1953-54: Max 13,400 Min 145 Mean 1,084 Cfsm 6.86 In. 93.12 Ac-ft 784,800

Peak discharge (base, 7,000 cfs).--Dec. 9 (4:30 p. m.) 22,500 cfs (15.00 ft); Dec. 12 (1:30 a. m.) 8,690 cfs (11.15 ft).

* Discharge measurement made on this day.

Klickitat Creek at Mossyrock, Wash.

Location.—Lat 46°31'15", long 122°28'05", on line between secs. 17 and 18, T. 12 N., R. 3 E., near left bank at upstream side of highway bridge 1 mile southeast of Mossyrock and 4½ miles upstream from mouth.

Drainage area.—3.45 sq mi.

Records available.—August 1948 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 668.41 ft above mean sea level (levels by city of Tacoma).

Average discharge.—6 years, 9.32 cfs (6,750 acre-ft per year).

Extremes.—Maximum discharge during year, 148 cfs Dec. 9 (gage height, 3.55 ft), from rating curve extended above 44 cfs; minimum, 0.2 cfs Aug. 10, 11, Sept. 7-10; minimum gage height, 0.75 ft Aug. 10, 11.

1948-54: Maximum discharge, 165 cfs Feb. 17, 1949 (gage height, 3.62 ft), from rating curve extended above 35 cfs; no flow for long periods in most years.

Remarks.—Records fair except those below 1 cfs, which are poor. No known regulation or diversion.

Revisions.—WSP 1248: Drainage area.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.4	*6.3	17.5	16.5	24	16	6.0	4.2	3.7	8.4	0.5	0.5
2	3.0	4.4	21	16	22	14	6.9	3.7	2.4	4.9	.4	.4
3	1.6	3.4	27	17.5	21	13	13	4.0	2.0	3.6	.7	.6
4	1.0	3.2	*36	53	20	12	18	3.7	*2.3	3.2	.7	.6
5	.7	5.7	44	55	19	11	14	3.4	1.8	2.9	.7	.5
6	.6	5.4	65	48	18	10	16	3.2	4.9	2.6	.7	.4
7	.5	4.7	53	42	16	10	13	2.9	4.2	2.7	.5	.4
8	1.0	3.7	56	36	15.5	20	14	2.7	2.9	2.7	.4	.4
9	8.2	3.4	104	32	14.5	21	15.5	2.7	2.6	3.4	.4	*.2
10	16	3.4	92	28	13.5	18	12.5	2.6	2.4	4.9	.3	.3
11	6.6	3.4	80	24	13.5	14.5	11.5	4.9	2.3	3.2	.3	.9
12	4.0	3.4	78	*22	*25	13	11.5	3.4	2.9	*2.6	.4	.6
13	3.0	3.0	55	23	21	12.5	18.5	2.7	2.9	2.0	.4	.5
14	2.6	3.0	46	29	19	11.5	13.5	2.3	2.4	2.0	.5	.5
15	2.3	4.7	38	25	16.5	11	12.5	2.0	11	2.0	.9	.8
16	2.0	15	30	21	16	11	11.5	1.8	8.7	1.9	*2.0	1.6
17	3.2	12.5	26	20	17	9.9	11	1.6	8.7	1.8	.9	3.0
18	7.5	9.3	24	18	18	*9.3	9.9	1.4	8.1	1.5	.9	2.4
19	4.7	12.5	41	16	24	8.7	10.5	1.2	8.4	1.4	6.9	1.5
20	5.2	10.5	44	14.5	28	8.7	9.6	1.2	8.7	1.9	3.7	*1.1
21	3.4	14	33	26	35	8.1	8.1	1.3	5.7	2.0	1.9	1.0
22	2.9	22	28	48	27	7.2	7.5	1.2	4.9	1.4	1.4	.9
23	2.6	16	26	31	25	6.6	6.9	1.1	4.4	1.2	2.0	1,0
24	2.4	13	24	27	25	6.6	6.6	1.3	4.2	1.1	1.9	.8
25	2.1	15.5	21	25	23	6.0	6.3	2.6	4.0	1.0	2.3	.7
26	2.1	16	24	24	23	9.3	7.8	7.8	4.2	1.0	2.4	.5
27	1.9	16	20	24	19	11.5	*6.3	3.2	6.9	.9	1.4	.6
28	1.8	14	21	23	18.5	7.8	5.4	2.1	4.9	.7	1.0	.5
29	1.9	13	18	25	-------	6.3	5.2	2.9	3.7	.7	..7	*.5
30	3.2	16.5	16	25	-------	5.4	4.7	3.6	5.7	.6	.9	.5
31	2.1	-------	15	25	-------	5.4	-------	5.4	-------	.6	.8	-------
Total	104.5	276.9	1,223.5	859.5	577.0	335.3	313.7	88.1	141.9	70.8	38.9	24.2
Mean	3.37	9.23	39.5	27.7	20.6	10.8	10.5	2.84	4.73	2.28	1.25	0.81
Cfsm	0.977	2.68	11.4	8.03	5.97	3.13	3.04	0.823	1.37	0.661	0.362	0.235
In.	1.13	2.98	13.19	9.27	6.22	3.61	3.38	0.95	1.53	0.76	0.42	0.26
Ac-ft	207	549	2,430	1,700	1,140	665	622	175	281	140	77	48

Calendar year 1953: Max 104 Min 0 Mean 10.5 Cfsm 3.04 In. 41.48 Ac-ft 7,640
Water year 1953-54: Max 104 Min 0.2 Mean 11.1 Cfsm 3.22 In. 43.70 Ac-ft 8,030

Peak discharge (base, 60 cfs).--Dec. 6 (6:30 p. m.) 73 cfs (2.64 ft); Dec. 9 (3 p. m.) 148 cfs (3.55 ft); Dec. 12 (12:30 a. m.) 124 cfs (3.23 ft); Jan. 4 (6 p. m.) 69 cfs (2.50 ft); Jan. 22 (6 a. m.) 75 cfs (2.58 ft).

* Discharge measurement made on this day.

Winston Creek near Mayfield, Wash.

Location.—Lat 46°29'00", long 122°31'15", about center of sec. 35, T. 12 N., R. 2 E., on left bank 100 ft downstream from bridge, 3 miles southeast of Mayfield, and 3¼ miles upstream from mouth.

Drainage area.—40.0 sq mi.

Records available.—October 1949 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 470 ft (from topographic map).

Average discharge.—5 years, 120 cfs (86,880 acre-ft per year).

Extremes.—Maximum discharge during year, 3,510 cfs Dec. 9 (gage height, 8.58 ft), from rating curve extended above 550 cfs by logarithmic plotting; minimum, 11 cfs Aug. 11 (gage height, 2.15 ft).

1949-54: Maximum discharge, that of Dec. 9, 1953; minimum, 0.6 cfs Aug. 24, 1951 (gage height, 1.63 ft).

Remarks.—Records good except those below 35 cfs, which are fair. Slight regulation by Long Bell Lumber Co. for millpond.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 8				Dec. 9 to Sept. 30			
2.2	17	4.0	326	2.1	9.0	4.0	320
2.4	30	4.5	490	2.3	19	4.5	485
2.6	46	5.0	695	2.6	43	5.0	695
3.0	101	5.5	955	3.0	93	6.0	1,240
3.5	199			3.5	192	7.0	1,990

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	60	217	158	299	183	101	56	75	89	17	21
2	49	57	241	147	293	160	107	53	65	76	15	17
3	34	45	326	154	265	147	197	52	*58	65	16	17
4	27	41	*397	505	240	127	274	46	62	58	17	22
5	22	61	531	750	228	118	314	46	53	53	17	19
6	19	89	765	704	214	111	353	43	74	50	16	17
7	21	89	570	565	204	101	285	40	74	46	14	16
8	19	76	512	446	185	164	265	39	66	50	13	16
9	51	67	1,840	365	174	192	240	38	62	48	13	*14
10	177	64	1,490	299	156	202	211	41	58	61	12	14
11	110	61	820	250	145	187	187	47	55	52	12	20
12	77	57	810	*214	*282	171	180	46	64	44	12	17
13	58	53	553	202	362	169	255	42	65	*40	12	15
14	43	50	429	262	317	145	226	39	59	38	13	15
15	43	80	338	252	275	137	204	37	125	38	13	19
16	37	178	278	226	260	137	180	36	162	37	19	27
17	41	186	230	199	255	120	165	32	171	35	*17	37
18	61	158	209	176	230	109	145	31	154	32	15	39
19	68	186	288	158	313	*104	131	29	145	32	41	30
20	64	179	493	139	497	99	122	28	156	32	64	*27
21	54	197	426	176	614	92	107	28	127	35	39	25
22	49	338	347	525	521	86	106	26	109	32	32	23
23	45	279	296	380	408	82	111	25	98	28	29	23
24	41	236	258	308	353	80	83	26	85	27	28	22
25	39	244	216	255	293	75	79	36	78	25	35	20
26	36	246	206	221	270	92	78	68	74	25	38	18
27	34	241	178	202	230	162	75	64	86	24	31	17
28	33	236	194	197	214	129	*69	46	79	23	26	17
29	*33	195	174	183	-------	113	64	46	62	22	23	16
30	38	215	158	223	-------	106	61	64	62	21	20	15
31	36	-------	147	290	-------	101	-------	75	-------	32	25	-------
Total	1,529	4,264	13,937	9,131	8,097	4,001	4,975	1,325	2,663	1,270	694	615
Mean	49.3	142	450	295	289	129	166	42.7	88.8	41.0	22.4	20.5
Cfsm	1.23	3.55	11.2	7.38	7.22	3.22	4.15	1.07	2.22	1.02	0.560	0.512
In.	1.42	3.96	12.96	8.49	7.53	3.72	4.63	1.23	2.48	1.18	0.65	0.57
Ac-ft	3,030	8,460	27,640	18,110	16,060	7,940	9,870	2,630	5,280	2,520	1,380	1,220

Calendar year 1953: Max 1,840 Min 6.8 Mean 141 Cfsm 3.52 In. 47.88 Ac-ft 102,100
Water year 1953-54: Max 1,840 Min 12 Mean 144 Cfsm 3.60 In. 48.82 Ac-ft 104,100

Peak discharge (base, 900 cfs).--Dec. 9 (5 p. m.) 3,510 cfs (8.58 ft); Dec. 12 (3 a. m.) 1,070 cfs (5.72 ft).

* Discharge measurement made on this day.

Cowlitz River near Mayfield, Wash.

Location.—Lat 46°30'40", long 122°36'50", in NE¼ sec. 24, T. 12 N., R. 1 E., on right bank 1 mile upstream from Mill Creek, 2 miles downstream from Winston Creek, and 2¼ miles west of Mayfield.

Drainage area.—1,400 sq mi (revised).

Records available.—August 1910 to November 1911, April 1934 to September 1954. Published as "at Mayfield" 1910-11 (October, November 1911, monthly discharge only, published in WSP 492).

Gage.—Water-stage recorder. Datum of gage is 226.6 ft above mean sea level, datum of 1929. August 1910 to November 1911 staff gage at site 2½ miles upstream at different datum. Apr. 27 to June 30, 1934, staff gage at present site and datum.

Average discharge.—20 years (1934-54), 5,950 cfs (4,308,000 acre-ft per year).

Extremes.—Maximum discharge during year, 47,600 cfs Dec. 10 (gage height, 21.09 ft); minimum, 1,640 cfs Oct. 7, 8 (gage height, 8.73 ft).

1910-11, 1934-54: Maximum discharge, 55,000 cfs Dec. 13, 1946 (gage height, 24.75 ft); minimum, 698 cfs Nov. 30, 1952; minimum gage height, 7.18 ft Nov. 30, Dec. 1, 1936. Flood of December 1933 is known to have exceeded that of Dec. 13, 1946.

Remarks.—Records excellent except those above 20,000 cfs, which are good, and those for period of no gage-height record, which are fair. No regulation or diversion.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,170	2,400	9,340	7,220	6,430	7,970	4,000	5,390	9,000	11,100	4,660	2,670
2	3,190	2,730	9,290	6,940	6,820	7,270	4,000	5,140	8,800	10,700	4,700	2,590
3	2,510	2,460	10,300	6,790	7,190	6,650	5,610	5,060	*8,640	9,670	4,620	2,560
4	2,180	2,240	*11,100	9,060	7,710	6,220	7,950	5,280	9,340	9,370	4,300	2,560
5	1,930	2,190	12,100	12,700	8,360	5,780	10,300	5,690	9,400	9,580	4,020	2,440
6	1,770	2,430	16,200	*17,600	8,900	5,450	10,600	6,220	9,120	9,760	3,940	2,360
7	1,680	2,920	13,300	16,700	9,430	5,190	9,090	7,090	9,060	10,100	3,940	2,280
8	1,660	2,680	11,200	15,200	9,850	6,020	8,450	9,260	8,980	10,300	3,940	2,300
9	1,870	2,480	27,200	12,800	9,790	9,670	8,280	12,300	8,780	9,200	3,860	*2,360
10	3,340	2,360	42,400	11,100	9,180	15,300	7,690	14,000	8,870	9,120	3,690	2,320
11	3,280	2,320	28,500	9,670	8,450	13,100	7,090	15,000	8,920	10,400	3,560	2,520
12	2,600	2,400	29,000	8,530	*10,600	10,700	6,990	14,500	9,060	9,580	3,460	2,570
13	2,260	2,370	23,500	7,790	16,400	9,180	10,500	13,000	9,550	*8,780	3,390	2,430
14	2,040	2,300	18,200	8,560	16,300	8,080	12,600	11,500	9,460	8,840	3,410	2,340
15	1,900	2,600	15,700	8,560	13,000	7,320	11,400	12,000	10,800	9,580	3,500	2,360
16	1,800	4,420	13,800	7,610	11,200	6,840	9,910	14,000	14,200	9,060	3,350	2,420
17	1,770	5,100	12,100	6,960	10,600	6,260	10,200	16,000	13,100	8,390	*3,190	2,570
18	2,460	4,340	11,400	6,530	10,200	5,810	11,500	18,000	11,500	7,900	3,100	2,780
19	2,970	4,180	13,000	6,050	10,300	*5,430	11,100	19,000	10,400	7,740	3,230	2,700
20	2,760	4,300	25,700	5,520	14,700	5,170	9,910	18,000	11,900	7,400	3,610	2,510
21	2,600	4,300	26,100	5,410	17,500	4,970	8,780	16,000	14,800	6,770	3,690	2,380
22	2,380	8,420	19,500	8,760	17,800	4,700	8,250	14,000	14,300	6,000	3,350	2,310
23	2,240	11,100	15,200	8,170	14,500	4,520	8,110	11,500	13,900	5,720	3,300	2,260
24	2,080	9,090	12,400	7,250	12,500	4,420	7,870	12,000	12,700	5,930	3,300	2,200
25	1,970	8,340	10,300	6,530	11,600	4,260	7,690	12,000	11,700	5,830	3,140	2,160
26	1,870	10,100	9,200	6,190	11,200	4,360	7,430	11,500	11,800	5,630	3,040	2,160
27	1,790	10,200	8,280	5,860	9,880	5,390	6,940	10,500	12,000	5,450	2,970	2,120
28	1,720	10,200	8,140	5,650	8,900	4,860	*6,480	9,500	11,700	5,190	2,870	2,080
29	*1,690	9,060	8,560	5,390	-------	4,400	6,100	7,800	10,300	4,950	2,670	2,000
30	1,840	9,150	7,770	5,430	-------	4,200	5,760	7,800	10,400	4,810	2,700	1,930
31	1,910	-------	7,250	6,020	-------	4,060	-------	8,300	-------	4,770	2,730	-------
Total	69,230	149,180	486,030	262,550	309,290	203,550	250,580	347,330	322,480	247,620	109,140	71,240
Mean	2,233	4,973	15,680	8,469	11,050	6,566	8,353	11,200	10,750	7,988	3,521	2,375
Cfsm	1.60	3.55	11.2	6.05	7.89	4.69	5.97	8.00	7.68	5.71	2.52	1.70
In.	1.84	3.96	12.91	6.97	8.22	5.41	6.66	9.23	8.57	6.58	2.90	1.89
Ac-ft	137,300	295,900	964,000	520,800	613,500	403,700	497,000	688,900	639,600	491,100	216,500	141,300

Calendar year 1953: Max 42,400 Min 1,340 Mean 7,500 Cfsm 5.36 In. 72.71 Ac-ft 5,430,000
Water year 1953-54: Max 42,400 Min 1,660 Mean 7,749 Cfsm 5.54 In. 75.14 Ac-ft 5,610,000

Peak discharge (base, 16,000 cfs).--Dec. 6 (4:30 a. m.) 16,700 cfs (14.65 ft); Dec. 10 (4 a. m.) 47,600 cfs (21.09 ft); Dec. 20 (7:30 p. m.) 29,300 cfs (17.64 ft); Jan. 6 (12:30 p. m.) 18,100 cfs (15.02 ft); Feb. 13 (8 p. m.) 17,600 cfs (14.90 ft); Feb. 21 (12 p. m.) 19,400 cfs (15.34 ft); May 19 (time unknown) 19,300 cfs (15.32 ft).

* Discharge measurement made on this day.

Note.--No gage-height record May 10 to June 2; discharge estimated on basis of recorded range in stage and records for stations near Kosmos and at Mossyrock.

South Fork Toutle River at Toutle, Wash.

Location.—Lat 46°19'20", long 122°41'45", in SW¼NW¼ sec. 28, T. 10 N., R. 1 E., on left bank half a mile southwest of Toutle, 1½ miles upstream from mouth, and 3 miles downstream from Johnson Creek.

Drainage area.—118 sq mi.

Records available.—October 1939 to September 1954.

Gage.—Water-stage recorder. Datum of gage is at mean sea level (from river-profile survey). Prior to Nov. 11, 1939, staff gage at same site at datum 451.12 ft above mean sea level.

Average discharge.—15 years, 601 cfs (435,100 acre-ft per year).

Extremes.—Maximum discharge during year, 14,300 cfs Dec. 9 (elevation, 458.91 ft), from rating curve extended above 4,500 cfs; minimum, 125 cfs Sept. 7, 9, 10; minimum elevation, 452.76 ft Sept. 7, 9, 10, 30.

1939-54: Maximum discharge, that of Dec. 9, 1953; minimum, 62 cfs Nov. 29, 1952; minimum elevation, 451.46 ft Aug. 18, 19, 1940.

Remarks.—Records good except those for periods of no gage-height record, which are fair. No regulation or diversion.

Revisions (water years).—WSP 1184: 1949.

Rating table, water year 1953-54 (elevation, in feet, and discharge, in cubic feet per second)

452.7	122	453.6	561	456.0	3,910
452.9	179	454.0	900	457.0	6,660
453.1	256	454.5	1,410	458.0	10,400
453.3	360	455.0	2,060		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	698	231	*1,310	758	a1,100	793	378	344	706	698	186	144
2	441	248	1,390	766	a1,150	715	409	338	*600	624	179	141
3	316	210	1,490	846	a1,100	640	1,080	349	554	539	*179	141
4	252	200	1,530	*1,890	a1,150	593	1,460	354	569	481	179	155
5	210	266	1,840	3,420	a1,200	546	1,750	360	593	428	179	141
6	190	517	3,240	4,360	a1,170	510	1,520	366	766	403	176	130
7	173	600	2,030	2,610	a1,140	481	1,190	421	793	384	170	125
8	179	481	1,740	1,860	*1,110	828	1,230	577	690	*372	170	*136
9	222	403	7,400	1,460	1,050	2,280	1,130	665	608	372	173	127
10	793	372	3,260	1,190	936	2,150	1,000	648	561	546	170	127
11	495	397	2,850	1,000	837	1,410	882	682	517	503	167	146
12	372	390	2,940	855	2,560	1,080	846	648	524	421	167	161
13	310	354	2,080	810	4,330	891	1,400	569	488	378	167	152
14	266	372	1,640	1,070	2,560	766	1,260	503	454	349	170	144
15	239	793	1,380	1,060	1,770	*715	1,040	532	900	327	167	146
16	218	1,330	1,200	882	1,580	682	918	600	1,100	305	170	186
17	280	1,120	1,080	766	1,630	600	882	640	1,140	290	164	196
18	927	846	1,150	698	1,510	539	828	698	990	280	158	239
19	775	954	1,870	616	2,080	503	758	673	891	266	182	193
20	640	963	3,130	554	3,000	468	673	585	918	266	200	173
21	532	1,060	2,390	886	3,910	434	608	554	793	285	173	167
22	a460	2,590	1,730	2,700	2,860	409	577	481	698	256	158	158
23	a400	1,840	1,370	1,570	1,930	390	554	461	624	243	167	158
24	a330	1,340	1,120	1,220	1,580	378	600	488	481	231	167	152
25	a280	1,260	954	a950	1,320	360	569	488	503	218	210	146
26	*252	1,260	909	a880	1,170	397	546	624	495	210	193	141
27	239	1,220	819	a820	1,010	554	*517	600	524	207	173	138
28	227	1,110	864	a890	900	461	415	481	539	204	158	136
29	214	936	828	a800	------	415	378	488	454	196	155	133
30	227	1,120	749	a900	------	384	360	600	468	193	152	133
31	210	------	698	a720	------	372	------	723	------	186	161	------
Total	11,367	24,783	56,981	39,807	47,643	21,744	25,758	16,540	19,941	10,661	5,340	4,565
Mean	367	826	1,838	1,284	1,702	701	859	534	665	344	172	152
Cfsm	3.11	7.00	15.6	10.9	14.4	5.94	7.28	4.53	5.64	2.92	1.46	1.29
In.	3.58	7.81	17.96	12.55	15.02	6.85	8.12	5.21	6.28	3.36	1.68	1.44
Ac-ft	22,550	49,160	113,000	78,960	94,500	43,130	51,090	32,810	39,550	21,150	10,590	9,050

Calendar year 1953: Max 7,400 Min 96 Mean 790 Cfsm 6.69 In. 90.91 Ac-ft 572,100
Water year 1953-54: Max 7,400 Min 125 Mean 781 Cfsm 6.62 In. 89.86 Ac-ft 565,500

Peak discharge (base, 4,200 cfs).--Dec. 9 (6:30 p. m.) 14,300 cfs (458.91 ft); Jan. 6 (4 a. m.) 5,610 cfs (456.66 ft); Feb. 13 (7 a. m.) 4,940 cfs (456.42 ft); Feb. 21 (11 a. m.) 4,890 cfs (456.40 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage and records for stations on nearby streams.

Silver Lake at Silver Lake, Wash.

Location.—Lat 46°17'15", long 122°48'30", in NE¼ sec. 4, T. 9 N., R. 1 W., on left shore at Silver Lake, 5 miles east of Castle Rock.
Drainage area.—41.5 sq mi.
Records available.—July 1949 to September 1950 (fragmentary), August 1953 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 480 ft (from topographic map). Prior to Sept. 30, 1950, staff gage at same site and datum.
Extremes.—1953: Maximum gage height during period August to September, 1.31 ft Sept. 30; minimum, 1.00 ft Sept. 28.
1953-54: Maximum gage height during water year, 5.40 ft Dec. 12; minimum, 1.28 ft Aug. 15, 22-24.
1949-50, 1953-54: Maximum gage height observed, 5.80 ft Jan. 31, 1950; minimum observed, 0.18 ft Sept. 22, 1950.
Remarks.—No regulation or diversion.

Gage height at 12 p. m., in feet, 1953

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	-	1.25	9	-	1.19	17	-	1.13	25	-	1.09
2	-	1.24	10	-	1.18	18	-	1.12	26	-	1.08
3	-	1.23	11	-	1.18	19	-	1.11	27	-	1.12
4	-	1.23	12	-	1.18	20	-	1.11	28	1.26	1.13
5	-	1.22	13	-	1.17	21	-	1.10	29	1.25	1.21
6	-	1.21	14	-	1.16	22	-	1.11	30	1.25	1.30
7	-	1.21	15	-	1.15	23	-	1.10	31	1.25	-------
8	-	1.20	16	-	1.14	24	-	1.09			

Gage height at 12 p. m., water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.35	1.78	3.46	3.91	4.59	4.21	2.77	2.57	1.90	2.02	1.45	1.42
2	1.36	1.77	3.48	3.88	4.52	4.10	2.80	2.54	1.88	2.00	1.45	1.41
3	1.35	1.77	3.54	3.91	4.44	3.98	2.85	2.51	1.90	1.98	1.43	1.41
4	1.36	1.76	3.61	4.40	4.36	3.87	3.02	2.47	1.89	1.95	1.42	1.41
5	1.36	1.84	3.81	4.78	4.27	3.77	3.19	2.43	1.87	1.93	1.42	1.41
6	1.36	1.88	4.11	4.92	4.18	3.67	3.31	2.39	1.90	1.91	1.40	1.40
7	1.35	1.90	4.28	4.97	4.09	3.60	3.36	2.35	1.90	1.88	1.40	1.40
8	1.38	1.93	4.36	4.93	3.99	3.58	3.40	2.32	1.90	1.86	1.38	1.40
9	1.53	1.95	5.09	4.86	3.91	3.69	3.40	2.29	1.88	1.88	1.38	1.40
10	-	1.98	5.32	4.75	3.82	2.79	3.38	2.26	1.87	1.86	1.37	1.41
11	-	1.99	5.35	4.64	3.80	3.73	3.35	2.24	1.88	1.85	1.35	1.41
12	-	1.99	5.39	4.51	4.07	3.69	3.39	2.22	1.89	1.82	1.34	1.40
13	-	2.00	5.33	4.40	4.28	3.64	3.40	2.19	1.88	1.80	1.33	1.40
14	-	2.04	5.21	4.45	4.33	3.58	3.40	2.16	1.89	1.78	1.32	1.41
15	-	2.06	5.08	4.47	4.33	3.54	3.37	2.13	1.90	1.75	1.32	1.42
16	-	2.22	4.93	4.45	4.28	3.47	3.32	2.10	2.03	1.74	1.32	1.46
17	-	2.34	4.81	4.42	4.27	3.40	3.28	2.07	2.07	1.71	1.31	1.48
18	-	2.41	4.70	4.37	4.30	3.33	3.22	2.04	2.08	1.69	1.32	1.48
19	-	2.49	4.73	4.27	4.53	3.27	3.16	2.01	2.11	1.67	1.32	1.48
20	-	2.55	4.85	4.17	4.76	3.21	3.11	1.98	2.11	1.67	1.32	1.48
21	-	2.69	4.87	4.31	4.98	3.15	-	1.95	2.10	1.65	1.31	1.48
22	-	2.94	4.82	4.80	4.99	3.09	-	1.93	2.08	1.63	1.30	1.48
23	-	3.09	4.74	4.93	4.91	3.03	-	1.89	2.06	1.62	1.30	1.48
24	-	3.16	4.64	4.94	4.82	2.97	-	1.89	2.05	1.60	1.33	1.47
25	-	3.22	4.52	4.91	4.71	2.91	-	1.89	2.03	1.58	1.40	1.47
26	1.78	3.30	4.43	4.83	4.58	2.90	-	1.88	2.02	1.56	1.40	1.47
27	1.78	3.35	4.33	4.80	4.45	2.92	2.76	1.87	2.02	1.54	1.40	1.46
28	1.77	3.37	4.24	4.75	4.34	2.90	2.70	1.86	1.99	1.52	1.40	1.45
29	1.77	3.37	4.14	4.68	-	2.87	2.66	1.87	1.97	1.50	1.41	1.44
30	1.77	3.44	4.04	4.63	-------	2.82	2.61	1.88	2.01	1.48	1.43	1.43
31	1.76	-------	3.94	4.61	-------	2.80	-------	1.90	-------	1.47	1.42	-------

Toutle River near Silver Lake, Wash.

Location.—Lat 46°20'10", long 122°43'30", in SE¼ sec. 19, T. 10 N., R. 1 E., on right bank just downstream from highway bridge, half a mile downstream from confluence of North and South Forks and 5 miles northeast of Silver Lake.

Drainage area.—474 sq mi.

Records available.—September 1909 to August 1912, October 1919 to December 1923 (fragmentary), September 1929 to September 1954. Published as "near Castle Rock" 1909-12.

Gage.—Water-stage recorder. Datum of gage is 407.3 ft above mean sea level (from river-profile survey). Prior to Aug. 4, 1912, staff gage at site 2 miles downstream, datum of gage, 307.3 ft above mean sea level (unadjusted). Oct. 9, 1919, to Dec. 14, 1923, water-stage recorder at site 300 ft downstream at different datum. Sept. 25 to Nov. 10, 1929, chain gage, and Nov. 11, 1929, to Oct. 5, 1938, Oct. 30, 1950, to Apr. 16, 1952, water-stage recorder, 50 ft upstream at same datum. Oct. 6, 1938, to Oct. 3, 1950, water-stage recorder at present site and datum.

Average discharge.—30 years (1909-11, 1919-21, 1922-23, 1929-54), 2,000 cfs (1,448,000 acre-ft per year).

Extremes.—Maximum discharge during year, 25,200 cfs Dec. 9 (gage height, 17.50 ft); minimum, 524 cfs Sept. 30 (gage height, 2.04 ft).

1909-12, 1919-23, 1929-54: Maximum discharge observed, 37,600 cfs (revised) Mar. 2, 1910; maximum gage height recorded, 22.7 ft Dec. 23, 1933; minimum discharge, 240 cfs Nov. 21, 1929.

Revisions.—The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
292	1910	Mar. 2, 1910	37,600	a 11.30
709	1930	Dec. 14, 1929	10,800	9.30
724	1931	Mar. 31, 1931	20,000	14.73
739	1932	Mar. 5, 1932	15,600	12.12

a From graph based on gage readings.

Remarks.—Records good. No regulation or diversion.

Revisions (water years).—WSP 292: 1909, calendar year. WSP 754: 1930-32. Revised figures of discharge, in cubic feet per second, for the water year 1945, superseding those published in WSP 1044, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge	Date	Discharge
1944		1944-Con.		1944-Con.		1944-Con.	
Nov. 4	1,700	Nov. 13	1,500	Nov. 22	1,100	Dec. 1	2,600
5	1,500	14	1,300	23	1,400	2	2,200
6	1,500	15	1,100	24	1,700	3	2,000
7	1,900	16	1,000	25	1,500	4	2,200
8	2,700	17	950	26	2,800	5	2,500
9	3,800	18	900	27	2,500	6	3,200
10	2,700	19	820	28	2,200	7	2,400
11	2,100	20	760	29	2,000	8	2,300
12	1,800	21	840	30	3,000	9	2,000

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
November 1944	50,029	3,800	760	1,668	3.52	3.93	99,230
December	42,408	3,200	687	1,268	2.89	3.33	84,120
Calendar year 1944	440,823	4,210	272	1,204	2.54	34.60	874,400
Water year 1944-45	627,005	10,400	320	1,718	3.62	49.20	1,244,000

Toutle River near Silver Lake, Wash. —Continued

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 8		Dec. 9 to Sept. 30	
2.1	535	2.0	500
2.5	805	2.5	840
3.0	1,250	3.0	1,300
4.0	2,510	4.0	2,620
5.0	4,300	5.0	4,400
7.0	7,800	7.0	7,800
Note.— Same as following table above 7.0 ft.		12.0	15,800

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,550	745	*3,700	2,520	3,590	2,720	1,440	1,320	2,270	2,720	808	620
2	1,090	853	3,880	2,440	3,570	2,460	1,490	1,270	*2,060	2,570	784	596
3	837	752	4,490	2,670	3,590	2,260	2,830	1,280	1,930	2,230	*792	590
4	716	709	4,980	*5,710	3,660	2,090	3,860	1,290	2,030	2,020	776	620
5	640	837	5,840	9,250	3,730	1,960	4,760	1,290	2,010	1,920	753	602
6	589	1,190	9,750	*11,500	3,700	1,840	4,600	1,300	2,350	1,810	739	578
7	559	1,450	6,750	7,980	3,680	1,750	3,700	1,400	2,480	1,800	711	566
8	577	1,240	5,450	5,980	*3,610	2,510	3,540	1,720	2,270	*1,790	704	*578
9	716	1,100	15,700	4,760	3,430	5,280	3,340	2,100	2,080	1,700	690	554
10	1,810	1,040	12,400	4,000	3,100	5,820	2,960	2,160	1,980	1,960	676	554
11	1,340	1,120	9,190	3,480	2,820	4,240	2,650	2,270	1,900	1,820	655	614
12	1,050	1,090	9,510	3,010	6,780	3,450	2,510	2,240	1,930	1,640	641	620
13	902	1,030	6,920	2,780	10,600	2,940	3,720	1,990	1,920	1,520	*641	608
14	805	1,050	5,320	3,520	7,180	2,600	3,640	1,850	1,800	1,490	634	584
15	745	1,630	4,530	3,610	5,160	*2,430	3,180	1,850	2,810	1,490	634	614
16	702	3,010	3,990	3,090	4,630	2,410	2,800	2,060	3,480	1,420	662	718
17	760	2,810	3,550	2,730	4,690	2,160	2,720	2,230	3,700	1,330	634	816
18	1,700	2,180	3,500	2,520	4,310	2,010	2,640	2,440	3,270	1,270	614	965
19	1,620	2,340	4,770	2,260	6,320	1,880	2,460	2,570	2,910	1,230	711	832
20	1,430	2,430	9,340	2,050	8,300	1,770	2,260	2,330	3,000	1,210	938	746
21	1,250	2,340	7,640	2,510	10,800	1,700	2,080	2,150	2,760	1,230	784	704
22	1,100	6,240	5,550	8,220	7,820	1,600	1,970	1,930	2,570	1,130	697	669
23	997	5,290	4,490	5,170	5,620	1,530	1,860	1,810	2,380	1,080	725	655
24	919	3,840	3,820	3,970	4,830	1,490	1,790	1,880	2,160	1,060	718	620
25	861	3,480	3,270	3,320	4,240	1,420	1,720	1,930	2,050	1,020	856	602
26	*805	3,770	3,030	2,940	3,860	1,460	1,660	2,200	2,030	974	792	584
27	752	3,660	2,750	2,830	3,320	1,980	*1,630	2,160	2,150	929	718	566
28	723	3,370	2,870	2,920	3,050	1,790	1,530	1,790	2,220	904	676	554
29	709	2,940	2,850	2,730	-------	1,590	1,440	1,710	1,900	864	648	548
30	730	3,210	2,600	2,980	-------	1,500	1,380	2,020	1,980	848	634	536
31	709	-------	2,440	3,590	-------	1,440	-------	2,220	-------	824	669	-------
Total	29,693	66,746	174,870	127,040	139,990	72,080	78,160	58,760	70,380	45,803	22,114	19,013
Mean	958	2,225	5,641	4,098	5,000	2,325	2,605	1,895	2,346	1,478	713	634
Cfsm	2.02	4.69	11.9	8.65	10.5	4.91	5.50	4.00	4.95	3.12	1.50	1.34
In.	2.33	5.24	13.72	9.97	10.98	5.66	6.13	4.61	5.52	3.59	1.74	1.49
Ac-ft	58,900	132,400	346,800	252,000	277,700	143,000	155,000	116,500	139,600	90,850	43,860	37,710

Calendar year 1953: Max 15,700 Min 387 Mean 2,410 Cfsm 5.08 In. 69.01 Ac-ft 1,745,000
Water year 1953-54: Max 15,700 Min 536 Mean 2,478 Cfsm 5.23 In. 70.98 Ac-ft 1,794,000

Peak discharge (base, 9,000 cfs).--Dec. 6 (4:45 a. m.) 11,200 cfs (9.13 ft); Dec. 9 (7:30 p. m.) 25,200 cfs (17.50 ft); Dec. 20 (5:30 a. m.) 9,660 cfs (8.16 ft); Jan. 6 (5 a. m.) 13,100 cfs (10.34 ft); Jan. 22 (10 a. m.) 10,100 cfs (8.42 ft); Feb. 13 (12:40 a. m.) 11,400 cfs (9.28 ft); Feb. 21 (8 a. m.) 12,300 cfs (9.84 ft).

* Discharge measurement made on this day.

Cowlitz River at Castle Rock, Wash.

Location.—Lat 46°16'30", long 122°54'50" (revised), in SE¼ sec. 10, T. 9 N., R. 2 W., on right bank at highway bridge in Castle Rock, 2½ miles downstream from Toutle River and 14 miles upstream from mouth.

Drainage area.—2,238 sq mi.

Records available.—December 1926 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 19.73 ft above mean sea level, datum of 1929. Prior to Dec. 18, 1933, staff gage at site 2 miles upstream at datum 14.93 ft higher. Dec. 18, 1933, to June 13, 1934, staff or wire-weight gages and June 14 to Sept. 30, 1934, water-stage recorder, at present site at datum 5 ft higher.

Average discharge.—27 years (1927-54), 8,870 cfs (6,422,000 acre-ft per year).

Extremes.—Maximum discharge during year, 73,000 cfs Dec. 9 (gage height, 22.63 ft); minimum, 2,390 cfs Oct. 7, 8 (gage height, 7.57 ft).

1926-54: Maximum discharge observed, 139,000 cfs Dec. 23, 1933 (gage height, 31.6 ft, present datum), from rating curve extended above 65,000 cfs; minimum, 988 cfs Nov. 7, 8, 1935.

Remarks.—Records excellent. Small diversions for municipal and domestic use. No regulation.

Revisions.—WSP 1218: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

7.5	2,260	14.0	23,000
8.0	3,200	16.0	32,200
9.0	5,450	18.0	42,700
10.0	8,200	20.0	54,700
11.0	11,300	22.0	68,600
12.5	16,900		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,600	3,000	15,500	11,000	13,000	12,500	5,930	7,180	12,000	14,400	5,550	3,530
2	4,840	3,800	15,300	10,700	12,800	11,400	5,910	6,790	11,900	14,300	*5,520	3,400
3	3,800	3,570	16,500	11,900	12,800	10,400	8,910	6,620	11,100	12,800	5,550	3,340
4	3,200	3,220	19,300	20,300	13,000	9,640	13,600	6,680	11,500	12,100	5,300	3,360
5	2,830	3,300	21,300	*31,300	13,500	8,980	18,500	7,150	12,000	12,000	4,960	3,260
6	2,620	4,040	33,000	36,800	13,900	8,470	18,900	7,580	11,800	12,100	4,790	3,160
7	2,460	5,100	27,600	29,400	14,300	7,930	15,900	8,410	12,200	*12,200	4,720	*3,040
8	2,400	4,580	21,300	24,600	14,600	9,100	14,100	10,300	11,900	12,500	4,720	*3,040
9	2,620	4,110	47,700	20,400	*14,400	15,000	13,900	13,800	11,400	11,700	4,670	3,080
10	5,500	3,840	*63,600	17,500	13,700	23,400	12,900	16,100	11,300	11,200	4,490	3,060
11	5,400	3,840	41,900	14,900	12,600	21,100	11,500	16,800	11,300	12,400	4,330	3,220
12	4,240	3,840	40,500	13,000	19,600	17,200	10,700	16,900	11,300	11,900	4,220	3,440
13	3,570	3,780	33,500	11,900	32,600	14,400	14,200	15,000	11,900	10,800	4,170	3,260
14	3,180	3,800	26,300	13,700	28,800	12,700	17,600	13,200	11,800	10,400	4,110	3,120
15	2,920	4,650	22,000	14,600	22,600	11,500	16,600	12,700	13,300	11,000	4,240	3,100
16	2,790	9,170	19,700	12,800	19,600	*10,700	14,300	14,000	18,100	10,900	4,170	3,240
17	2,770	10,400	17,600	11,300	18,500	9,820	13,600	16,500	18,300	10,100	4,020	3,530
18	4,170	8,380	16,700	10,400	18,300	9,340	14,600	18,400	16,200	9,520	3,860	3,910
19	4,980	8,200	18,100	9,580	22,000	8,380	14,700	20,300	14,200	*9,190	3,970	3,800
20	4,630	8,470	34,000	8,740	30,900	7,780	13,500	20,200	15,000	8,980	4,490	3,570
21	4,240	8,560	37,000	10,200	33,400	7,440	11,900	17,700	17,700	8,440	4,670	3,320
22	3,820	18,700	28,200	27,000	31,800	7,010	11,000	14,700	17,600	7,490	4,310	3,180
23	3,530	20,000	22,100	19,400	24,700	6,680	10,600	13,100	17,000	6,820	4,110	3,100
24	3,280	16,100	18,800	15,100	20,600	6,460	10,400	13,100	15,900	6,980	4,220	3,020
25	3,100	14,200	15,900	12,600	18,400	6,220	10,100	13,800	14,400	7,040	4,220	2,920
26	2,940	16,500	14,100	11,400	17,500	6,140	*9,760	13,700	14,200	6,710	4,060	2,890
27	2,790	16,700	13,000	10,800	15,500	7,960	9,400	13,400	14,600	6,490	4,000	2,850
28	2,700	16,100	12,300	11,000	13,800	7,730	8,680	*11,300	14,700	6,270	3,780	2,790
29	2,640	14,400	13,000	10,400	-------	6,790	8,110	10,100	13,100	5,960	3,570	2,730
30	*2,700	*14,100	12,000	10,600	-------	6,330	7,640	10,300	12,700	5,750	3,550	2,680
31	2,790	-------	11,000	12,500	-------	6,040	-------	10,800	-------	5,700	3,590	-------
Total	108,050	258,450	748,800	485,820	537,200	314,540	367,440	396,610	410,400	304,040	135,930	95,940
Mean	3,485	8,615	24,150	15,670	19,190	10,150	12,250	12,790	13,680	9,808	4,385	3,198
Cfsm	1.56	3.85	10.8	7.00	8.57	4.54	5.47	5.71	6.11	4.38	1.96	1.43
In.	1.80	4.29	12.44	8.07	8.93	5.23	6.11	6.59	6.82	5.05	2.26	1.59
Ac-ft	214,300	512,600	1,485,000	963,600	1,066,000	623,900	728,800	786,700	814,000	603,100	269,600	190,300

Calendar year 1953: Max 63,600 Min 1,790 Mean 11,070 Cfsm 4.95 In. 67.14 Ac-ft 8,013,000
Water year 1953-54: Max 63,600 Min 2,400 Mean 11,410 Cfsm 5.10 In. 69.18 Ac-ft 8,258,000

Peak discharge (base, 32,000 cfs).--Dec. 6 (9:30 a. m.) 35,100 cfs (16.58 ft); Dec. 9 (9:30 p. m.) 73,000 cfs (22.63 ft); Dec. 20 (12 p. m.) 39,700 cfs (17.50 ft); Jan. 6 (6 to 7 a. m.) 38,800 cfs (17.33 ft); Feb. 13 (10 to 11 a. m.) 33,600 cfs (16.27 ft); Feb. 21 (6 p. m.) 36,800 cfs (16.93 ft).

* Discharge measurement made on this day.

Arkansas Creek near Castle Rock, Wash.

Location.—Lat 46°15'50", long 122°58'00", in W½ sec. 17, T. 9 N., R. 2 W., on right bank 3 miles upstream from mouth and 3 miles west of Castle Rock.
Drainage area.—19.4 sq mi.
Records available.—May 1949 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 75 ft (from topographic map).
Average discharge.—5 years, 94.9 cfs (68,700 acre-ft per year).
Extremes.—Maximum discharge during year, 3,020 cfs Dec. 9 (gage height, 6.26 ft); minimum, 6.1 cfs Aug. 24, Sept. 2 (gage height, 0.86 ft).
1949-54: Maximum discharge, that of Dec. 9, 1953; minimum, 1.3 cfs Aug. 22, 1951 (gage height, 0.83 ft).
Remarks.—Records good. Some diversion for domestic use. No regulation.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 9				Dec. 9 to Sept. 30			
1.1	8.5	3.0	260	0.9	6.8	2.6	181
1.4	20	3.5	420	1.1	12	3.0	303
1.7	41	4.0	640	1.3	19	3.5	530
2.0	70	4.5	935	1.6	35	4.0	820
2.3	110	5.5	1,750	1.9	61	4.5	1,190
2.6	163			2.2	100	5.0	1,690

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	28	*178	90	199	125	73	40	25	24	6.8	7.0
2	32	27	191	97	197	112	80	39	20	20	6.6	6.3
3	19.5	25	215	126	184	102	132	39	*19.5	17	*7.5	6.4
4	14.5	24	281	402	171	92	258	37	19.5	16	8.0	9.6
5	12	32	536	*683	167	85	282	35	18	14.5	8.2	8.6
6	10.5	55	610	610	162	80	258	33	22	14	7.3	7.0
7	9.7	62	428	380	162	75	213	31	20	14.5	6.4	*7.6
8	11.5	56	378	286	159	108	194	30	18.5	*13	6.3	15.5
9	26	49	1,620	242	*155	151	181	30	18	16	6.3	9.9
10	66	46	967	199	144	169	164	30	17.5	26	6.3	8.6
11	37	43	564	169	144	149	149	30	16.5	20	6.3	9.6
12	28	40	594	142	497	128	146	28	18	16	6.3	11.5
13	23	39	368	132	629	115	171	27	16.5	13.5	6.3	10.5
14	19.5	39	268	176	430	102	151	25	18	13	6.4	10.5
15	18	45	216	186	333	97	134	24	38	13	6.4	10.5
16	16.5	95	176	164	289	*91	121	23	35	13	6.4	14
17	27	98	149	144	282	84	107	22	33	12	6.8	20
18	47	87	132	132	275	78	96	20	28	12	6.6	19.5
19	38	98	193	112	548	73	94	20	31	*11.5	7.5	14.5
20	45	92	303	100	652	70	81	20	34	13	6.8	13
21	37	180	275	131	682	64	75	20	28	13.5	6.3	11.5
22	33	416	224	333	445	60	70	19.5	25	11.5	6.3	10.5
23	30	326	186	258	325	59	64	18	23	11	6.3	10
24	27	243	157	207	255	56	61	18	22	10	6.9	9.6
25	25	210	134	171	219	53	57	20	20	9.6	16	8.9
26	22	198	123	149	186	74	*55	25	20	9.4	16.5	8.4
27	*20	191	107	138	157	107	52	21	22	8.9	10	7.7
28	19.5	169	105	132	140	88	48	*18.5	20	8.4	8.2	7.4
29	20	157	92	130	-------	80	45	20	18	7.7	8.0	7.3
30	27	163	84	140	-------	73	42	20	20	7.5	8.6	6.8
31	26	-------	82	174	-------	70	-------	36	-------	7.3	9.4	-------
Total	828.2	3,333	9,936	6,535	8,188	2,870	3,654	819.0	684.0	416.8	238.0	308.2
Mean	26.7	111	321	211	292	92.6	122	26.4	22.8	13.4	7.68	10.3
Cfsm	1.38	5.72	16.5	10.9	15.1	4.77	6.29	1.36	1.18	0.691	0.396	0.531
In.	1.59	6.39	19.05	12.53	15.70	5.50	7.00	1.57	1.31	0.80	0.46	0.59
Ac-ft	1,640	6,610	19,710	12,960	16,240	5,690	7,250	1,620	1,360	827	472	611

Calendar year 1953: Max 1,620 Min 3.2 Mean 109 Cfsm 5.62 In. 75.97 Ac-ft 78,610
Water year 1953-54: Max 1,620 Min 6.3 Mean 104 Cfsm 5.36 In. 72.49 Ac-ft 74,990

Peak discharge (base, 1,000 cfs).--Dec. 9 (2 p. m.) 3,020 cfs (6.26 ft).
* Discharge measurement made on this day.

425138 O - 57 - 15

Coweman River near Kelso, Wash.

Location.—Lat 46°07'40", long 122°50'10", in S½ sec. 32, T. 8 N., R. 1 W., on right bank 3 miles downstream from Goble Creek, 3.8 miles southeast of Kelso, and 7 miles (revised) upstream from mouth.

Drainage area.—119 sq mi.

Records available.—July 1950 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 100 ft (from topographic map).

Extremes.—Maximum discharge during year, 7,490 cfs Dec. 9 (gage height, 12.75 ft), from rating curve extended above 2,000 cfs on basis of slope-area determination at 12.8 ft; minimum, 49 cfs Sept. 10 (gage height, 4.00 ft).

1950-54: Maximum discharge, that of Dec. 9, 1953; minimum, 22 cfs Sept. 22, 1951; minimum gage height, 3.75 ft Sept. 22, 1951, Oct. 7, 1952.

Flood of Feb. 24, 1950, reached a stage of 12.8 ft, from floodmarks (discharge, 7,730 cfs, from rating curve extended above 2,200 cfs on basis of slope-area determination of peak flow).

Remarks.—Records good except those for periods of no gage-height record, which are poor. No known regulation or diversion.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 1				Feb. 2 to Sept. 30			
4.1	58	7.0	1,040	4.0	49	6.0	606
4.5	116	8.0	1,690	4.3	91	7.0	1,130
5.0	225	9.0	2,500	4.6	149	8.0	1,830
5.5	370	10.0	3,500	5.0	248	9.0	2,670
6.0	560	11.1	4,840	5.5	409		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	331	111	930	420	700	550	314	188	260	286	69	*60
2	212	121	945	500	*1,060	510	330	183	216	243	67	54
3	134	106	1,100	630	980	470	730	200	185	213	71	57
4	103	102	1,330	900	880	430	911	183	188	188	74	72
5	84	142	2,150	1,900	800	400	1,090	176	213	171	72	62
6	72	263	2,920	2,100	740	370	1,050	171	345	158	71	57
7	67	355	1,850	1,300	690	350	855	171	384	153	65	55
8	72	307	1,460	1,000	645	500	820	185	318	160	62	62
9	160	228	4,770	800	*600	*1,400	780	193	262	158	62	54
10	528	205	3,400	690	542	1,280	705	185	226	208	59	51
11	277	202	1,900	600	506	928	624	200	211	183	57	65
12	193	188	2,150	540	1,570	720	*559	185	224	153	59	71
13	148	174	1,460	520	2,290	615	700	164	198	141	60	78
14	123	178	1,060	580	1,590	538	620	153	183	130	64	67
15	110	338	820	600	1,140	518	534	147	440	126	64	81
16	*98	1,010	667	530	1,040	502	468	149	615	126	65	118
17	113	820	568	465	1,020	445	431	*143	676	118	65	120
18	387	572	532	410	1,000	406	398	143	530	113	59	153
19	319	649	951	365	1,780	381	374	136	460	105	69	104
20	274	658	1,760	325	2,400	360	340	128	441	109	78	86
21	222	734	1,430	450	2,540	334	311	132	*364	134	74	77
22	188	1,720	1,060	1,600	1,860	314	296	122	302	107	64	69
23	163	1,670	*840	1,100	1,320	299	280	115	268	100	68	69
24	146	895	667	850	1,030	289	265	115	234	96	64	64
25	130	*730	564	730	860	268	254	134	213	88	109	61
26	120	716	532	650	750	286	243	221	205	*86	95	57
27	113	735	470	600	670	499	232	176	240	80	72	55
28	106	694	520	560	600	413	218	143	221	78	64	53
29	106	608	460	520	-------	364	208	156	181	74	65	51
30	116	716	410	530	-------	334	198	208	221	72	61	50
31	106	-------	370	600	-------	314	-------	274	-------	71	74	-------
Total	5,321	15,948	40,046	23,365	31,603	15,387	15,138	5,179	9,024	4,228	2,122	2,133
Mean	172	532	1,292	754	1,129	496	505	167	301	136	68.5	71.1
Cfsm	1.45	4.47	10.9	6.34	9.49	4.17	4.24	1.40	2.53	1.14	0.576	0.597
In.	1.66	4.98	12.52	7.30	9.88	4.81	4.73	1.62	2.82	1.32	0.66	0.67
Ac-ft	10,550	31,630	79,430	46,340	62,680	30,520	30,030	10,270	17,900	8,390	4,210	4,230

Calendar year 1953: Max 4,770 Min 40 Mean 514 Cfsm 4.32 In. 58.60 Ac-ft 371,900
Water year 1953-54: Max 4,770 Min 50 Mean 464 Cfsm 3.90 In. 52.97 Ac-ft 336,200

Peak discharge (base, 2,600 cfs).--Dec. 6 (2:30 a. m.) 3,620 cfs (10.11 ft); Dec. 9 (4:15 p. m.) 7,490 cfs (12.75 ft); Dec. 12 (2:30 a. m.) 2,620 cfs (9.13 ft); Feb. 21 (7 a. m.) 2,890 cfs (9.22 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 28 to Feb. 1, Feb. 4-9, Feb. 25 to Mar. 8; discharge estimated on basis of records for stations on nearby streams.

Abernathy Creek near Longview, Wash.

Location.—Lat 46°12'10", long 123°09'15", in SE¼ sec. 3, T. 8 N., R. 4 W., on left bank 1 mile upstream from mouth and 11 miles northwest of Longview.
Drainage area.—20.3 sq mi.
Records available.—April 1949 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 70 ft (from topographic map).
Average discharge.—5 years, 110 cfs (79,640 acre-ft per year).
Extremes.—Maximum discharge during year, 2,310 cfs Dec. 9 (gage height, 6.28 ft), from rating curve extended above 650 cfs; minimum, 12.5 cfs Aug. 10-13, 18, 22 (gage height, 1.25 ft).

1949-54: Maximum discharge, 2,700 cfs Feb. 24, 1950 (gage height, 6.66 ft), from rating curve extended above 650 cfs; minimum, 3.6 cfs Oct. 5, 1952; minimum gage height, 0.94 ft Sept. 4, 14, 1949, Oct. 5, 1952.

Remarks.—Records good. Some diversion for domestic use. Possibly slight regulation.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 8				Dec. 9 to Sept. 30			
1.3	14.5	2.7	185	1.2	10.5	3.0	260
1.5	26	3.0	260	1.4	18.5	3.5	419
1.8	50	3.5	419	1.6	29	4.0	628
2.1	83	4.0	628	1.8	44	4.5	890
2.4	127			2.0	65	5.0	1,210
				2.3	107	6.0	2,030
				2.6	161		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	54	52	216	96	185	147	66	45	30	30	13.5	15.5
2	39	46	*228	102	185	132	73	43	25	*25	14	14
3	28	39	266	127	176	118	174	43	24	23	14.5	14.5
4	21	35	344	350	174	109	226	42	24	22	*14.5	16.5
5	18	36	596	616	174	100	277	39	23	21	14.5	15
6	16	62	573	633	174	92	271	38	27	20	14	14.5
7	15.5	65	408	*472	174	86	230	36	27	20	13.5	14.5
8	16.5	57	514	367	172	127	215	35	25	19.5	13	20
9	34	50	1,680	300	*174	246	200	35	25	24	13.5	16.5
10	82	46	678	252	159	238	185	34	23	32	13	15.5
11	44	43	639	210	155	197	165	33	23	27	12.5	17.5
12	33	42	504	174	426	165	169	33	26	22	12.5	21
13	28	42	388	157	652	149	223	30	23	20	13	19.5
14	24	42	297	220	464	132	181	30	24	19.5	13.5	18.5
15	23	53	238	220	357	120	157	28	48	19.5	14	19
16	20	88	190	195	324	*112	137	27	52	19	13.5	21
17	30	84	163	172	321	101	121	26	47	18.5	13.5	*28
18	56	78	145	161	312	92	109	25	39	18.5	13	30
19	43	116	236	136	546	85	107	25	42	17.5	14	24
20	51	111	324	121	656	81	94	25	46	*19	15.5	22
21	42	252	291	134	780	74	84	24	39	20	14	19.5
22	36	484	244	263	530	68	78	24	35	17.5	12.5	18.5
23	33	334	207	220	377	64	*72	23	32	17	14	18
24	30	268	174	183	303	62	66	23	30	16.5	14.5	17
25	28	228	153	159	263	57	62	25	28	16	30	16.5
26	26	210	136	143	230	73	60	32	28	15.5	23	16.5
27	*24	199	121	130	195	101	56	*26	29	15.5	18.5	15.5
28	23	177	115	121	170	77	52	24	27	15	16	15.5
29	24	170	110	120	-------	68	49	25	25	14.5	15.5	15
30	34	179	98	127	-------	62	47	25	26	14.5	17.5	14.5
31	43	-------	91	147	-------	61	-------	39	-------	14	18.5	14.5
Total	1,019.0	3,688	10,367	6,828	8,808	3,396	4,006	962	922	613.0	467.0	543.5
Mean	32.9	123	334	220	315	110	134	31.0	30.7	19.8	15.1	18.1
Cfsm	1.62	6.06	16.5	10.8	15.5	5.42	6.60	1.53	1.51	0.975	0.744	0.892
In.	1.87	6.76	18.99	12.51	16.14	6.22	7.34	1.76	1.69	1.12	0.86	1.00
Ac-ft	2,020	7,320	20,560	13,540	17,470	6,740	7,950	1,910	1,830	1,220	926	1,080

Calendar year 1953: Max 1,680 Min 8.0 Mean 119 Cfsm 5.86 In. 79.55 Ac-ft 86,130
Water year 1953-54: Max 1,680 Min 12.5 Mean 114 Cfsm 5.62 In. 76.26 Ac-ft 82,570

Peak discharge (base, 1,100 cfs).--Dec. 9 (9 a. m.) 2,310 cfs (6.28 ft); Dec. 11 (5:30 p. m.) 1,200 cfs (4.98 ft).

* Discharge measurement made on this day.

Mill Creek near Cathlamet, Wash.

Location.—Lat 46°11'40", long 123°11'25", in NW¼ sec. 9, T. 8 N., R. 4 W., on left bank 40 ft downstream from small tributary, 50 ft downstream from bridge, three-quarters of a mile upstream from mouth, and 9½ miles east of Cathlamet.

Drainage area.—27.6 sq mi.

Records available.—June 1949 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 70 ft (by barometer).

Average discharge.—5 years, 117 cfs (84,700 acre-ft per year).

Extremes.—Maximum discharge during year, 2,090 cfs Dec. 9 (gage height, 5.02 ft), from rating curve extended above 590 cfs by logarithmic plotting; minimum, 11 cfs Aug. 10-12; minimum gage height, 1.45 ft Oct. 7, 8.

1949-54: Maximum discharge, 4,460 cfs Feb. 24, 1950 (gage height, 6.23 ft), from rating curve extended above 590 cfs by logarithmic plotting; minimum, 4.6 cfs Aug. 21, 22, 1951 (gage height, 1.19 ft).

Remarks.—Records good except those for periods of shifting control, which are fair. No regulation or diversion.

Rating tables, water year 1953-54, except periods of shifting control
(gage height in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 8				Dec. 9 to Sept. 30			
1.4	10.5	2.6	153	1.4	9.0	3.0	280
1.6	20	2.9	235	1.6	16	3.5	525
1.8	34	3.2	335	1.9	36	4.0	895
2.0	52	3.5	475	2.2	72	4.5	1,400
2.3	93	3.9	720	2.5	129		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	28	238	136	169	177	69	52	39	44	13	16.5
2	33	28	*241	141	166	158	71	51	31	*35	13.5	14.5
3	23	23	272	175	164	143	129	51	30	31	14.5	14.5
4	18.5	22	343	581	158	129	202	48	30	29	*14	16
5	16	24	548	886	156	116	269	45	30	27	*13.5	15.5
6	14	41	614	778	156	110	284	43	38	27	13	14.5
7	13.5	41	436	*544	158	102	233	42	38	27	12.5	15
8	15.5	36	431	447	161	134	233	40	34	25	12	19
9	30	32	1,260	371	164	223	226	39	31	30	12	16
10	70	32	981	309	*161	217	207	38	30	38	11.5	15
11	37	31	614	254	161	183	183	38	30	33	11.5	16.5
12	25	28	711	220	446	166	185	38	33	27	11.5	19
13	21	30	447	204	692	148	226	35	30	23	11.5	17
14	18.5	35	348	262	518	136	183	34	29	22	12.5	17.5
15	17	39	273	265	431	127	166	33	59	22	13	19.5
16	16.5	83	226	230	431	118	151	31	82	22	13	22
17	24	80	192	201	436	*108	136	30	74	21	13	*27
18	47	74	169	186	436	102	123	29	61	20	12	28
19	37	113	230	158	600	93	116	27	68	19.5	13.5	23
20	41	107	330	143	670	86	106	27	68	*20	14	21
21	33	191	296	155	778	80	95	27	59	26	14	19
22	28	406	254	324	531	75	89	26	52	20	13	18
23	25	307	223	265	415	71	*82	25	47	18	13.5	17.5
24	23	241	192	230	352	68	77	25	43	17.5	16	16
25	22	205	166	201	305	64	72	30	42	17	37	15
26	20	194	156	186	269	74	69	46	41	16	23	15
27	*19	191	141	169	230	104	65	*35	42	15	20	14.5
28	18	170	141	156	204	75	61	28	39	14.5	16.5	13.5
29	18	160	125	153	-------	68	57	30	34	14.5	15	13
30	22	170	116	153	-------	64	54	30	38	14	19.5	13
31	23	-------	112	158	-------	64	-------	44	-------	13.5	21	-------
Total	816.5	3,162	10,826	8,641	9,518	3,583	4,219	1,117	1,302	728.5	463.5	521.5
Mean	26.3	105	349	279	340	116	141	36.0	43.4	23.5	15.0	17.4
Cfsm	0.953	3.80	12.6	10.1	12.3	4.20	5.11	1.30	1.57	0.851	0.543	0.630
In.	1.10	4.26	14.59	11.64	12.83	4.83	5.68	1.51	1.75	0.98	0.62	0.70
Ac-ft	1,620	6,270	21,470	17,140	18,880	7,110	8,370	2,220	2,580	1,440	919	1,030

Calendar year 1953: Max 1,260 Min 8.3 Mean 122 Cfsm 4.42 In. 60.14 Ac-ft 88,520
Water year 1953-54: Max 1,260 Min 11.5 Mean 123 Cfsm 4.46 In. 60.49 Ac-ft 89,050

Peak discharge (base, 1,000 cfs).--Dec. 9 (5 p. m.) 2,090 cfs (5.02 ft).
* Discharge measurement made on this day.
Note.--Shifting-control method used Oct. 10 to Nov. 21, Aug. 16 to Sept. 30.

Clatskanie River near Clatskanie, Oreg.

Location.—Lat 46°02'55", long 123°07'05", in sec. 36, T. 7 N., R. 4 W., on left bank 2 miles downstream from Carcus Creek and 5½ miles southeast of Clatskanie.

Drainage area.—53.0 sq mi.

Records available.—August 1949 to September 1954 (discontinued).

Gage.—Water-stage recorder. Altitude of gage is 240 ft (by barometer). Prior to Apr. 25, 1951, at site 700 ft downstream at different datum.

Average discharge.—5 years, 130 cfs (94,120 acre-ft per year).

Extremes.—Maximum discharge during year, 1,840 cfs Dec. 9 (gage height, 4.66 ft); minimum, 6.9 cfs Sept. 6, 7, 9, 10, 27-30.

1949-54: Maximum discharge, 2,000 cfs Feb. 24, 1950 (gage height, 5.29 ft, site and datum then in use); minimum, 3.0 cfs Nov. 26, 1952.

Remarks.—Records good except those for period of doubtful gage-height record, which are fair. No diversion above station; occasional slight regulation by log ponds. Records of water temperatures for the water year 1954 are given in WSP 1353.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 9				Dec. 10 to Sept. 30			
0.4	8.4	1.3	130	0.1	6.0	1.5	275
.5	14	1.8	282	.2	12	2.0	450
.7	30	3.0	810	.4	32	3.0	880
.9	54	4.0	1,380	.7	77	4.1	1,500
				1.0	140		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	d16	180	140	518	150	63	40	29	35	8.4	9.6
2	19	d15	*198	158	514	135	65	38	25	30	7.9	7.9
3	13	d12	282	254	454	122	88	41	22	24	8.4	7.4
4	12	11	534	960	389	111	135	40	22	22	*9.0	7.9
5	10	13	780	1,470	344	100	218	36	28	21	9.0	7.4
6	9.5	22	1,070	*1,150	326	92	281	35	25	20	9.0	7.4
7	8.9	27	830	815	336	88	278	33	26	20	8.4	6.9
8	9.5	22	665	586	344	115	275	32	24	19	8.4	7.4
9	15	18	1,280	458	336	214	269	32	24	20	7.9	6.9
10	38	16	*1,400	358	312	326	269	32	22	23	7.9	6.9
11	23	17	910	284	284	302	248	31	22	22	7.4	7.4
12	15	16	670	236	873	257	218	31	24	19	*7.4	7.4
13	*13	16	494	200	1,460	218	200	29	24	16	7.4	7.9
14	11	18	378	258	990	185	162	28	24	14	7.9	9.0
15	11	21	296	386	666	170	138	26	36	14	8.4	12
16	10	81	239	400	530	152	119	25	44	14	8.4	15
17	12	90	198	336	*470	128	109	23	40	13	8.4	*16
18	24	67	170	281	434	111	96	22	40	12	8.4	16
19	24	72	192	221	498	98	88	*21	37	12	9.6	14
20	19	90	354	182	610	90	83	21	51	14	10	11
21	16	110	494	176	710	83	72	21	46	14	8.4	9.6
22	14	316	422	543	646	74	67	20	42	13	7.9	9.0
23	13	396	350	*622	494	68	63	19	*38	11	7.9	8.4
24	12	301	275	498	382	67	58	19	35	11	8.4	7.9
25	12	233	221	375	299	63	57	21	31	10	11	7.9
26	11	230	190	302	254	62	52	35	30	9.6	10	7.4
27	11	243	165	260	198	86	51	31	32	9.0	9.0	7.4
28	10	223	148	242	172	68	46	26	30	9.0	8.4	6.9
29	d10	195	133	233	-------	63	44	25	25	8.4	8.4	6.9
30	d10	186	119	287	-------	63	42	24	28	9.0	9.6	6.9
31	d10	-------	111	422	-------	*63	-------	30	-------	8.4	14	-------
Total	449.9	3,093	13,748	13,093	13,843	3,924	3,954	887	926	496.4	270.6	269.7
Mean	14.5	103	443	422	494	127	132	28.6	30.9	16.0	8.73	8.99
Cfsm	0.274	1.94	8.36	7.96	9.32	2.40	2.49	0.540	0.583	0.302	0.165	0.170
In.	0.32	2.17	9.65	9.19	9.71	2.75	2.77	0.62	0.65	0.35	0.19	0.19
Ac-ft	892	6,130	27,270	25,970	27,460	7,780	7,840	1,760	1,840	985	537	535

Calendar year 1953: Max 1,400 Min 7.2 Mean 139 Cfsm 2.62 In. 35.59 Ac-ft 100,600
Water year 1953-54: Max 1,470 Min 6.9 Mean 151 Cfsm 2.85 In. 38.56 Ac-ft 109,000

Peak discharge (base, 700 cfs).--Dec. 6 (4 a. m.) 1,130 cfs (3.62 ft); Dec. 9 (5 p. m.) 1,840 cfs (4.66 ft); Jan. 5 (1:30 a. m.) 1,600 cfs (4.27 ft); Feb. 13 (4 a. m.) 1,600 cfs (4.26 ft).

* Discharge measurement made on this day.

d Doubtful gage-height record; discharge estimated on basis of records for North Fork Klaskanine River near Olney and Big Creek near Knappa.

Elokomin River near Cathlamet, Wash.

Location (revised).—Lat 46°13'10", long 123°20'30", in SE¼ sec. 31, T. 9 N., R. 5 W., on right bank 125 ft upstream from railroad bridge, 2½ miles northeast of Cathlamet, and 4½ miles upstream from mouth.

Drainage area.—65.8 sq mi.

Records available.—October 1940 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 29.60 ft above mean sea level, datum of 1929. Prior to June 25, 1941, staff gage at same site and datum.

Average discharge.—14 years, 364 cfs (263,500 acre-ft per year).

Extremes.—Maximum discharge during year, 6,220 cfs Dec. 9 (gage height, 11.41 ft); minimum, 36 cfs Aug. 13, 18 (gage height, 1.97 ft).

1940-54: Maximum discharge, 7,300 cfs Feb. 17, 1949 (gage height, 12.66 ft), from rating curve extended above 2,000 cfs on basis of slope-area determination of peak flow; minimum, 18 cfs Oct. 6, 7, 15, 16, 1952 (gage height, 1.80 ft).

Maximum stage known, 17.2 ft in December 1933, from information by local residents.

Remarks.—Records excellent. Some diversions for irrigation. No regulation.

Revisions (water years).—WSP 1154: 1948. WSP 1218: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.9	28	3.5	425
2.0	40	4.0	630
2.2	70	5.0	1,150
2.5	130	6.0	1,820
2.8	200	8.0	3,280
3.1	285	10.0	4,950

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	243	473	860	425	702	541	292	168	122	126	49	60
2	188	383	*855	521	702	485	320	160	100	*108	48	52
3	132	296	959	639	666	433	805	158	92	96	49	54
4	100	249	1,200	2,010	644	394	900	150	98	90	49	66
5	84	237	2,020	2,620	630	362	948	144	94	84	*49	58
6	70	330	2,270	2,460	630	334	880	136	106	80	46	54
7	66	362	1,600	*1,870	626	313	729	132	104	82	44	52
8	67	316	1,450	1,460	612	501	720	126	94	78	43	92
9	110	279	4,310	1,140	603	1,010	711	124	92	90	43	67
10	316	252	2,810	900	*569	932	657	122	84	134	43	64
11	202	234	2,020	747	545	729	577	124	84	128	40	86
12	148	222	2,570	634	1,470	541	612	124	96	102	39	114
13	126	218	1,550	577	2,020	533	865	114	84	90	39	100
14	108	222	1,140	875	1,490	473	688	108	82	84	42	90
15	100	366	890	885	1,260	433	590	104	246	80	43	94
16	92	497	734	742	1,320	400	513	100	273	78	44	*98
17	130	477	630	648	1,390	*358	453	94	228	74	43	130
18	441	449	590	577	1,260	327	400	90	185	70	39	142
19	299	577	905	501	2,210	302	386	88	192	67	44	116
20	299	549	1,410	445	2,600	282	344	86	220	74	56	102
21	231	982	1,120	473	2,840	264	310	86	195	88	46	92
22	198	1,980	890	1,010	1,870	246	285	84	170	68	42	86
23	172	1,290	752	780	1,290	237	*258	80	150	64	52	80
24	152	1,090	639	652	1,030	225	237	82	136	62	50	74
25	140	937	557	569	880	212	225	86	126	58	106	68
26	128	855	509	501	805	292	222	110	122	56	88	67
27	*118	850	453	481	688	505	208	*90	132	55	68	64
28	112	742	453	477	612	355	195	80	122	52	56	61
29	120	684	400	469	-------	302	182	88	106	50	50	60
30	170	720	366	521	-------	270	175	92	112	49	67	56
31	354	-------	348	621	-------	264	-------	140	-------	49	74	-------
Total	5,216	17,118	37,260	27,230	31,964	12,855	14,687	3,470	4,047	2,466	1,591	2,399
Mean	168	571	1,202	878	1,142	415	490	112	135	79.5	51.3	80.0
Cfsm	2.55	8.68	18.3	13.3	17.4	6.31	7.45	1.70	2.05	1.21	0.780	1.22
In.	2.95	9.68	21.06	15.39	18.07	7.27	8.30	1.96	2.29	1.39	0.90	1.36
Ac-ft	10,350	33,950	73,900	54,010	63,400	25,500	29,130	6,880	8,030	4,890	3,160	4,760

Calendar year 1953: Max 4,310 Min 28 Mean 462 Cfsm 7.02 In. 95.28 Ac-ft 334,300
Water year 1953-54: Max 4,310 Min 39 Mean 439 Cfsm 6.67 In. 90.62 Ac-ft 318,000

Peak discharge (base, 3,600 cfs).--Dec. 9 (3:45 p. m.) 6,220 cfs (11.41 ft); Dec. 12 (12:15 a. m.) 3,880 cfs (8.75 ft).

* Discharge measurement made on this day.

Big Creek near Knappa, Oreg.

Location.—Lat 46°09'00", long 123°35'00", in NW¼ sec. 29, T. 8 N., R. 7 W., on left bank 0.3 mile downstream from fish hatchery and 2½ miles south of Knappa.
Drainage area.—31.9 sq mi.
Records available.—August 1949 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 100 ft (by barometer).
Average discharge.—5 years, 174 cfs (126,000 acre-ft per year).
Extremes.—Maximum discharge during year, 1,790 cfs Dec. 9 (gage height, 3.69 ft); minimum daily, 26 cfs Sept. 30.
1949-54: Maximum discharge, 2,130 cfs Feb. 24, 1950 (gage height, 4.01 ft); minimum, about 7 cfs Oct. 10, when filling of tanks at fish hatchery lowered water surface slightly below inlets.
Remarks.—Records good except those for periods of no gage-height record, which are fair. Small diurnal fluctuation at times caused by fish hatchery above station. Records of water temperatures for the water year 1954 are given in WSP 1353.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 8				Dec. 9 to Sept. 30			
0.3	32	1.0	172	0.2	22	1.2	215
.4	40	1.5	380	.4	34	1.5	345
.5	53	2.0	680	.6	61	2.0	630
.7	91	2.3	910	.9	125	3.0	1,300

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	55	303	271	380	263	135	94	74	88	38	38
2	55	50	*330	325	385	239	149	92	65	74	38	34
3	41	44	425	417	360	219	263	90	60	67	39	34
4	36	44	571	1,120	340	204	360	88	69	61	*39	35
5	35	49	800	1,120	330	190	468	84	67	58	39	34
6	33	76	846	*994	340	180	412	82	70	56	38	33
7	33	68	558	877	330	177	320	80	70	55	38	34
8	34	58	571	708	305	201	355	78	65	54	38	38
9	39	55	*1,070	558	291	340	330	78	63	56	36	33
10	67	53	*974	439	275	320	287	76	61	63	35	38
11	45	52	682	365	271	271	247	76	61	60	35	49
12	*39	52	676	310	716	243	251	74	69	54	36	50
13	36	56	504	287	786	219	279	72	61	49	36	41
14	36	62	400	422	612	204	243	72	61	49	38	38
15	35	85	335	406	582	194	215	70	117	49	45	38
16	34	68	287	345	721	190	198	69	125	49	41	40
17	64	148	251	300	*695	177	180	65	118	48	36	*46
18	170	126	227	279	624	171	171	63	100	46	35	a47
19	87	205	346	243	888	162	168	*61	100	46	38	a43
20	80	190	546	219	806	153	156	63	96	48	40	a40
21	67	336	498	351	942	148	148	65	86	49	38	a36
22	58	533	390	870	682	142	142	60	78	45	35	a34
23	53	380	330	570	516	132	130	58	*74	42	38	a33
24	49	298	291	439	428	128	122	58	72	42	41	a32
25	46	269	259	380	385	120	115	60	69	40	55	a30
26	44	257	247	325	360	128	115	76	67	41	50	a29
27	43	253	223	295	315	198	108	65	74	40	40	a28
28	41	226	247	283	287	156	102	58	69	39	36	a28
29	41	200	223	279	-------	142	100	58	63	39	35	a27
30	43	226	208	320	-------	130	98	58	67	39	52	a26
31	43	-------	201	355	-------	*130	-------	74	-------	38	45	-------
Total	1,607	4,574	13,819	14,472	13,952	5,871	6,367	2,217	2,291	1,584	1,223	1,086
Mean	51.8	152	446	467	498	189	212	71.5	76.4	51.1	39.5	36.2
Cfsm	1.62	4.76	14.0	14.6	15.6	5.92	6.65	2.24	2.39	1.60	1.24	1.13
In.	1.87	5.33	16.11	16.87	16.27	6.84	7.42	2.58	2.67	1.85	1.43	1.27
Ac-ft	3,190	9,070	27,410	28,700	27,670	11,640	12,630	4,400	4,540	3,140	2,430	2,150

Calendar year 1953: Max 1,110 Min 28 Mean 177 Cfsm 5.55 In. 75.49 Ac-ft 128,400
Water year 1953-54: Max 1,120 Min 26 Mean 189 Cfsm 5.92 In. 80.51 Ac-ft 137,000

Peak discharge (base, 900 cfs).--Dec. 5 (2:30 a. m.) 1,090 cfs (2.51 ft); Dec. 9 (3 p. m.) 1,790 cfs (3.69 ft); Jan. 4 (10 p. m.) 1,330 cfs (3.04 ft); Jan. 22 (7 a. m.) 1,030 cfs (2.62 ft); Feb. 19 (4:30 p. m.) 1,120 cfs (2.74 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage and records for Clatskanie River near Clatskanie and North Fork Klaskanie River near Olney.

West Branch Grays River near Grays River, Wash.

Location.—Lat 46°23'10", long 123°33'30", on line between sec. 33, T. 11 N., R. 7 W., and sec. 4, T. 10 N., R. 7 W., on right bank 1 mile upstream from mouth and 3¼ miles northeast of town of Grays River.

Drainage area.—16.3 sq mi.

Records available.—April 1949 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 71 ft (by barometer).

Average discharge.—5 years, 133 cfs (96,290 acre-ft per year).

Extremes.—Maximum discharge during year, 1,670 cfs Dec. 9 (gage height, 5.29 ft), from rating curve extended above 460 cfs on basis of slope-area determination at gage height 6.89 ft; minimum, 12 cfs Aug. 10-14, 18 (gage height, 2.02 ft).

1949-54: Maximum discharge, 2,970 cfs Feb. 9, 1951 (gage height, 6.45 ft), from rating curve extended above 460 cfs on basis of slope-area determination at gage height 6.89 ft; minimum, 4.2 cfs Sept. 5, 1951 (gage height, 1.78 ft).

Flood of Feb. 22, 1949, reached a stage of 6.89 ft, from floodmarks (discharge, 3,700 cfs, from rating curve extended above 460 cfs on basis of slope-area determination of peak flow).

Remarks.—Records good. No regulation or diversion above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

2.0	11.5	3.2	226
2.2	26	3.5	335
2.4	48	4.0	580
2.6	78	4.5	900
2.9	139	5.0	1,310

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	204	468	300	177	292	100	44	33	32	*42	16.5	34
2	130	260	296	374	282	89	97	31	27	38	16.5	28
3	83	157	*365	378	253	80	356	31	23	34	16.5	28
4	61	121	401	872	233	72	300	30	27	31	16	31
5	47	104	594	1,160	210	65	285	28	29	29	*16	27
6	40	106	646	900	185	59	243	27	36	28	15	24
7	35	100	415	558	160	54	177	26	40	28	14	25
8	38	87	404	*378	139	234	210	25	33	26	14	33
9	52	76	1,220	267	118	575	200	24	28	30	13.5	29
10	157	70	658	197	*104	352	174	24	25	90	13.5	29
11	98	65	596	152	104	223	139	26	24	82	12	43
12	72	65	712	128	413	160	160	26	27	58	12	82
13	56	67	369	114	483	128	246	24	24	47	12	67
14	48	73	250	194	323	104	177	22	29	41	12.5	54
15	42	207	185	171	328	92	139	22	187	36	14.5	48
16	38	177	147	139	658	89	114	21	155	32	15	*44
17	72	171	123	118	483	*78	96	19.5	147	30	13.5	61
18	137	155	110	104	365	70	83	19.5	106	28	13.5	65
19	91	250	368	91	1,030	64	78	18	91	26	16	58
20	83	210	510	82	855	58	68	17.5	134	29	16	52
21	68	410	319	314	926	54	61	18	114	29	14.5	47
22	59	587	229	469	441	48	*56	16.5	87	25	15.5	44
23	52	361	180	267	274	47	52	16	70	24	26	42
24	47	304	144	191	197	43	48	16.5	58	22	23	37
25	42	289	121	157	174	41	46	18	51	21	59	35
26	38	257	110	130	168	52	49	24	48	20	55	33
27	36	253	96	116	134	87	44	*21	47	19.5	37	31
28	*34	210	116	128	118	62	41	18	42	19	28	29
29	42	182	110	137	-------	52	38	18	37	18	24	28
30	132	271	94	197	-------	47	36	17.5	40	17.5	41	26
31	395	-------	100	264	-------	44	-------	34	-------	16.5	42	-------
Total	2,529	6,113	10,288	8,924	9,450	3,323	3,857	712.0	1,818	1,016.5	653.5	1,214
Mean	81.6	204	332	288	338	107	129	23.0	60.6	32.8	21.1	40.5
Cfsm	5.01	12.5	20.4	17.7	20.7	6.56	7.91	1.41	3.72	2.01	1.29	2.48
In.	5.77	13.95	23.47	20.36	21.56	7.58	8.80	1.62	4.15	2.32	1.49	2.77
Ac-ft	5,020	12,120	20,410	17,700	18,740	6,590	7,650	1,410	3,610	2,020	1,300	2,410

Calendar year 1953: Max 1,400 Min 9 Mean 150 Cfsm 9.20 In. 124.77 Ac-ft 108,500
Water year 1953-54: Max 1,220 Min 12 Mean 137 Cfsm 8.40 In. 113.84 Ac-ft 98,980

Peak discharge (base, 1,500 cfs).--Dec. 9 (12:45 p. m.) 1,670 cfs (5.29 ft).
* Discharge measurement made on this day.

Youngs River near Astoria, Oreg.

Location.—Lat 46°04'00", long 123°47'20", in NW¼ sec. 27, T. 7 N., R. 9 W., on left bank 50 ft upstream from crest of Youngs River Falls, 2½ miles southwest of Olney, and 9 miles southeast of Astoria.

Drainage area.—40.1 sq mi.

Records available.—August 1927 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 63.27 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Mar. 12, 1934, at site 1 mile upstream at different datum.

Average discharge.—27 years, 174 cfs (126,000 acre-ft per year).

Extremes.—Maximum discharge during year, 3,650 cfs Dec. 9 (gage height, 12.01 ft); minimum, 11 cfs Aug. 18.

1927-54: Maximum discharge, 6,300 cfs Nov. 24, 1927 (gage height, 6.52 ft, site and datum then in use), from rating curve extended above 2,000 cfs; minimum, 3.3 cfs Sept. 22, 1951.

Remarks.—Records good. Since March 1941, Youngs River-Lewis and Clark Water District has diverted water about 4 miles above station for domestic use; water rights are for 2 cfs, but probably much less is diverted.

Revisions.—WSP 1217: Drainage area (present and former site).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 8				Dec. 9 to Sept. 30			
1.8	28	4.0	225	1.0	10	3.5	160
2.5	56	5.0	440	1.5	21	4.0	233
3.0	95	7.3	1,270	2.0	38	5.0	440
3.5	150			2.5	65	7.0	1,150
				3.0	107	10.0	2,520

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	170	117	443	292	420	186	110	57	63	87	15	28
2	103	98	*497	479	366	165	125	54	44	69	15	20
3	64	75	653	737	312	145	500	53	38	55	*15	18
4	47	63	852	2,160	274	131	698	51	47	48	15	22
5	37	89	1,250	2,030	246	122	765	49	63	42	15	22
6	31	172	1,260	*1,780	224	114	590	46	55	40	15	19
7	28	162	786	1,230	203	107	392	44	61	42	14	18
8	28	122	782	860	182	236	438	41	53	39	13	26
9	41	100	2,440	578	164	669	420	41	49	38	13	23
10	126	86	1,360	402	148	563	344	41	46	60	12	19
11	81	88	807	312	145	408	274	41	45	66	12	23
12	58	122	856	249	712	292	260	40	46	47	12	64
13	49	104	536	231	866	228	435	37	44	40	12	43
14	43	105	382	453	611	192	306	35	44	36	13	33
15	*39	180	298	470	622	170	240	33	188	34	14	34
16	34	256	233	368	1,070	180	196	31	166	34	13	*34
17	79	320	192	310	*974	152	165	29	138	32	12	39
18	332	237	185	298	754	137	145	28	113	29	11	39
19	154	367	506	253	1,720	126	135	*27	106	29	12	32
20	138	398	776	206	1,250	119	124	27	112	30	14	28
21	114	670	600	1,050	1,610	110	109	29	96	37	14	25
22	93	1,150	422	2,170	835	102	99	30	*79	34	13	23
23	78	678	344	938	524	94	92	27	70	27	14	22
24	67	479	282	563	380	91	85	26	63	24	13	20
25	58	443	221	503	332	84	79	30	57	22	21	19
26	52	408	200	425	316	86	78	47	54	20	26	17
27	47	382	177	390	259	201	74	46	65	20	18	16
28	43	304	218	376	221	138	68	34	63	18	15	16
29	43	244	192	366	-------	121	63	29	50	17	13	15
30	43	314	175	432	-------	109	61	29	52	17	44	14
31	55	-------	162	452	-------	*105	-------	46	-------	16	44	-------
Total	2,375	8,333	18,087	21,363	15,740	5,683	7,470	1,178	2,170	1,149	502	771
Mean	76.6	278	583	689	562	183	249	38.0	72.3	37.1	16.2	25.7
Cfsm	1.91	6.93	14.5	17.2	14.0	4.56	6.21	0.948	1.80	0.925	0.404	0.641
In.	2.20	7.73	16.77	19.81	14.60	5.27	6.93	1.09	2.01	1.07	0.47	0.72
Ac-ft	4,710	16,530	35,880	42,370	31,220	11,270	14,820	2,340	4,300	2,280	996	1,530

Calendar year 1953: Max 2,440 Min 6.6 Mean 228 Cfsm 5.69 In. 77.08 Ac-ft 164,900
Water year 1953-54: Max 2,440 Min 11 Mean 232 Cfsm 5.79 In. 78.67 Ac-ft 168,200

Peak discharge (base, 2,100 cfs).--Dec. 9 (2:30 p. m.) 3,650 cfs (12.01 ft); Jan. 4 (10:30 p. m.) 2,620 cfs (10.21 ft); Jan. 22 (4:30 a. m.) 2,900 cfs (10.73 ft); Feb. 19 (4:30 p.m.) 2,440 cfs (9.83 ft).

* Discharge measurement made on this day.

North Fork Klaskanine River near Olney, Oreg.

Location.—Lat 46°04'10", long 123°41'50", in NE¼ sec. 29, T. 7 N., R. 8 W., on right bank half a mile downstream from Barth Falls, 2 miles upstream from North Fork of North Fork, and 4 miles southeast of Olney.
Drainage area.—14.0 sq mi.
Records available.—August 1949 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 213.40 ft above mean sea level, datum of 1929.
Average discharge.—5 years, 67.7 cfs (49,010 acre-ft per year).
Extremes.—Maximum discharge during year, 829 cfs Dec. 9 (gage height, 4.84 ft); minimum, 6.1 cfs Aug. 10, 11, 17, 18.
1949-54: Maximum discharge, that of Dec. 9, 1953; minimum, 1.5 cfs Oct. 7, 1952.
Remarks.—Records good.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from debris Oct. 18; shifting-control method used Dec. 9)

Oct. 1 to Dec. 8		Dec. 9 to Sept. 30	
1.5	10	1.5	6.1
1.7	20	1.6	10
1.9	34	1.8	22
2.2	66	2.1	47
3.0	215	2.5	104
4.0	445	3.0	214
		4.5	710

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55	32	*157	97	176	80	34	24	22	47	7.8	12
2	33	25	175	124	166	69	41	23	17	35	7.8	11
3	20	20	230	188	146	63	96	23	15	30	*8.2	11
4	14	18	298	563	130	57	153	22	22	28	8.2	14
5	12	26	411	560	120	52	181	21	24	26	8.2	12
6	10	62	416	*507	111	47	160	20	26	24	7.8	11
7	10	50	273	395	101	45	124	19	26	23	7.0	11
8	10	36	262	294	86	64	138	18	24	21	7.0	12
9	15	30	575	214	75	134	134	18	26	21	6.7	11
10	41	28	*451	153	66	134	118	18	25	25	6.4	10
11	21	28	285	122	62	113	97	19	25	24	6.4	14
12	17	30	264	99	242	94	97	18	30	19	7.0	19
13	*15	31	188	92	250	81	130	17	26	17	7.0	14
14	13	32	140	144	198	71	111	15	26	16	7.8	13
15	13	64	111	153	191	66	94	15	72	17	9.0	14
16	12	157	89	128	*228	66	80	14	74	16	7.8	*14
17	47	147	74	109	250	57	68	12	74	14	6.7	20
18	174	114	66	102	220	51	59	*12	60	14	6.4	19
19	64	155	128	87	388	47	55	12	55	14	7.8	15
20	61	159	239	76	345	44	49	12	48	15	9.0	14
21	47	248	225	264	454	40	44	15	41	18	8.2	12
22	36	298	162	563	285	37	40	13	*35	14	7.0	12
23	31	207	128	309	196	35	36	11	32	12	9.0	11
24	27	165	108	196	151	34	34	12	29	11	9.5	11
25	24	151	89	164	130	31	31	14	27	10	19	9.5
26	21	147	81	132	118	32	31	24	26	10	17	9.0
27	19	142	69	124	102	57	30	19	33	9.5	11	8.6
28	18	122	80	120	92	39	28	15	28	9.0	8.2	8.6
29	18	100	74	128	-------	35	26	13	24	8.6	7.0	8.2
30	18	114	68	155	-------	33	26	14	26	8.6	24	7.8
31	18	-------	63	171	-------	*33	-------	19	-------	8.6	19	-------
Total	934	2,938	5,979	6,533	5,079	1,841	2,345	521	1,018	565.3	288.9	368.7
Mean	30.1	97.9	193	211	181	59.4	78.2	16.8	33.9	18.2	9.32	12.3
Cfsm	2.15	6.99	13.8	15.1	12.9	4.24	5.59	1.20	2.42	1.30	0.666	0.879
In.	2.48	7.80	15.88	17.35	13.49	4.89	6.23	1.38	2.70	1.50	0.77	0.98
Ac-ft	1,850	5,830	11,860	12,960	10,070	3,650	4,650	1,030	2,020	1,120	573	731

Calendar year 1953: Max 600 Min 4.1 Mean 74.7 Cfsm 5.34 In. 72.45 Ac-ft 54,110
Water year 1953-54: Max 575 Min 6.4 Mean 77.8 Cfsm 5.56 In. 75.45 Ac-ft 56,340

Peak discharge (base, 500 cfs).--Dec. 6 (1 to 2:30 a. m.) 532 cfs (4.34 ft); Dec. 9 (3 p. m.) 829 cfs (4.84 ft); Jan. 4 (9 p. m.) 686 cfs (4.43 ft); Jan. 22 (5 a. m.) 728 cfs (4.55 ft); Feb. 21 (6 a. m.) 566 cfs (4.09 ft).
* Discharge measurement made on this day.

NEHALEM RIVER BASIN

Nehalem River near Foss, Oreg.

Location.—Lat 45°42'15", long 123°45'20", in NW¼ sec. 35, T. 3 N., R. 9 W., on right bank a quarter of a mile upstream from Cook Creek and 2.2 miles northeast of Foss.
Drainage area.—667 sq mi.
Records available.—October 1939 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 32.60 ft above mean sea level, datum of 1929 (Oregon State Highway Department benchmark). Prior to Nov. 11, 1939, staff gage at same site and datum.
Average discharge.—15 years, 2,656 cfs (1,923,000 acre-ft per year).
Extremes.—Maximum discharge during year, 34,700 cfs Jan. 6 (gage height, 18.33 ft); minimum, 154 cfs Sept. 30.
1939-54: Maximum discharge, 36,900 cfs Feb. 17, 1949 (gage height, 19.04 ft); minimum, 54 cfs Sept. 22-24, 1951.
Remarks.—Records good. No known regulation or diversion.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 9		Dec. 10 to Sept. 30	
2.1	270	1.7	150
2.5	515	2.0	295
3.0	890	3.0	910
4.0	1,740	4.0	1,740
Note.—Same as following table above 4.0 ft.		6.0	3,950
		8.0	6,950
		12.0	15,500
		18.0	33,500

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,370	571	*4,630	2,810	6,520	3,600	1,400	952	584	626	205	295
2	1,080	599	4,730	3,710	6,710	3,150	1,510	896	566	638	195	295
3	786	543	5,800	5,340	6,220	2,790	4,160	889	518	602	*190	250
4	592	508	7,930	17,200	5,620	2,490	6,090	861	512	548	190	220
5	456	515	12,400	*29,500	5,130	2,270	7,560	826	524	506	190	215
6	379	730	17,200	*31,200	4,820	2,100	7,700	777	506	470	190	200
7	331	922	14,600	23,100	4,630	1,920	6,860	746	518	470	190	195
8	314	898	11,600	15,100	4,570	2,590	6,460	722	518	452	190	200
9	385	842	20,700	10,600	4,430	6,860	6,410	704	518	434	186	200
10	898	778	22,300	8,070	4,110	7,960	6,200	686	488	458	177	195
11	938	770	17,900	6,420	3,990	6,860	5,720	674	476	524	172	210
12	834	810	13,400	5,180	10,400	5,540	4,890	656	488	512	168	265
13	662	834	9,080	4,350	20,100	4,610	5,310	638	488	464	164	306
14	543	890	6,930	4,920	21,600	3,990	4,680	608	518	422	168	270
15	*482	1,400	5,430	6,370	15,600	3,530	4,020	584	826	398	172	*280
16	430	2,680	4,400	6,370	*13,000	3,250	3,530	572	1,390	386	177	306
17	614	3,230	3,710	5,510	13,000	2,880	3,090	542	1,370	368	186	356
18	2,410	2,920	3,280	4,810	12,000	2,530	2,750	*524	1,150	350	182	356
19	2,040	3,080	5,150	4,180	16,600	2,230	2,460	506	1,030	339	186	350
20	1,710	3,460	9,360	3,580	18,900	2,020	2,210	482	987	356	186	317
21	1,340	4,440	9,920	6,220	22,400	1,840	2,000	470	938	386	190	290
22	1,130	10,900	8,470	17,600	17,700	1,680	1,790	464	*833	368	177	265
23	978	10,700	6,630	16,300	12,600	1,540	1,630	458	758	339	172	240
24	850	8,480	5,280	11,300	8,660	1,450	1,500	446	698	306	168	220
25	762	6,680	4,310	7,750	6,730	1,350	1,380	434	650	285	172	205
26	692	5,780	3,730	6,170	5,810	1,310	1,290	530	620	270	195	190
27	641	5,680	3,290	5,460	4,840	1,930	1,200	596	638	260	195	186
28	592	5,340	3,070	5,020	4,110	1,870	1,110	590	644	245	195	177
29	571	4,640	2,870	4,750	-------	1,620	1,060	524	596	235	186	164
30	543	4,260	2,630	5,360	-------	*1,480	1,020	488	584	225	240	159
31	522	-------	2,430	5,970	-------	1,420	-------	518	-------	220	328	-------
Total	25,875	93,880	253,160	290,220	280,800	90,660	107,000	19,363	20,934	12,462	5,882	7,377
Mean	835	3,129	8,166	9,362	10,030	2,925	3,567	625	698	402	190	246
Cfsm	1.25	4.69	12.2	14.0	15.0	4.39	5.35	0.937	1.05	0.603	0.285	0.369
In.	1.44	5.23	14.12	16.18	15.66	5.05	5.97	1.08	1.17	0.69	0.33	0.41
Ac-ft	51,320	186,200	502,100	575,600	557,000	179,800	212,200	38,410	41,520	24,720	11,670	14,630

Calendar year 1953: Max 22,300 Min 104 Mean 3,167 Cfsm 4.75 In. 64.46 Ac-ft 2,293,000
Water year 1953-54: Max 31,200 Min 159 Mean 3,309 Cfsm 4.96 In. 67.33 Ac-ft 2,395,000

Peak discharge (base, 17,000 cfs).--Dec. 6 (7 a. m.) 18,600 cfs (13.20 ft); Dec. 9 (6 p. m.) 28,400 cfs (16.48 ft); Jan. 6 (2 a. m.) 34,700 cfs (18.33 ft); Jan. 22 (8 to 9 a. m.) 18,600 cfs (13.20 ft); Feb. 14 (5 a. m.) 22,700 cfs (14.58 ft); Feb. 21 (8 a. m.) 24,700 cfs (15.22 ft).
* Discharge measurement made on this day.

Wilson River near Tillamook, Oreg.

Location.—Lat 45°29'10", long 123°43'30", in NW¼ sec. 18, T. 1 S., R. 8 W., on right bank 1 mile upstream from North Fork and 6½ miles east of Tillamook.

Drainage area.—159 sq mi.

Records available.—December 1914 to November 1916 (incomplete), July 1931 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 42.13 ft above mean sea level, datum of 1929. Dec. 18, 1914, to Nov. 4, 1916, staff gage at site three-quarters of a mile downstream at different datum. July 30, 1931, to Sept. 30, 1938, staff gage at site 100 ft downstream at datum 0.93 ft higher.

Average discharge.—23 years (1931-54), 1,220 cfs (883,200 acre-ft per year).

Extremes.—Maximum discharge during year, 20,300 cfs Dec. 9 (gage height, 14.91 ft), from rating curve extended above 10,000 cfs by logarithmic plotting; minimum, 118 cfs Aug. 24, 29, Sept. 6, 7.

1914-16, 1931-54: Maximum discharge, 30,000 cfs Dec. 21, 1933 (gage height, 19.28 ft, site and datum then in use), from rating curve extended above 15,000 cfs; minimum, 45 cfs Oct. 15, 16, 17, 18, 1952.

Remarks.—Records good. No regulation or diversion above station.

Revisions.—WSP 1014: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 9				Dec. 10 to Sept. 30			
1.0	235	5.0	3,300	0.6	120	3.0	1,330
1.5	400	8.0	7,600	1.0	215	5.0	3,330
2.0	610	12.0	14,500	1.5	380	8.0	7,600
3.0	1,300			2.0	630	11.0	12,700

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,090	382	2,340	1,310	2,860	1,210	654	388	314	373	163	156
2	756	390	2,380	1,720	2,620	1,060	733	373	272	345	*158	138
3	516	365	3,090	2,300	2,300	957	2,650	376	248	324	156	136
4	400	340	3,790	*8,450	2,050	866	3,220	356	263	310	156	130
5	337	340	5,840	12,400	1,880	792	3,670	342	260	300	156	124
6	295	580	8,270	9,600	1,800	744	3,370	334	254	282	152	120
7	268	720	5,050	5,450	1,660	726	2,490	314	254	296	145	132
8	256	630	4,260	4,010	1,510	1,400	2,480	310	263	275	140	161
9	383	560	12,900	3,050	1,430	4,610	2,400	306	286	286	138	138
10	910	516	*9,370	2,370	1,310	4,060	2,020	300	275	345	136	128
11	702	488	5,020	1,930	1,250	2,540	1,720	303	266	416	134	145
12	552	484	5,270	1,610	5,580	1,920	1,650	286	278	359	130	221
13	464	472	3,720	1,430	6,590	1,590	2,510	275	269	324	128	221
14	*400	504	2,730	2,160	4,660	1,370	2,060	266	282	300	132	*191
15	362	1,080	2,110	2,680	*3,590	1,230	1,690	248	801	282	132	204
16	334	2,130	1,730	2,170	4,220	1,150	1,430	245	1,200	269	136	207
17	543	2,090	1,500	1,870	4,140	1,010	1,250	*227	999	257	128	218
18	2,100	1,650	1,390	1,660	3,670	929	1,100	221	762	245	124	202
19	1,540	1,980	3,750	1,410	8,120	838	999	212	708	236	126	186
20	1,070	2,200	7,490	1,230	9,610	768	873	210	792	257	134	173
21	798	3,320	5,440	2,040	9,320	738	786	207	*738	257	128	166
22	655	9,510	3,470	10,900	5,720	708	738	202	666	233	122	163
23	570	7,150	2,580	*5,370	3,600	678	678	193	576	215	120	154
24	512	4,500	2,020	3,290	2,660	630	618	191	515	207	118	149
25	468	3,550	1,630	2,420	2,130	594	564	202	470	196	124	145
26	424	3,070	1,470	1,960	1,890	594	520	278	434	188	145	140
27	393	2,910	1,290	1,970	1,570	999	495	254	452	183	134	136
28	362	2,470	1,230	1,960	1,390	859	460	218	420	180	122	132
29	362	2,080	1,120	1,910	-------	*750	434	207	376	173	118	128
30	372	*2,030	1,030	2,350	-------	690	420	207	366	170	182	124
31	362	-------	971	2,830	-------	648	-------	303	-------	166	199	-------
Total	18,556	58,491	114,251	105,810	99,130	37,658	44,682	8,354	14,059	8,249	4,316	4,768
Mean	599	1,950	3,686	3,413	3,540	1,215	1,489	269	469	266	139	159
Cfsm	3.77	12.3	23.2	21.5	22.3	7.64	9.36	1.69	2.95	1.67	0.874	1.00
In.	4.34	13.68	26.72	24.75	23.19	8.81	10.45	1.95	3.29	1.93	1.01	1.12
Ac-ft	36,810	116,000	226,600	209,900	196,600	74,690	88,630	16,570	27,890	16,360	8,560	9,460

Calendar year 1953: Max 12,900 Min 87 Mean 1,539 Cfsm 9.68 In. 131.36 Ac-ft 1,114,000
Water year 1953-54: Max 12,900 Min 118 Mean 1,420 Cfsm 8.93 In. 121.24 Ac-ft 1,028,000

Peak discharge (base, 12,000 cfs).--Dec. 9 (5 p. m.) 20,300 cfs (14.91 ft); Jan. 5 (7 a. m.) 13,300 cfs (11.35 ft); Jan. 22 (8:30 a. m.) 14,000 cfs (11.71 ft); Feb. 19 (9:30 p. m.) 13,500 cfs (11.47 ft).

* Discharge measurement made on this day.

Trask River near Tillamook, Oreg.

Location.—Lat 45°26'30", long 123°43'00", in NW¼ sec. 31, T. 1 S., R. 8 W., on right bank half a mile upstream from Gold Creek and 6 miles east of Tillamook.
Drainage area.—143 sq mi.
Records available.—July 1931 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 70 ft (by barometer).
Average discharge.—23 years, 985 cfs (713,100 acre-ft per year).
Extremes.—Maximum discharge during year, 13,200 cfs Dec. 9 (gage height, 9.97 ft); minimum, 112 cfs Sept. 30.
1931-54: Maximum discharge, 20,000 cfs Dec. 22, 1933 (gage height, 13.00 ft); minimum, 42 cfs Oct. 15-18, 1952.
Maximum stage known, about 17 ft, probably occurred during flood of November 1921 or Mar. 31, 1931 (discharge, 30,000 cfs, from rating curve extended above 12,000 cfs).
Remarks.—Records good except those for periods of no gage-height record, which are fair. No regulation or diversion above station.
Revisions.—WSP 1044: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 10-17)

Oct. 1 to Dec. 9				Dec. 10 to Sept. 30			
0.8	144	3.0	1,480	0.6	100	3.0	1,550
1.0	206	4.0	2,640	1.0	215	4.0	2,730
1.5	410	6.0	5,710	1.5	421	6.0	5,890
2.0	690	8.0	9,340	2.0	695	7.5	8,550

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	532	272	2,090	1,070	2,570	1,080	612	412	370	365	155	155
2	333	264	2,150	1,160	2,430	968	656	388	322	339	*152	133
3	261	247	2,670	1,530	2,080	872	1,480	402	293	322	147	133
4	216	240	3,280	*6,520	1,860	802	1,920	374	310	305	147	136
5	184	247	5,740	7,830	1,700	744	2,560	365	305	289	149	130
6	168	471	7,050	5,650	1,490	695	2,630	343	305	285	149	125
7	150	471	4,300	4,020	1,400	643	2,060	334	330	285	141	125
8	150	410	3,780	3,150	1,320	1,000	1,990	330	334	274	138	155
9	228	375	8,990	2,500	1,250	2,800	1,870	326	365	274	136	136
10	526	360	7,650	1,940	1,030	2,770	1,660	318	343	301	133	125
11	256	356	4,210	1,580	1,100	1,970	1,450	314	334	305	130	141
12	275	351	4,030	1,350	4,130	1,570	1,360	305	361	278	130	215
13	240	346	2,900	1,200	5,140	1,320	1,820	289	334	262	130	205
14	*216	380	2,160	1,770	3,860	1,180	1,530	281	334	247	133	170
15	196	624	1,760	2,180	*3,010	1,080	1,310	266	636	240	130	*173
16	177	1,360	1,410	a1,800	2,860	1,030	1,160	262	856	233	136	176
17	296	1,260	1,220	a1,500	2,930	912	1,030	*251	788	266	130	164
18	938	1,070	1,110	a1,300	2,880	848	920	247	656	215	125	161
19	750	1,400	2,990	a1,200	5,200	788	848	240	630	212	128	152
20	630	a1,900	5,010	1,030	6,550	737	765	237	636	222	138	147
21	520	a2,500	3,600	1,600	6,470	688	695	233	*582	251	138	144
22	450	a7,000	2,610	6,820	4,560	636	643	233	540	215	128	136
23	400	a6,000	2,030	4,240	3,080	606	600	226	505	198	125	133
24	356	a4,000	1,620	2,730	2,300	570	565	222	470	189	120	130
25	328	a3,100	1,380	1,990	1,870	555	535	251	436	185	125	128
26	303	a2,700	1,230	1,750	1,660	540	515	361	412	182	149	122
27	283	a2,500	1,110	1,920	1,390	872	490	318	416	179	133	120
28	268	a2,200	1,080	1,890	1,250	744	465	259	412	176	125	118
29	272	a1,800	976	1,800	-------	*656	446	244	365	167	122	118
30	283	*1,740	864	2,110	-------	630	431	247	343	164	192	112
31	261	-------	818	2,480	-------	612	-------	330	-------	158	222	-------
Total	10,546	45,944	91,818	79,610	77,370	30,918	35,016	9,208	13,323	7,543	4,336	4,318
Mean	340	1,531	2,962	2,568	2,763	997	1,167	297	444	243	140	144
Cfsm	2.38	10.7	20.7	18.0	19.3	6.97	8.16	2.08	3.10	1.70	0.979	1.01
In.	2.74	11.95	23.88	20.70	20.12	8.04	9.11	2.39	3.46	1.96	1.13	1.12
Ac-ft	20,920	91,130	182,100	157,900	153,500	61,320	69,450	18,260	26,430	14,960	8,600	8,560

Calendar year 1953: Max 9,680 Min 85 Mean 1,253 Cfsm 8.76 In. 118.91 Ac-ft 906,700
Water year 1953-54: Max 8,990 Min 112 Mean 1,123 Cfsm 7.85 In. 106.60 Ac-ft 813,100

Peak discharge (base, 9,300 cfs).--Dec. 9 (6 p. m.) 13,200 cfs (9.97 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for Wilson River near Tillamook and weather records.

Siletz River at Siletz, Oreg.

Location.—Lat 44°42'55", long 123°53'10", in NW¼SW¼ sec. 11, T. 10 S., R. 10 W., on right bank 1½ miles east of Siletz.

Drainage area.—202 sq mi.

Records available.—November 1905 to May 1912, January 1924 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 102.32 ft above mean sea level, datum of 1929. Prior to May 4, 1912, staff gage, Jan. 3 to Nov. 6, 1924, chain gage, Nov. 7, 1924, to Sept. 5, 1930, staff gage, and Sept. 6, 1930, to Sept. 30, 1938, wire-weight gage, all at sites about 2 miles downstream at different datums.

Average discharge.—34 years (1906-11, 1925-54), 1,607 cfs (1,163,000 acre-ft per year).

Extremes.—Maximum discharge during year, 25,100 cfs Nov. 22 (gage height, 20.46 ft), from rating curve extended above 13,000 cfs by logarithmic plotting; minimum, 160 cfs Aug. 23, 24.

1905-12, 1924-54: Maximum discharge, 37,000 cfs Feb. 17, 1949 (gage height, 25.17 ft), from rating curve extended above 15,000 cfs by logarithmic plotting; minimum observed, 51 cfs Dec. 6, 7, 1929.

Maximum discharge known, 40,800 cfs Nov. 20, 1921 (gage height, 31.6 ft, site and datum then in use), from rating curve extended above 19,000 cfs.

Remarks.—Records good. No diversion above station.

Revisions (water years).—WSP 754: 1922 (maximum gage height). WSP 814: 1935.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

2.6	155	8.0	3,830
3.0	275	10.0	6,200
4.0	675	14.0	12,100
6.0	1,900	18.0	19,600

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,120	448	2,800	1,400	3,930	1,300	941	532	549	500	231	303
2	858	424	*3,270	1,460	3,380	1,150	990	508	464	464	225	254
3	598	388	4,880	1,900	2,870	1,050	2,860	524	416	432	219	219
4	476	373	6,140	8,080	2,460	963	4,000	488	440	412	219	213
5	400	384	9,000	11,100	2,140	880	5,190	460	424	388	216	201
6	352	777	12,200	7,660	1,920	820	4,850	440	404	373	213	186
7	317	858	7,630	5,300	1,760	775	*3,580	420	444	*420	207	192
8	303	730	7,080	4,060	1,600	2,140	3,360	404	440	384	198	244
9	404	648	14,800	3,190	1,450	6,950	3,110	392	520	456	195	204
10	1,380	626	12,300	2,400	1,320	5,890	2,670	376	472	572	189	192
11	930	702	6,700	2,000	1,330	3,830	2,260	376	468	684	183	210
12	730	662	5,740	*1,700	6,930	2,790	2,050	366	554	576	183	420
13	603	639	4,250	1,550	7,190	2,230	3,510	352	500	520	180	404
14	520	675	3,230	1,980	5,860	1,900	2,870	338	504	476	180	338
15	472	1,240	2,540	2,750	4,380	1,730	2,290	328	1,120	440	180	338
16	432	3,320	2,010	2,740	3,730	1,620	1,900	317	1,400	416	175	366
17	592	3,410	1,720	2,510	3,720	1,410	1,640	*303	1,240	388	168	342
18	1,320	2,720	1,830	2,500	3,650	1,290	1,430	289	1,050	376	165	310
19	1,180	3,260	9,080	2,190	6,910	1,180	1,260	275	968	359	165	289
20	1,010	3,610	10,900	1,890	12,100	1,080	1,140	272	1,110	359	192	268
21	848	5,290	6,560	1,990	12,400	1,010	1,030	268	1,000	384	210	250
22	*735	19,000	4,400	8,730	7,550	914	941	258	897	345	178	258
23	652	15,900	3,260	6,700	4,710	886	858	250	805	324	162	240
24	594	7,750	2,510	4,320	3,350	842	790	244	735	306	162	225
25	544	5,130	2,020	3,250	*2,520	790	735	282	680	292	185	213
26	500	4,120	1,800	2,700	2,080	755	693	544	630	282	*247	207
27	468	3,520	1,580	5,900	1,730	1,320	670	440	608	275	213	204
28	432	3,000	1,450	7,030	1,490	1,360	630	345	572	268	198	195
29	460	2,800	1,330	5,320	-------	1,190	590	314	528	254	192	192
30	496	2,700	1,220	4,910	-------	1,060	567	314	504	244	392	183
31	448	-------	1,140	4,440	-------	980	-------	468	-------	237	420	-------
Total	20,174	94,104	155,370	123,650	114,460	52,085	59,405	11,487	20,446	12,206	6,440	7,660
Mean	651	3,170	5,012	3,989	4,088	1,680	1,980	371	682	394	208	255
Cfsm	3.22	15.7	24.8	19.7	20.2	8.32	9.80	1.84	3.38	1.95	1.03	1.26
In.	3.71	17.51	28.61	22.77	21.07	9.59	10.94	2.11	3.76	2.25	1.19	1.41
Ac-ft	40,010	188,600	308,200	245,300	227,000	103,300	117,800	22,780	40,550	24,210	12,770	15,190

Calendar year 1953: Max 25,800 Min 98 Mean 2,199 Cfsm 10.9 In. 147.75 Ac-ft 1,592,000
Water year 1953-54: Max 19,000 Min 162 Mean 1,859 Cfsm 9.20 In. 124.92 Ac-ft 1,346,000

Peak discharge (base, 12,000 cfs).--Nov. 22 (7:30 p. m.) 25,100 cfs (20.46 ft); Dec. 6 (6 a. m.) 14,700 cfs (15.50 ft); Dec. 9 (7 p. m.) 21,400 cfs (18.80 ft); Dec. 19 (10 p. m.) 16,100 cfs (16.23 ft); Jan. 22 (12 m.) 12,500 cfs (14.23 ft); Feb. 21 (10 a. m.) 14,500 cfs (15.37 ft).

* Discharge measurement made on this day.

Alsea River near Tidewater, Oreg.

Location.—Lat 44°23'10", long 123°49'50", in NW¼NW¼ sec. 6, T. 14 S., R. 9 W., on right bank three-quarters of a mile downstream from Grass Creek, 2.3 miles upstream from Scott Creek, and 3.8 miles southeast of Tidewater.

Drainage area.—334 sq mi.

Records available.—October 1939 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 48.16 ft above mean sea level, datum of 1929.

Average discharge.—15 years, 1,536 cfs (1,112,000 acre-ft per year).

Extremes.—Maximum discharge during year, 24,200 cfs Jan. 28 (gage height, 20.03 ft); minimum, 104 cfs Aug. 19 (gage height, 1.57 ft).

1939-54: Maximum discharge, 27,800 cfs Jan. 7, 1948 (gage height, 22.43 ft); minimum, 57 cfs Sept. 22, 23, 1951.

Maximum stage known, 29.5 ft on or about Feb. 3, 1890, from floodmark shown by old resident.

Remarks.—Records good. No regulation; a few small diversions above station for irrigation.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.5	90	5.0	1,720
1.7	132	7.0	3,260
2.0	206	9.0	5,400
2.5	370	13.0	11,200
3.0	590	18.0	20,100

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	630	220	2,020	1,620	5,440	1,860	1,330	715	414	231	128	203
2	662	220	*2,300	1,670	4,430	1,690	1,270	685	330	226	125	170
3	366	212	3,170	2,360	3,690	1,540	2,060	676	295	212	125	153
4	258	203	5,790	8,930	3,100	1,410	2,930	653	309	203	128	148
5	212	220	8,590	9,200	2,680	1,300	4,390	617	320	201	128	132
6	188	735	14,300	6,110	2,360	1,220	6,290	586	288	201	130	128
7	172	908	10,200	5,050	2,100	1,150	*4,290	568	284	*209	125	125
8	165	617	8,350	4,670	1,900	1,820	3,830	550	281	214	121	125
9	193	482	10,900	3,880	1,730	5,610	3,760	527	316	223	117	123
10	1,200	446	12,200	3,210	1,580	5,960	3,630	518	288	261	114	123
11	775	468	7,660	2,740	1,550	4,090	3,040	504	278	288	112	139
12	496	424	5,560	*2,350	7,960	3,240	2,560	491	330	249	108	274
13	370	398	4,240	2,130	11,200	2,710	2,710	473	320	220	108	249
14	309	398	3,400	2,240	9,860	2,390	2,320	460	291	206	110	183
15	267	514	2,800	2,500	6,270	2,200	2,080	442	514	203	114	185
16	246	2,560	2,380	3,350	4,740	2,120	1,860	428	671	198	114	258
17	281	3,200	2,140	4,000	4,730	1,920	1,690	*398	514	188	110	243
18	685	2,420	2,170	4,490	5,200	1,770	1,540	378	414	180	106	198
19	780	2,270	8,460	4,060	5,860	1,630	1,430	363	359	175	108	172
20	568	2,590	13,600	3,290	10,500	1,520	1,330	352	345	172	119	158
21	464	2,980	8,260	3,120	10,900	1,410	1,230	348	316	178	134	146
22	*378	16,800	5,090	10,000	8,410	1,300	1,150	338	284	175	128	144
23	334	17,800	3,850	10,600	5,630	1,230	1,080	330	264	168	117	139
24	298	8,460	3,050	6,710	4,180	1,170	1,010	327	255	158	119	134
25	281	5,090	2,520	4,840	*3,300	1,090	952	338	243	150	139	130
26	261	3,600	2,250	4,220	2,780	1,030	908	464	237	148	*180	125
27	246	2,880	2,040	11,600	2,360	1,880	865	414	243	146	162	121
28	234	2,350	1,870	18,400	2,080	2,630	820	341	237	144	183	114
29	231	2,030	1,750	12,000	--------	1,930	775	312	226	141	201	110
30	231	1,960	1,610	9,100	--------	1,630	755	316	220	137	255	108
31	226	--------	1,500	6,840	--------	1,450	--------	356	--------	130	295	--------
Total	12,007	83,455	164,020	175,280	136,520	63,900	63,885	14,268	9,686	5,935	4,263	4,760
Mean	387	2,782	5,291	5,654	4,876	2,061	2,130	460	323	191	138	159
Cfsm	1.16	8.33	15.8	16.9	14.6	6.17	6.38	1.38	0.967	0.572	0.413	0.476
In.	1.34	9.29	18.26	19.52	15.20	7.12	7.11	1.59	1.08	0.66	0.47	0.53
Ac-ft	23,820	165,500	325,300	347,700	270,800	126,700	126,700	28,300	19,210	11,770	8,460	9,440

Calendar year 1953: Max 21,500 Min 104 Mean 2,265 Cfsm 6.78 In. 92.26 Ac-ft 1,643,000
Water year 1953-54: Max 18,400 Min 106 Mean 2,022 Cfsm 6.05 In. 82.17 Ac-ft 1,464,000

Peak discharge (base, 13,000 cfs).---Nov. 23 (1 a. m.) 23,600 cfs (19.73 ft); Dec. 6 (12 m.) 16,800 cfs (16.28 ft); Dec. 10 (2 a. m.) 14,500 cfs (15.00 ft); Dec. 19 (12 p. m.) 18,100 cfs (16.97 ft); Jan. 22 (8 p. m.) 14,700 cfs (15.12 ft); Jan. 28 (1:30 a. m.) 24,200 cfs (20.03 ft); Feb. 13 (9 p. m.) 13,200 cfs (14.23 ft).

* Discharge measurement made on this day.

Lake Creek at Triangle Lake, Oreg.

Location.—Lat 44°09'40", long 123°34'10", in SW¼ sec. 20, T. 16 S. R. 7 W., on right bank 500 ft downstream from outlet of Triangle Lake.

Drainage area.—50 sq mi, approximately.

Records available.—August 1931 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 872.75 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.—23 years, 211 cfs (152,800 acre-ft per year).

Extremes.—Maximum discharge during year not determined; minimum, 12 cfs Aug. 19.
1931-54: Maximum discharge, 4,180 cfs Feb. 18, 1949, from rating curve extended above 2,400 cfs by logarithmic plotting; maximum gage height, 8.68 ft Feb. 18, 1949 (backwater from debris); minimum discharge, 2.7 cfs Aug. 1, 1944; minimum daily, 4.2 cfs Oct. 18, 19, 1952.

Remarks.—Records good except those for periods of no gage-height record, which are fair. No diversion above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting control method used Oct. 2-26)

0.7	13	2.5	316
1.0	32	3.0	485
1.2	52	4.0	950
1.5	91	6.2	2,350
2.0	185		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	48	*274	a270	1,020	307	212	112	60	35	16	24
2	36	44	282	a250	890	247	202	107	59	*35	16	22
3	40	42	a300	a320	765	234	239	105	56	35	16	21
4	38	41	a460	a460	646	229	307	102	54	34	15	20
5	36	43	a600	*890	553	219	416	97	53	32	15	18
6	32	56	a1,200	a700	485	204	610	94	51	30	15	17
7	30	91	a1,500	a650	430	192	655	*91	49	30	15	16
8	28	109	a1,100	a600	378	234	549	88	50	30	15	16
9	28	104	a1,000	a600	337	412	497	85	50	30	15	15
10	46	96	a1,100	a500	307	691	441	83	50	33	15	15
11	77	87	a850	444	307	660	398	81	49	35	14	15
12	74	81	a700	388	578	513	352	80	50	34	14	19
13	69	77	a500	343	1,230	423	346	77	51	32	14	22
14	*59	74	a400	331	1,380	362	316	74	52	30	14	23
15	53	76	a360	385	1,100	*331	287	70	58	29	14	23
16	48	100	a320	489	805	316	263	69	69	28	14	23
17	45	198	a300	624	682	296	242	67	72	26	14	23
18	52	276	a300	650	710	276	219	64	67	25	13	22
19	62	279	a550	565	790	255	204	60	62	24	13	22
20	65	307	a2,300	478	1,020	239	192	58	58	23	13	21
21	62	352	a1,600	426	1,330	219	181	57	54	23	14	20
22	57	866	a1,100	601	1,310	207	170	56	50	23	14	19
23	52	1,720	a800	1,170	1,040	195	159	54	46	22	14	18
24	48	1,520	a550	1,240	790	183	153	53	44	21	15	17
25	43	1,020	a440	910	601	174	145	53	41	21	16	16
26	67	660	a400	700	493	167	139	59	38	20	17	16
27	94	485	a360	760	441	209	134	63	38	20	*19	15
28	72	392	a320	1,620	395	316	130	62	37	18	20	15
29	62	325	a300	*1,800	-------	313	124	57	36	18	20	14
30	54	293	a280	1,500	-------	265	116	54	36	17	22	13
31	50	-------	a260	1,240	-------	232	-------	57	-------	17	24	-------
Total	1,607	9,862	20,746	21,904	20,813	9,120	8,398	2,289	1,540	830	485	560
Mean	51.8	329	669	707	743	294	280	73.8	51.3	26.8	15.6	18.7
Cfsm	1.04	6.58	13.4	14.1	14.9	5.88	5.60	1.48	1.03	0.536	0.312	0.374
In.	1.20	7.34	15.43	16.29	15.48	6.78	6.25	1.70	1.15	0.62	0.36	0.42
Ac-ft	3,190	19,560	41,150	43,450	41,280	18,090	16,660	4,540	3,050	1,650	962	1,110

Calendar year 1953: Max 3,410 Min 18 Mean 292 Cfsm 5.84 In. 79.20 Ac-ft 211,200
Water year 1953-54: Max 2,300 Min 13 Mean 269 Cfsm 5.38 In. 73.02 Ac-ft 194,700

Peak discharge (base, 1,200 cfs).--Nov. 23 (3:30 p. m.) 1,940 cfs (5.70 ft); Dec. 7 (time and discharge unknown); Dec. 20 (time and discharge unknown); Jan. 24 (1 a. m.) 1,360 cfs (4.72 ft); Jan. 29 (10 p. m.) 1,950 cfs (5.63 ft); Feb. 14 (1 a. m.) 1,440 cfs (4.85 ft); Feb. 21 (6 to 10 p. m.) 1,370 cfs (4.73 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for Long Tom River at Noti and Alsea River near Tidewater.

South Umpqua River at Tiller, Oreg.

Location.—Lat 42°55'50", long 122°56'50", in NE¼ sec. 33, T. 30 S., R. 2 W., on right bank 0.3 mile upstream from Elk Creek, 0.4 mile downstream from Salt Creek, and 0.4 mile east of Tiller.

Drainage area.—454 sq mi.

Records available.—November 1910 to November 1911, October 1939 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 991.8 ft above mean sea level, datum of 1929 (from river-profile survey). Nov. 9, 1910, to Nov. 30, 1911, staff gage at site 0.2 mile downstream at different datum. Oct. 1 to Nov. 26, 1939, staff gage at present site and datum.

Average discharge.—15 years, 1,033 cfs (747,900 acre-ft per year).

Extremes.—Maximum discharge during year, 27,900 cfs Nov. 23 (gage height, 18.82 ft, referred to outside gage), from rating curve extended above 12,000 cfs on basis of slope-area determination at gage height, 22.35 ft; minimum, 56 cfs Sept. 9.

1910-11, 1939-54: Maximum discharge, 37,400 cfs Oct. 29, 1950 (gage height, 22.35 ft, referred to outside gage), from rating curve extended above 12,000 cfs on basis of slope-area determination of peak flow; minimum observed, 20 cfs Sept. 3, 4, 1911.

Remarks.—Records good except those for period of no gage-height record, which are fair. No regulation; small diversions above station for irrigation.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22

1.0	68	4.0	1,460
1.5	187	7.0	4,290
2.0	350	10.0	8,380
3.0	820	13.0	14,000
		16.0	20,700

Nov. 23 to Sept. 30

0.9	42	
1.3	122	
1.6	200	
2.0	340	
3.0	820	

Note.--Same as preceding table above 3.0 ft.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	122	90	1,700	850	4,590	1,130	831	605	470	240	86	72
2	171	106	3,240	1,000	4,960	1,030	*755	555	398	227	82	68
3	120	103	5,690	1,500	4,800	936	826	530	360	212	82	67
4	95	92	6,270	1,700	4,470	870	2,050	565	352	203	78	67
5	82	95	4,150	1,900	3,890	836	4,240	600	412	191	80	63
6	76	144	6,760	1,700	3,470	842	3,310	605	434	185	80	63
7	72	238	*4,880	2,000	3,330	842	2,340	670	372	179	78	61
8	70	165	5,010	1,800	3,140	1,100	1,980	755	434	170	76	59
9	70	142	6,620	1,600	2,880	1,710	1,890	776	470	165	76	57
10	127	132	6,190	1,500	2,480	1,920	1,560	720	443	165	72	59
11	228	168	3,980	1,300	2,160	1,450	1,330	675	407	160	72	76
12	132	165	3,080	1,200	4,870	1,180	1,210	615	497	152	70	78
13	106	160	2,500	1,100	5,060	1,010	1,650	565	620	145	70	76
14	97	147	2,000	2,500	3,450	924	1,880	535	570	140	74	70
15	92	134	1,900	5,000	2,640	886	1,560	555	924	136	95	138
16	88	176	1,700	9,000	2,140	864	1,440	585	1,130	134	97	170
17	84	462	1,600	7,000	2,240	809	1,550	580	864	131	82	129
18	352	301	1,500	5,000	2,260	745	1,560	595	705	127	76	117
19	*484	332	2,000	3,500	1,950	700	1,400	590	585	124	72	95
20	247	488	3,000	3,000	2,600	660	1,200	540	510	122	76	84
21	182	720	2,500	2,500	3,440	625	1,080	497	461	*117	82	76
22	150	14,700	2,000	4,000	3,050	595	1,030	430	412	115	80	72
23	132	19,800	1,600	5,500	2,460	560	1,040	389	376	113	74	72
24	120	7,030	1,400	3,500	2,180	555	972	376	348	110	68	70
25	110	3,670	1,100	3,000	1,920	525	897	368	320	106	67	67
26	106	2,430	1,000	4,000	1,680	479	820	*407	300	101	104	65
27	99	2,350	1,100	4,500	1,450	525	814	364	312	97	101	63
28	97	1,870	1,000	*5,000	1,270	1,000	814	328	293	97	86	61
29	92	1,410	950	6,510	-------	1,220	735	308	265	93	84	59
30	90	1,310	900	5,820	-------	1,140	675	352	248	88	78	59
31	88	-------	800	4,610	-------	948	-------	376	-------	88	76	-------
Total	4,181	59,130	88,120	103,090	84,830	28,616	43,439	16,411	14,292	4,433	2,474	2,333
Mean	135	1,971	2,843	3,325	3,030	923	1,448	529	476	143	79.8	77.8
Cfsm	0.297	4.34	6.26	7.32	6.67	2.03	3.19	1.17	1.05	0.315	0.176	0.171
In.	0.34	4.84	7.22	8.44	6.95	2.34	3.56	1.34	1.17	0.36	0.20	0.19
Ac-ft	8,290	117,300	174,800	204,500	168,300	56,760	86,160	32,550	28,350	8,790	4,910	4,630

Calendar year 1953: Max 26,100 Min 59 Mean 1,564 Cfsm 3.44 In. 46.75 Ac-ft 1,132,000
Water year 1953-54: Max 19,800 Min 57 Mean 1,237 Cfsm 2.72 In. 36.95 Ac-ft 895,300

Peak discharge (base, 7,000 cfs).--Nov. 23 (4 a. m.) 27,900 cfs (18.82 ft); Dec. 3 (8 p. m.) 10,500 cfs (11.24 ft); Dec. 6 (12 m.) 9,380 cfs (10.59 ft); Dec. 10 (1 a. m.) 7,760 cfs (9.62 ft); Jan. 16 (about 6 p. m.) about 13,000 cfs.

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 13 to Jan. 28; discharge estimated on basis of records for station near Brockway.

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Cow Creek near Azalea, Oreg.

Location.—Lat 42°49'30", long 123°10'40", in sec. 4, T. 32 S., R. 4 W., on right bank 4 miles northeast of Azalea.
Drainage area.—76 sq mi, approximately.
Records available.—April 1926 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 1,685 ft (by barometer). Prior to July 19, 1949, staff gage at same site and datum.
Average discharge.—24 years (1929-31, 1932-54), 104 cfs (75,290 acre-ft per year).
Extremes.—Maximum discharge during year, 3,820 cfs Jan. 27 (gage height, 10.04 ft), from rating curve extended above 2,000 cfs on basis of slope-area determination at gage height 14.37 ft; minimum, 11 cfs Aug. 11.
1926-54: Maximum discharge, 5,920 cfs Oct. 29, 1950 (gage height, 14.37 ft), from rating curve extended above 2,000 cfs on basis of slope-area determination of peak flow; minimum observed, 4 cfs Sept. 9-19, 1929, Aug. 26-28, 1931, Aug. 21 to Sept. 6, 1934.
Remarks.—Records good. Diversions for irrigation of about 400 acres above station.
Revisions (water years).—WSP 984: 1933-36. WSP 1154: 1946(M), 1948(M).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 27				Jan. 28 to Sept. 30			
1.4	16	3.0	335	0.8	10	2.0	128
1.5	24	4.0	660	.9	13	2.5	227
1.7	44	5.0	1,060	1.0	18	3.0	355
2.0	92	7.3	2,320	1.3	37	4.0	660
2.5	205			1.6	64	6.2	1,660

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	19	80	112	684	185	98	68	39	26	13	14
2	29	22	191	114	650	171	96	67	37	26	13	14
3	22	22	249	181	604	161	115	*64	37	26	13	14
4	20	21	395	*164	559	151	364	64	37	25	13	14
5	18	23	302	164	505	143	523	63	40	24	13	13
6	17	47	916	150	454	141	406	*63	41	*23	14	12
7	16	42	572	198	421	141	280	61	39	23	13	12
8	16	31	584	169	391	175	282	64	52	22	13	12
9	17	27	569	155	367	357	282	58	47	22	13	12
10	30	31	*510	174	337	337	223	55	43	22	12	14
11	30	44	335	174	310	234	201	53	39	21	12	19
12	24	42	255	152	1,660	199	181	52	46	21	12	16
13	21	37	212	132	1,280	183	193	51	50	20	12	14
14	21	33	188	127	688	169	181	51	43	20	14	16
15	20	30	171	315	499	*165	161	49	47	19	16	61
16	18	42	150	2,320	409	155	151	48	46	18	14	34
17	*18	62	136	1,310	603	147	145	47	40	18	13	25
18	50	47	139	572	484	138	138	44	38	17	12	20
19	47	52	179	386	382	134	128	43	35	17	12	18
20	31	68	302	288	337	126	119	43	35	16	14	17
21	27	88	208	250	331	124	112	43	34	16	14	16
22	24	1,340	171	707	308	123	105	41	31	16	14	17
23	22	1,630	143	824	278	117	100	40	30	16	13	16
24	22	416	123	458	260	114	95	39	29	16	12	16
25	20	230	106	344	245	107	88	40	29	15	12	16
26	19	157	114	311	225	103	85	43	29	14	17	15
27	18	125	181	1,730	211	100	87	43	29	14	16	15
28	18	94	136	1,640	195	108	83	39	29	14	16	14
29	18	76	123	1,420	-------	117	76	39	27	14	15	14
30	18	78	108	1,040	-------	110	73	43	26	14	*15	14
31	18	-------	100	766	-------	105	-------	40	-------	14	15	-------
Total	722	4,976	7,948	16,847	13,677	4,840	5,171	1,558	1,124	589	420	524
Mean	23.3	166	256	543	488	156	172	50.3	37.5	19.0	13.5	17.5
Cfsm	0.307	2.18	3.37	7.14	6.42	2.05	2.26	0.662	0.493	0.250	0.179	0.230
In.	0.35	2.43	3.89	8.24	6.69	2.37	2.53	0.76	0.55	0.29	0.21	0.26
Ac-ft	1,430	9,870	15,760	33,420	17,130	9,600	10,260	3,090	2,230	1,170	833	1,040

Calendar year 1953: Max 2,730 Min 14 Mean 162 Cfsm 2.13 In. 29.00 Ac-ft 117,500
Water year 1953-54: Max 2,320 Min 12 Mean 160 Cfsm 2.11 In. 28.57 Ac-ft 115,800

Peak discharge (base, 800 cfs).--Nov. 23 (1 a. m.) 3,360 cfs (9.13 ft); Dec. 6 (12 m.) 1,680 cfs (6.23 ft); Jan. 16 (3 p. m.) 3,180 cfs (8.79 ft); Jan. 22 (9:30 p. m.) 1,680 cfs (6.24 ft); Jan. 27 (9 p. m.) 3,820 cfs (10.04 ft); Feb. 12 (2 p. m.) 2,660 cfs (7.87 ft).
* Discharge measurement made on this day.

South Umpqua River near Brockway, Oreg.

Location.—Lat 43°08'00", long 123°23'50", in SW¼ sec. 15, T. 28 S., R. 6 W., on downstream side of right pier of Winston Bridge on U. S. Highway 99, 2½ miles northeast of Brockway and 4 miles downstream from Lookingglass Creek.

Drainage area.—1,640 sq mi, approximately.

Records available.—December 1905 to June 1912, October 1923 to September 1926, January 1942 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 461.84 ft above mean sea level, datum of 1929 (Oregon State highway benchmark). Prior to June 23, 1949, staff, chain, and wire-weight gages at several sites within 400 ft of present site at various datums.

Average discharge.—20 years (1906-11, 1923-26, 1942-54), 2,778 cfs (2,011,000 acre-ft per year).

Extremes.—Maximum discharge during year, 81,800 cfs Nov. 23 (gage height, 29.03 ft); minimum, 108 cfs Aug. 12.

1905-12, 1923-26, 1942-54: Maximum discharge, 102,000 cfs Oct. 29, 1950 (gage height, 32.4 ft), from rating curve extended above 76,000 cfs on basis of slope-conveyance study; minimum observed, 36 cfs Aug. 12, 13, 1946.

Flood of Feb. 21, 1927, reached a stage of about 31.2 ft, present site and datum. Flood in February 1890 reached a stage 1.9 ft higher, according to local resident, who lived nearby at * time of both floods.

Remarks.—Records good. No regulation; many small diversions above station for irrigation.

Revisions (water years).—WSP 1248: 1946(M), 1948(M), 1951.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	256	250	3,860	2,410	14,900	3,350	2,440	1,410	724	432	144	210
2	369	256	5,720	2,550	14,000	3,090	2,240	1,300	754	416	140	*190
3	381	263	8,650	4,310	12,800	2,830	2,160	1,240	665	396	132	182
4	300	269	18,200	*4,680	11,400	2,590	3,820	1,200	640	384	126	177
5	253	263	15,200	5,520	9,900	2,410	11,200	1,220	650	372	126	174
6	231	329	20,500	5,120	8,480	2,320	11,800	*1,190	736	*348	126	170
7	213	800	22,100	5,360	7,600	2,260	8,100	1,200	742	340	130	160
8	202	692	16,800	6,040	6,880	2,410	6,360	1,260	706	333	130	149
9	202	512	20,700	5,260	6,340	4,550	6,240	1,330	820	316	130	142
10	237	437	18,000	4,740	5,700	8,280	5,260	1,300	844	308	125	146
11	437	512	12,400	4,480	4,960	6,120	4,400	1,220	784	308	114	160
12	494	630	8,850	4,080	15,200	4,800	3,800	1,140	754	294	112	190
13	365	540	7,200	3,540	30,000	4,020	3,640	1,060	901	280	119	213
14	300	490	6,340	3,190	18,400	3,600	4,220	1,010	1,010	267	140	202
15	266	437	5,820	8,620	11,300	3,410	3,670	985	985	258	138	219
16	253	417	5,200	33,800	8,480	*3,300	3,220	985	1,640	252	177	322
17	237	938	4,680	44,700	11,200	3,080	3,110	978	1,470	246	185	416
18	*296	1,320	4,350	22,500	14,700	2,740	3,080	957	1,190	243	167	352
19	1,170	1,130	4,920	14,600	10,400	2,520	2,940	950	999	231	146	308
20	940	2,080	9,350	9,850	9,120	2,360	2,590	936	880	219	144	255
21	600	2,250	7,620	7,380	9,920	2,210	2,340	868	784	216	155	231
22	463	23,700	5,840	8,820	8,980	2,040	2,190	820	700	207	162	210
23	389	*67,400	4,640	23,900	7,250	1,940	2,130	736	645	199	153	202
24	353	*24,800	3,780	14,900	6,200	1,850	2,060	700	595	196	146	196
25	318	10,900	3,190	10,100	5,480	1,780	1,910	690	555	196	149	190
26	303	6,800	2,810	11,500	4,840	1,630	1,800	695	528	180	162	188
27	289	5,600	3,080	22,200	4,220	1,550	1,740	760	523	172	199	174
28	279	4,660	3,040	45,400	3,700	2,190	1,770	680	528	167	264	164
29	266	3,650	2,770	33,400	-------	3,300	1,650	640	500	162	252	160
30	259	3,320	2,520	27,600	-------	3,180	1,510	635	452	151	249	155
31	253	-------	2,310	18,800	-------	2,810	-------	675	-------	146	234	-------
Total	11,174	165,645	260,440	419,350	282,350	94,520	113,390	30,770	23,704	8,235	4,876	6,207
Mean	360	5,522	8,401	13,530	10,080	3,049	3,780	993	790	266	157	207
Cfsm	0.220	3.37	5.12	8.25	6.15	1.86	2.30	0.605	0.482	0.162	0.096	0.126
In.	0.25	3.76	5.91	9.51	6.40	2.14	2.57	0.70	0.54	0.19	0.11	0.14
Ac-ft	22,160	328,600	516,600	831,800	560,000	187,500	224,900	61,030	47,020	16,330	9,670	12,310

Calendar year 1953: Max 67,900 Min 143 Mean 4,361 Cfsm 2.66 In. 36.10 Ac-ft 3,157,000
Water year 1953-54: Max 67,400 Min 112 Mean 3,892 Cfsm 2.37 In. 32.22 Ac-ft 2,818,000

Peak discharge (base, 15,000 cfs).--Nov. 23 (10 a. m.) 81,800 cfs (29.03 ft); Dec. 6 (8 p. m.) 29,400 cfs (16.48 ft); Dec. 9 (2:30 a. m.) 22,600 cfs (14.48 ft); Jan. 17 (2 a. m.) 57,700 cfs (24.02 ft); Jan. 23 (7:30 a. m.) 28,500 cfs (16.20 ft); Jan. 28 (4:30 a. m.) 57,100 cfs (23.88 ft); Feb. 13 (5 a. m.) 33,200 cfs (17.61 ft); Feb. 18 (2 to 3 a. m.) 17,000 cfs (12.84 ft).

* Discharge measurement made on this day.

Lemolo Reservoir near Toketee Falls, Oreg.

Location.—Lat 43°19'10", long 122°11'20", in SE¼NW¼ sec. 11, T. 26 S., R. 5 E., at Lemolo No. 1 diversion dam, 1.1 miles below Lake Creek and about 13 miles east of Toketee Falls.

Drainage area.—179 sq mi.

Records available.—July to September 1954.

Gage.—Reference mark on concrete intake structure, measurements to water surface made once daily. Reference mark is at elevation 4,155.42 ft above mean sea level (levels by The California Oregon Power Co.).

Extremes.—Maximum contents observed during period, 9,790 acre-ft (elevation, 4,139.7 ft) Sept. 20.

Remarks.—Reservoir is formed by Lemolo No. 1 diversion dam. Storage began July 15, 1954. Capacity, 12,520 acre-ft between minimum operation elevation at 4,097.0 ft and maximum operating elevation at 4,148.5 ft. Dead storage below 4,097.0 ft is 1,045 acre-ft. Water stored is used for generation of power at powerplants downstream.

Cooperation.—Gage readings furnished by The California Oregon Power Co.

Monthly elevation and contents, July to September 1954

Date	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
July 31	4,117.0	3,570	+3,570
Aug. 31	4,130.8	7,230	+3,660
Sept. 30	4,134.0	8,230	+1,000
The period	-	-	+8,230

North Umpqua River below Lemolo Reservoir, near Toketee Falls, Oreg.
(Formerly published as North Umpqua River below Lake Creek, near Toketee Falls)

Location.—Lat 43°19'20", long 122°11'40", in NW¼NW¼ sec. 11, T. 26 S., R. 5 E., on right bank 1,900 ft downstream from Lemolo No. 1 diversion dam and 13 miles east of Toketee Falls. Prior to July 15, 1954, at site 1 mile upstream.

Drainage area.—179 sq mi; 175 sq mi at site used prior to July 15, 1954.

Records available.—October 1927 to September 1954. Prior to October 1952, published as North Umpqua River below Lake Creek and October 1952 to September 1953 published as North Umpqua River below Lake Creek, near Toketee Falls.

Gage.—Water-stage recorder. Altitude of gage is 4,040 ft (from river-profile map). Prior to July 15, 1954, at site 1 mile upstream at datum 50 ft higher.

Average discharge.—26 years (1927-45, 1946-54), 401 cfs (290,300 acre-ft per year), adjusted for storage.

Extremes.—Maximum discharge during year, 1,110 cfs Nov. 22 (gage height, 2.23 ft, former site and datum); minimum, 6.4 cfs July 17.

1927-54: Maximum discharge, 1,190 cfs June 9, 1933 (gage height, 2.34 ft), from rating curve extended above 700 cfs; minimum, that of July 17, 1954.

Remarks.—Records good except those for periods of no gage-height record, which are fair. Since July 15, 1954, flow has been regulated by storage in Lemolo Reservoir. Ordinarily regulation by Diamond Lake is slight but during period July 15 to Sept. 21, 1954, about 20,000 acre-ft was released from this lake preparatory to destroying trash fish by poisoning.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	470	495	a550	500	515	480	394	655	655	542	g645	510
2	460	490	a550	500	505	480	394	642	642	542	g645	510
3	455	485	a550	500	505	475	408	648	648	542	g575	464
4	450	485	a550	500	500	475	430	678	642	542	g555	330
5	445	485	*548	500	495	470	450	708	636	536	g555	330
6	450	490	554	500	495	470	430	738	616	536	g575	352
7	455	485	542	495	490	470	430	754	596	536	g595	411
8	450	480	554	490	490	500	435	810	590	530	g258	411
9	450	490	548	485	490	525	430	836	584	530	a600	406
10	475	500	560	485	485	536	435	844	572	530	*565	438
11	465	495	548	485	490	525	440	852	566	530	537	465
12	455	490	542	485	530	515	450	861	584	525	537	465
13	455	485	536	480	525	515	515	844	572	525	514	465
14	455	480	525	490	515	510	515	836	572	*548	356	465
15	450	475	520	485	510	505	520	*827	629	a650	488	470
16	445	495	515	536	505	505	542	827	642	a750	483	470
17	455	480	510	520	510	500	578	852	622	*a420	442	470
18	490	480	515	515	505	500	610	895	610	a400	447	470
19	465	485	590	510	500	495	622	904	590	a500	519	474
20	465	475	578	495	505	490	616	895	554	g570	524	474
21	485	505	560	505	510	485	636	861	530	a650	528	474
22	480	904	548	515	500	485	700	810	536	g620	370	470
23	480	1,030	536	515	495	480	715	794	560	a600	442	470
24	480	a850	525	510	490	475	715	786	584	a600	537	465
25	475	a700	520	*515	490	*475	730	770	578	a650	537	474
26	470	a650	525	510	485	475	730	754	578	g640	537	470
27	485	a650	525	536	480	480	730	722	572	g635	537	470
28	495	a600	515	542	480	450	730	700	560	g645	542	465
29	495	a550	505	548	--------	398	700	685	548	g645	379	465
30	490	a550	505	530	--------	394	678	670	542	g645	537	460
31	490	--------	500	520	--------	394	--------	685	--------	g645	532	--------
Total	14,485	16,714	16,649	15,702	13,995	14,932	16,708	24,143	17,710	17,795	15,893	13,533
Mean	467	557	537	507	500	482	557	779	590	573	513	451
Ac-ft	28,730	33,150	33,020	31,140	27,760	29,620	33,140	47,890	35,130	35,220	31,520	26,840

Adjusted for change in contents in Lemolo Reservoir

Mean	467	557	537	507	500	482	557	779	590	631	572	468
Csm	2.67	3.18	3.07	2.90	2.86	2.75	3.18	4.45	3.37	3.56	3.20	2.61
In.	3.08	3.55	3.54	3.34	2.97	3.17	3.55	5.13	3.76	4.10	3.69	2.92
Ac-ft	28,730	33,150	33,020	31,140	27,760	29,620	33,140	47,890	35,130	38,790	35,180	27,840

Observed

Calendar year 1953: Max 1,030 Min 442 Mean 549 Ac-ft 397,200
Water year 1953-54: Max 1,030 Min 258 Mean 543 Ac-ft 393,200

Adjusted

Calendar year 1953: Mean 549 Csm 3.14 In. 42.55 Ac-ft 397,200
Water year 1953-54: Mean 554 Csm 3.15 In. 47.80 Ac-ft 401,400

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for station above Clearwater River.
g Computed from staff-gage readings.

North Umpqua River above Clearwater River, near Toketee Falls, Oreg.

Location.—Lat 43°17', long 122°24', in NE¼ sec. 25, T. 26 S., R. 3 E., on right bank 2 miles upstream from Clearwater River and 2¾ miles east of Toketee Falls.

Drainage area.—258 sq mi.

Records available.—September 1948 to September 1954 (discontinued). Prior to October 1952, published as North Umpqua River above Clearwater River.

Gage.—Water-stage recorder. Datum of gage is 2,457.51 ft above mean sea level (levels by The California Oregon Power Co.).

Average discharge.—6 years, 842 cfs (609,600 acre-ft per year).

Extremes.—Maximum discharge during year, 3,320 cfs Nov. 23 (gage height, 5.29 ft), from rating curve extended above 1,500 cfs by logarithmic plotting; maximum gage height, 5.43 ft Nov. 23 (backwater from logs); minimum daily discharge, 395 cfs Sept. 4.

1948-54: Maximum discharge, 3,680 cfs Jan. 18, 1953 (gage height, 5.62 ft), from rating curve extended above 1,500 cfs by logarithmic plotting; minimum daily, that of Sept. 4, 1954.

Remarks.—Records good. No diversion above station; flow regulated by Lemolo Reservoir since July 15, 1954, and slightly regulated by Diamond Lake.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from log Nov. 22, 23; shifting-control method used Oct. 1 to Nov. 21)

Oct. 1 to Apr. 14		Apr. 15 to Sept. 30	
2.4	585	2.2	360
3.0	1,080	2.5	540
4.8	2,780	3.5	1,430

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	660	645	922	804	1,010	888	692	1,080	1,030	818	818	596
2	645	645	*964	796	1,050	871	692	1,040	1,000	800	818	596
3	638	638	1,110	788	1,070	854	724	1,030	1,000	782	782	556
4	630	638	1,110	820	1,090	846	880	1,080	1,010	773	737	395
5	630	638	990	837	1,080	837	1,190	1,120	989	764	710	400
6	622	645	998	828	1,080	846	1,070	1,170	962	755	719	416
7	630	645	939	837	1,090	854	973	1,230	935	746	728	470
8	630	638	930	820	1,120	1,010	956	1,330	944	737	405	477
9	622	630	1,080	804	1,120	1,190	914	1,380	926	737	737	477
10	660	645	1,100	788	1,080	1,210	888	1,370	908	728	701	512
11	645	645	1,010	780	1,060	1,100	871	1,360	890	710	674	533
12	630	645	973	772	1,160	1,020	888	1,330	944	692	*656	540
13	622	630	964	764	1,180	990	1,140	1,300	935	*692	620	533
14	622	630	939	764	1,090	948	1,190	*1,290	926	710	452	548
15	622	622	939	772	1,020	922	1,080	1,300	1,130	872	580	556
16	615	645	939	862	973	914	1,120	1,340	1,130	962	580	548
17	622	638	964	888	982	896	1,230	1,360	1,060	535	533	548
18	692	630	973	846	948	871	1,300	1,380	1,010	519	540	548
19	645	638	1,500	812	922	862	1,290	1,400	980	656	638	540
20	638	630	1,740	788	982	846	1,230	1,370	926	701	647	540
21	645	652	1,410	788	1,020	828	1,200	1,300	872	782	647	540
22	645	1,590	1,230	846	1,010	812	1,250	1,220	872	791	452	540
23	645	2,730	1,100	880	973	*796	1,270	1,190	881	773	533	533
24	645	1,870	1,020	*846	973	796	1,260	1,170	908	782	647	526
25	638	1,420	948	812	964	780	1,240	1,150	899	800	665	533
26	630	1,200	922	828	948	780	1,210	1,140	881	809	665	526
27	630	1,270	914	871	922	788	1,210	1,070	872	818	665	526
28	645	1,100	880	956	905	780	1,210	1,030	845	818	656	526
29	645	998	862	1,040	-------	716	1,170	1,020	827	818	446	519
30	645	973	828	1,050	-------	708	1,130	1,010	827	818	656	519
31	645	-------	820	1,010	-------	700	-------	1,070	-------	818	638	-------
Total	19,778	26,563	32,008	26,097	28,822	27,259	32,468	37,630	28,319	23,516	19,745	15,617
Mean	638	885	1,033	842	1,029	879	1,082	1,214	944	759	637	521
Cfsm	2.47	3.43	4.00	3.26	3.99	3.41	4.19	4.71	3.66	2.94	2.47	2.02
In.	2.85	3.83	4.61	3.76	4.15	3.93	4.68	5.42	4.08	3.39	2.85	2.25
Ac-ft	39,230	52,690	63,490	51,760	57,170	54,070	64,400	74,640	56,170	46,640	39,160	30,980

Calendar year 1953: Max 3,200 Min 548 Mean 902 Cfsm 3.50 In. 47.48 Ac-ft 653,200
Water year 1953-54: Max 2,730 Min 395 Mean 871 Cfsm 3.38 In. 45.80 Ac-ft 630,400

* Discharge measurement made on this day.

Clearwater River above Trap Creek, near Toketee Falls, Oreg.

Location.—Lat 43°14'40", long 122°17'10", in SE¼ sec. 1, T. 27 S., R. 4 E., on right bank 900 ft downstream from Clearwater No. 1 diversion dam, about 0.4 mile upstream from Trap Creek, and 8 miles east of Toketee Falls.

Drainage area.—41.6 sq mi.

Records available.—October 1927 to September 1954. Prior to October 1952, published as Clearwater River above Trap Creek.

Gage.—Water-stage recorder. Datum of gage is 3,862.84 ft above mean sea level (levels by The California Oregon Power Co.). Prior to Dec. 1, 1953, water-stage recorder at site about 0.4 mile downstream at different datums.

Average discharge.—25 years (1928-45, 1946-54), 160 cfs (115,800 acre-ft per year).

Extremes.—Maximum discharge during year, 435 cfs Nov. 23; minimum daily, 175 cfs Oct. 29 to Nov. 4.

1927-54: Maximum discharge, 487 cfs Oct. 29, 1950 (gage height, 2.28 ft), from rating curve extended above 290 cfs by logarithmic plotting; minimum daily, 91 cfs Nov. 4-6, 1932.

Remarks.—Records good. All records presented herein include flow in Clearwater No. 1 power canal, completed June 1953, which diverts 900 ft above station for generation of power and returns water to Clearwater River about 2½ miles below station.

Revisions.—WSP 1124: Drainage area.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	182	177	222	221	215	228	214	281	271	242	200	191
2	181	177	*223	219	215	227	214	278	267	238	200	191
3	180	177	228	219	215	226	219	278	270	237	199	191
4	180	177	222	218	215	225	234	283	271	237	199	190
5	179	180	218	217	216	225	250	286	266	236	197	190
6	179	183	220	217	217	224	236	290	260	233	197	190
7	179	182	216	217	217	224	234	300	255	228	197	190
8	178	183	218	215	218	248	240	315	260	228	196	190
9	178	182	226	213	221	275	234	323	257	225	195	190
10	189	185	222	213	*222	275	232	319	254	222	196	192
11	188	188	217	212	226	262	232	316	251	221	196	192
12	184	191	217	211	264	255	234	310	258	221	196	192
13	181	195	216	210	261	251	261	*304	255	220	*196	191
14	181	190	214	211	253	248	262	304	254	*219	197	201
15	181	180	214	213	247	248	263	309	277	218	198	203
16	180	200	212	219	244	245	267	314	272	215	197	196
17	180	191	214	217	245	240	278	320	260	213	195	196
18	195	188	214	213	239	238	290	328	255	212	194	192
19	193	189	245	210	235	236	293	331	253	210	195	192
20	188	188	260	208	233	233	292	322	255	208	196	191
21	186	190	246	209	240	231	290	309	258	208	195	190
22	185	267	240	213	235	230	296	297	257	207	193	190
23	180	388	235	213	235	228	301	292	260	205	193	190
24	178	292	230	210	234	*227	301	291	259	205	192	190
25	179	252	228	*208	232	223	299	287	258	204	195	190
26	178	234	229	212	231	222	298	286	254	203	195	189
27	178	230	231	217	230	224	301	274	252	203	194	189
28	178	227	225	218	229	222	300	270	246	202	193	188
29	177	225	224	222	---	221	293	270	243	201	192	189
30	177	223	210	218	---	218	287	267	246	201	192	189
31	177	---	211	216	---	216	---	277	---	201	191	---
Total	5,629	6,231	6,947	6,649	6,484	7,295	7,945	9,231	7,754	6,723	6,061	5,746
Mean	182	208	224	214	232	235	265	298	258	217	196	192
Cfsm	4.38	5.00	5.38	5.14	5.58	5.65	6.37	7.16	6.20	5.22	4.71	4.62
In.	5.03	5.57	6.21	5.94	5.80	6.52	7.10	8.25	6.93	6.01	5.42	5.14
Ac-ft	11,160	12,360	13,780	13,190	12,860	14,470	15,760	18,310	15,380	13,330	12,020	11,400

Calendar year 1953: Max 388 Min 174 Mean 216 Cfsm 5.19 In. 70.33 Ac-ft 156,000
Water year 1953-54: Max 388 Min 177 Mean 227 Cfsm 5.46 In. 73.92 Ac-ft 164,000

Peak discharge (base, 220 cfs).--Nov. 23 (11 a. m.) 435 cfs; Dec. 20 (1 a. m.) 270 cfs; Feb. 12 (1 p. m.) 279 cfs; Mar. 9 (6 p. m.) 292 cfs; May 18 (10 p. m.) 342 cfs.

* Discharge measurement made on this day.

Clearwater River at mouth, near Toketee Falls, Oreg.

Location.—Lat 43°15'50", long 122°25'00", in SW¼ sec. 36, T. 26 S., R. 3 E., on left bank a quarter of a mile upstream from mouth and 2¼ miles southeast of Toketee Falls.

Drainage area.—75 sq mi, approximately.

Records available.—October 1947 to September 1954 (discontinued). Prior to October 1952, published as Clearwater River at mouth.

Gage.—Water-stage recorder. Datum of gage is 2,437.5 ft above mean sea level (levels by The California Oregon Power Co.). Prior to Oct. 13, 1948, staff gage at same site and datum.

Average discharge.—7 years, 356 cfs (257,700 acre-ft per year).

Extremes.—Maximum discharge during year, 1,330 cfs Nov. 23 (gage height, 4.95 ft), no flow in canal; maximum gage height, 5.28 ft Nov. 23 (backwater from debris); minimum daily discharge, 224 cfs Sept. 22.

1947-54: Maximum discharge, 1,380 cfs Jan. 18, 1953 (gage height, 5.04 ft); maximum gage height, 5.33 ft Jan. 18, 1953 (backwater from debris); minimum daily discharge, 192 cfs Nov. 19, 1952.

Remarks.—Records good. Regulation by Clearwater No. 1 powerplant of The California-Oregon Power Co. All records presented herein include flow in Clearwater No. 2 power canal which, beginning Nov. 26, 1953, diverts from river about 4½ miles above station for generation of power at Clearwater No. 2 powerplant, after which the water is discharged to North Umpqua River.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	296	285	340	318	459	394	323	470	384	351	285	264
2	328	296	380	321	501	416	352	430	387	344	288	265
3	298	265	439	317	476	289	343	442	386	347	287	254
4	286	296	*471	311	484	386	413	448	394	339	287	253
5	288	264	387	319	447	362	488	462	385	334	276	277
6	288	322	359	312	460	396	486	449	351	336	282	271
7	283	315	332	312	476	406	436	475	351	328	276	252
8	289	271	339	304	471	427	447	490	400	330	273	255
9	278	292	366	309	471	511	446	509	373	319	272	275
10	316	308	383	319	447	523	426	498	381	325	269	276
11	280	306	388	297	474	493	422	503	374	310	269	259
12	288	308	335	288	531	464	415	470	396	308	*265	263
13	286	317	342	281	574	443	477	462	388	*323	280	260
14	296	308	322	279	518	439	534	*445	388	313	277	284
15	283	274	329	289	542	427	521	481	415	315	289	300
16	280	310	360	351	455	429	525	465	413	251	286	259
17	307	316	376	402	468	376	526	486	384	339	274	297
18	336	301	350	339	445	407	538	493	378	308	263	291
19	307	307	426	342	394	394	596	496	394	302	257	267
20	291	296	566	337	436	387	552	490	379	292	289	279
21	292	294	452	342	489	366	572	466	386	307	283	280
22	284	622	420	365	476	*372	548	426	381	286	286	224
23	302	1,130	403	366	445	372	522	425	386	299	268	255
24	296	734	364	*381	417	387	528	424	378	284	273	265
25	298	609	354	357	425	348	521	415	376	296	274	247
26	292	550	344	364	416	340	526	428	368	290	271	255
27	288	550	346	378	438	371	527	389	361	290	264	261
28	291	460	319	416	390	357	516	386	353	298	265	263
29	282	400	316	444	-------	371	505	388	333	278	263	271
30	292	360	312	483	-------	354	494	387	350	290	281	251
31	296	-------	304	466	-------	351	-------	404	-------	281	248	-------
Total	9,117	11,657	11,524	10,709	13,025	12,458	14,525	14,002	11,373	9,613	8,520	7,973
Mean	294	389	372	345	465	402	484	452	379	310	275	266
Cfsm	3.92	5.19	4.96	4.60	6.20	5.36	6.45	6.03	5.05	4.13	3.67	3.55
In.	4.52	5.78	5.71	5.31	6.46	6.18	7.20	6.94	5.64	4.77	4.22	3.95
Ac-ft	18,080	23,120	22,860	21,240	25,830	24,710	28,810	27,770	22,560	19,070	16,900	15,810

Calendar year 1953: Max 1,130 Min 256 Mean 393 Cfsm 5.24 In. 71.05 Ac-ft 284,200
Water year 1953-54: Max 1,130 Min 224 Mean 368 Cfsm 4.91 In. 66.68 Ac-ft 267,000

* Discharge measurement made on this day.

Fish Creek at Big Camas ranger station, near Toketee Falls, Oreg.

Location.—Lat 43°14', long 122°26', in SE¼ sec. 10, T. 27 S., R. 3 E., on right bank half a mile upstream from Camas Creek, three-quarters of a mile east of Big Camas ranger station, and 3½ miles south of Toketee Falls.

Drainage area.—67 sq mi, approximately.

Records available.—October 1947 to September 1954. Prior to October 1952, published as Fish Creek at Big Camas ranger station.

Gage.—Water-stage recorder. Datum of gage is 2,860.44 ft above mean sea level, datum of 1929 (surveys by The California Oregon Power Co.). Prior to July 9, 1951, water-stage recorder and July 10 to Aug. 10, 1951, staff gage, at site 1,000 ft upstream at datum 11.80 ft higher. Aug. 11 to Nov. 3, 1951, staff gage at site 200 ft downstream at different datum.

Average discharge.—7 years, 265 cfs (191,900 acre-ft per year).

Extremes.—Maximum discharge during year, about 4,700 cfs Nov. 23, from river rating curve extended from 700 to 4,580 cfs on basis of contracted-opening determination at 3,740 cfs; minimum daily, 56 cfs Sept. 28-30.

1947-54: Maximum discharge, 5,160 cfs Jan. 18, 1953 (river gage height, 7.17 ft), from rating curve extended above 700 cfs on basis of contracted-opening determination at 3,740 cfs (no flow in canal); minimum daily, 35 cfs Nov. 27, 1952.

Remarks.—Records good except those for periods of no river gage-height record, which are fair. All records presented herein include flow in Fish Creek power canal (completed in June 1952), which diverts water about 2 miles above station for power generation at Fish Creek powerplant; diversion discharged to North Umpqua River just below Toketee Falls.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	101	a72	*346	*250	381	296	165	314	343	207	93	70
2	81	a80	358	a240	399	278	165	302	313	194	92	69
3	75	a76	426	a230	428	261	200	311	320	185	90	68
4	72	a76	454	221	453	247	376	344	321	177	90	67
5	69	a76	389	a220	459	236	583	374	311	172	89	67
6	67	a80	388	a220	450	232	505	396	291	168	89	65
7	66	a80	351	a220	459	235	519	464	269	162	87	65
8	66	76	338	a220	479	424	397	525	308	157	84	64
9	66	76	a370	223	479	596	371	529	290	156	83	64
10	105	a76	a390	224	462	705	336	506	285	152	82	64
11	87	a75	a410	222	453	573	293	386	277	146	*80	70
12	73	a75	a400	212	690	480	326	445	339	*141	78	67
13	70	73	a370	206	696	369	550	*407	330	137	78	65
14	70	81	358	205	560	358	541	429	328	134	82	70
15	67	84	a350	204	486	361	476	467	485	132	86	97
16	66	83	a360	274	423	328	508	386	440	130	80	75
17	69	75	a380	289	399	298	577	504	393	127	77	79
18	120	71	a390	256	363	274	608	536	354	125	76	70
19	79	72	a420	233	332	253	538	529	326	123	84	66
20	a76	71	a580	213	334	240	499	491	313	121	84	64
21	a74	92	702	198	376	220	474	434	296	121	79	62
22	a74	1,990	a550	247	397	208	470	387	289	117	74	61
23	a74	3,480	a460	*265	384	*202	478	374	279	113	72	61
24	a74	1,520	a400	248	378	195	455	372	269	111	72	59
25	a74	895	a360	229	372	186	435	343	258	108	79	59
26	a74	665	a330	228	358	180	416	347	247	104	83	56
27	a72	644	a310	282	338	182	425	300	258	101	74	56
28	a72	503	296	401	314	184	419	285	231	100	72	56
29	a72	426	a280	453	--------	180	380	291	220	99	70	56
30	a72	384	a270	451	--------	176	345	291	215	96	70	56
31	a72	--------	a260	391	--------	169	--------	365	--------	95	72	--------
Total	2,349	12,127	12,046	7,955	12,102	9,126	12,830	12,434	9,198	4,211	2,501	1,968
Mean	75.8	404	389	257	432	294	428	401	307	136	80.7	65.6
Cfsm	1.13	6.03	5.81	3.84	6.45	4.39	6.39	5.99	4.58	2.03	1.20	0.980
In.	1.30	6.73	6.69	4.42	6.72	5.07	7.12	6.90	5.11	2.34	1.39	1.09
Ac-ft	4,660	24,050	23,890	15,780	24,000	18,100	25,450	24,660	18,240	8,350	4,960	3,900

Calendar year 1953: Max 3,480 Min 44 Mean 331 Cfsm 4.94 In. 67.10 Ac-ft 239,800
Water year 1953-54: Max 3,480 Min 56 Mean 271 Cfsm 4.04 In. 54.88 Ac-ft 196,000

Peak discharge (base, 900 cfs).--Nov. 23 (3:30 a. m.) about 4,700 cfs.

* Discharge measurement made on this day.

a No river gage-height record; discharge estimated on basis of records for Clearwater River at mouth near Toketee Falls plus Clearwater No. 2 power canal near Toketee Falls.

North Umpqua River above Copeland Creek, near Toketee Falls, Oreg.

Location.—Lat 43°18', long 122°32', in NE¼ sec. 23, T. 26 S., R. 2 E., on right bank half a mile upstream from Copeland Creek and 4¾ miles west of Toketee Falls.
Drainage area.—471 sq mi.
Records available.—September 1949 to September 1954. Prior to October 1952, published as North Umpqua River above Copeland Creek.
Gage.—Water-stage recorder. Altitude of gage is 1,580 ft (from river-profile map).
Average discharge.—5 years, 1,737 cfs (1,258,000 acre-ft per year).
Extremes.—Maximum discharge during year, 13,500 cfs Nov. 23 (gage height, 11.94 ft), from rating curve extended above 3,000 cfs on basis of slope-area determination at gage height 11.30 ft; minimum daily, 640 cfs Sept. 5.
1949-54: Maximum discharge, 14,100 cfs Jan. 18, 1953 (gage height, 12.23 ft), from rating curve extended above 3,000 cfs on basis of slope-area determination at gage height 11.30 ft; minimum daily, that of Sept. 5, 1954.
Remarks.—Records good. No diversion above station. Regulation by powerplants upstream; slightly regulated by Diamond Lake and by storage in Lemolo Reservoir.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22		Nov. 23 to Sept. 30	
2.6	660	2.7	640
3.0	900	3.0	830
5.0	2,570	5.0	2,570
7.0	4,900	7.0	4,900
8.0	6,400	11.0	11,600

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,180	744	2,060	1,580	2,480	1,810	1,280	1,950	1,960	1,520	1,100	1,140
2	1,040	1,130	*2,110	1,600	2,640	1,790	1,260	1,860	1,850	1,440	1,230	1,040
3	1,010	1,020	2,690	1,360	2,690	1,690	1,330	1,950	1,850	1,300	1,290	1,070
4	906	988	2,730	1,620	2,760	1,600	1,960	1,970	1,840	1,260	1,180	844
5	936	1,060	2,360	1,750	2,610	1,660	2,950	2,040	1,820	1,320	1,150	640
6	1,020	1,030	2,520	1,860	2,570	1,600	2,600	2,200	1,470	1,350	1,100	718
7	981	1,000	2,370	1,860	2,590	1,670	2,210	2,230	1,640	1,380	1,080	956
8	974	906	2,140	1,780	2,640	2,030	2,090	2,510	1,860	1,340	760	928
9	995	936	2,710	1,680	2,630	2,860	2,070	2,570	1,740	1,350	1,060	942
10	1,170	1,110	2,850	1,390	2,500	2,860	1,870	2,570	1,700	1,300	1,150	970
11	894	981	2,400	1,680	2,370	2,460	1,780	2,550	1,530	1,140	*1,130	802
12	924	1,170	2,380	1,660	2,920	2,180	1,810	2,370	1,720	*1,150	1,130	844
13	974	1,110	2,230	1,520	3,090	1,960	2,400	2,270	1,710	1,220	1,040	1,030
14	1,040	1,030	2,070	1,510	2,680	2,040	2,640	*2,230	1,750	1,220	970	1,020
15	954	690	2,160	1,630	2,450	1,830	2,410	2,240	2,150	1,340	914	1,070
16	974	1,180	2,240	2,070	2,100	1,920	2,340	2,410	2,270	1,290	1,110	1,000
17	852	1,190	2,210	2,230	2,270	1,760	2,600	2,470	2,100	1,230	1,200	1,060
18	1,350	1,090	2,270	2,030	2,050	1,700	2,810	2,490	2,010	984	1,040	935
19	1,040	1,040	3,330	1,640	1,990	1,660	2,730	2,540	1,870	1,190	935	795
20	1,040	1,080	4,240	1,700	2,060	1,600	2,570	2,490	1,610	1,200	991	1,000
21	1,070	1,180	3,210	1,630	2,440	1,520	2,480	2,290	1,770	1,210	921	977
22	1,040	6,040	2,750	1,660	2,350	1,570	2,470	2,060	1,750	1,310	991	1,010
23	1,020	10,000	2,460	2,040	2,150	*1,430	2,540	2,030	1,690	1,240	1,030	921
24	948	5,170	2,230	*1,670	2,200	1,440	2,440	2,050	1,580	1,200	1,000	921
25	936	3,530	2,100	1,720	2,080	1,420	2,330	1,940	1,620	1,000	1,180	900
26	912	2,760	2,080	1,660	1,970	1,380	2,360	1,910	1,560	1,270	1,110	872
27	1,020	2,790	1,750	1,850	1,900	1,360	2,310	1,860	1,340	1,320	1,100	1,040
28	1,030	2,460	1,870	2,340	1,920	1,420	2,330	1,780	1,660	1,230	970	1,030
29	1,020	2,190	1,980	2,680	-------	1,470	2,180	1,860	1,490	1,290	942	970
30	1,030	2,040	1,720	2,740	-------	1,400	2,110	1,720	1,490	1,270	1,060	1,050
31	981	-------	1,610	2,460	-------	1,310	-------	1,840	-------	1,260	1,140	-------
Total	31,261	58,645	73,830	56,600	67,100	54,400	67,260	67,250	52,400	39,124	33,004	28,495
Mean	1,008	1,955	2,382	1,826	2,396	1,755	2,242	2,169	1,747	1,262	1,065	950
Cfsm	2.14	4.15	5.06	3.88	5.09	3.73	4.76	4.61	3.71	2.68	2.26	2.02
In.	2.47	4.63	5.83	4.47	5.30	4.30	5.31	5.31	4.14	3.09	2.61	2.25
Ac-ft	62,010	116,300	146,400	112,300	133,100	107,900	133,400	133,400	103,900	77,600	65,460	56,520

Calendar year 1953: Max 12,000 Min 690 Mean 1,876 Cfsm 3.98 In. 54.07 Ac-ft 1,358,000
Water year 1953-54: Max 10,000 Min 640 Mean 1,724 Cfsm 3.66 In. 49.71 Ac-ft 1,248,000

* Discharge measurement made on this day.

Little River at Peel, Oreg.

Location.—Lat 43°15'10", long 123°01'30", in NW¼ sec. 2, T. 27 S., R. 3 W., on left bank 0.6 mile southeast of Peel and 0.8 mile downstream from Cavitt Creek.

Drainage area.—177 sq mi.

Records available.—August to September 1954.

Gage.—Water-stage recorder. Datum of gage is 828.33 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Extremes.—Maximum discharge during period, 90 cfs Sept. 16 (gage height, 2.38 ft); minimum, 25 cfs Sept. 30.

Maximum stage known, 20.6 ft Nov. 22, 23, 1953, from floodmarks (discharge not determined).

Remarks.—Records good except those for periods of no gage-height record, which are fair. No regulation above station. Small diversions above station for irrigation and water supply.

Rating table, Aug. 1 to Sept. 30, 1954 (gage height, in feet, and discharge, in cubic feet per second)

8.1	19
2.1	46
2.4	94

Discharge, in cubic feet per second, August to September 1954

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept
1	a40	32	9	a34	26	17	g37	61	25	g31	31
2	a38	30	10	a34	28	18	g35	50	26	a46	29
3	a38	29	11	g32	37	19	g33	40	27	43	27
4	a36	28	12	g32	35	20	g39	35	28	39	26
5	a36	27	13	g32	32	21	a40	*33	29	37	26
6	a36	27	14	a34	38	22	g37	32	30	35	25
7	a36	26	15	a40	40	23	g32	32	31	33	-------
8	a34	26	16	g42	81	24	g32	32			

Total	1,123	1,021
Mean	36.2	34.0
Cubic feet per second per square mile	0.205	0.192
Runoff in inches	0.24	0.21
Runoff in acre-feet	2,230	2,030

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for South Umpqua River at Tiller.
g Computed from staff-gage reading.

North Umpqua River at Winchester, Oreg.

Location.—Lat 43°16'20", long 123°24'40", in NE¼NE¼ sec. 33, T. 26 S., R. 6 W., on right bank 1.8 miles upstream from confluence with South Umpqua River and 3 miles west of Winchester.

Drainage area.—1,350 sq mi, approximately.

Records available.—November 1908 to December 1913, October 1923 to September 1929, August to September 1954.

Gage.—Water-stage recorder. Altitude of gage is about 370 ft (from river-profile map). Nov. 10, 1908, to Dec. 31, 1913, and Oct. 1, 1923, to Sept. 30, 1929, staff gage at site 4.8 miles upstream at different datums (datum raised 0.74 ft for 1923-29 period).

Average discharge.—10 years (1909-13, 1923-29), 3,270 cfs (2,367,000 acre-ft per year).

Extremes.—Maximum discharge during period August to September 1,730 cfs Sept. 1 (gage height, 3.00 ft); minimum, 641 cfs Sept. 5; minimum daily, 754 cfs Sept. 6.

1908-13, 1923-29, 1954: Maximum discharge, 100,000 cfs (revised) Nov. 23, 1909 (gage height, 28.1 ft, site and datum then in use), from rating curve extended above 42,000 cfs by logarithmic plotting; minimum, 590 cfs Oct. 22, 23, 1925.

Revisons.--The maximum discharge for the 1910 water year has been revised to 100,000 cfs Nov. 23, 1909 (gage height, 28.1 ft, site and datum then in use), superseding figure published in WSP 594.

Remarks.—Records good. Small diversions above station for irrigation. Some regulation by powerplants upstream. Flow slightly affected by storage in Lemolo Reservoir (see p. 234) and Diamond Lake.

Rating table, Aug. 27 to Sept. 30, 1954 (gage height, in feet, and discharge, in cubic feet per second)

2.0	730
2.5	1,170
3.0	1,730

Discharge, in cubic feet per second, August to September 1954

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	-	1,320	9	-	1,010	17	-	1,300	25	-	1,020
2	-	1,260	10	-	1,050	18	-	1,310	26	-	1,010
3	-	1,100	11	-	1,100	19	-	1,120	27	1,360	971
4	-	1,170	12	-	989	20	-	*962	28	1,200	1,120
5	-	953	13	-	998	21	-	1,010	29	1,100	1,090
6	-	754	14	-	1,180	22	-	1,080	30	1,070	1,050
7	-	866	15	-	1,210	23	-	1,100	31	1,190	-
8	-	1,020	16	-	1,350	24	-	998			

Total	-	32,471
Mean	-	1,082
Runoff in acre-feet	-	64,410

* Discharge measurement made on this day.

Umpqua River near Elkton, Oreg.

Location.—Lat 43°35', long 123°33', in sec. 8, T. 23 S., R. 7 W., on right bank 4 miles south of Elkton.

Drainage area.—3,680 sq mi, approximately.

Records available.—October 1905 to September 1954 (incomplete prior to November 1908).

Gage.—Staff gage read twice daily. Datum of gage is 91.33 ft above mean sea level, datum of 1929. Prior to Jan. 1, 1910, at datum 1.48 ft higher and Jan. 1, 1910, to Sept. 30, 1929, at datum 0.96 ft higher.

Average discharge.—49 years, 7,324 cfs (5,302,000 acre-ft per year).

Extremes.—Maximum discharge during year, 195,000 cfs Nov. 23 (gage height, 42.4 ft); minimum, 1,330 cfs Oct. 9.

1905-54: Maximum discharge, 208,000 cfs Oct. 30, 1950 (gage height, 44.2 ft); minimum observed, 640 cfs July 18, 1926 (gage height, 0.71 ft).

Maximum stage known, 45.5 ft sometime in 1861.

Remarks.—Records good. Some diversion for irrigation from streams in South Umpqua River basin, but flow probably only slightly affected. Powerplants on North Umpqua River ordinarily do not affect discharge at this station.

Revisions (water years).—WSP 1184: 1927(M), 1938(M), 1943(M), 1946(M).

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.5	1,250	15.0	38,800
2.0	1,780	20.0	61,300
4.0	4,540	30.0	113,000
6.0	8,500	40.0	178,000
10.0	20,000		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,500	1,580	11,200	6,900	29,900	8,520	7,400	5,660	4,090	2,750	1,660	1,500
2	1,590	1,450	12,600	7,470	27,600	7,690	6,380	5,480	3,980	2,550	1,640	1,490
3	2,230	1,410	24,000	8,980	25,100	7,190	6,220	5,260	3,870	2,440	1,640	1,470
4	2,060	1,750	41,000	12,200	23,900	6,580	6,600	5,040	3,710	2,340	1,680	1,450
5	1,710	1,620	37,900	13,500	21,800	6,240	20,500	4,760	3,530	2,330	1,680	1,450
6	1,520	1,810	42,200	13,900	19,200	6,000	24,800	*4,440	3,400	2,360	1,640	1,430
7	1,440	2,410	59,000	12,500	17,400	5,770	21,400	4,400	3,330	2,280	1,620	1,480
8	1,360	3,200	41,400	13,200	16,600	6,160	19,000	4,680	3,260	2,240	1,600	1,460
9	1,330	2,880	43,700	12,500	15,500	9,670	15,600	5,100	3,270	2,190	1,580	1,440
10	1,460	2,370	42,800	11,300	14,300	16,600	14,900	5,020	3,310	2,160	1,580	1,420
11	1,810	2,180	31,600	10,500	*12,700	19,800	13,800	4,910	3,400	2,180	1,560	1,400
12	2,500	2,300	22,900	9,870	20,600	13,700	12,000	4,800	3,520	2,170	1,530	1,440
13	*2,020	2,500	17,800	8,800	49,800	11,000	9,930	4,540	3,740	2,120	1,500	*1,470
14	1,790	2,640	17,200	8,550	37,000	10,200	9,410	4,320	3,980	2,080	1,530	1,530
15	1,600	2,640	15,300	21,800	24,100	9,100	10,500	4,250	4,520	2,060	1,520	1,580
16	1,530	2,080	14,000	54,300	18,200	8,580	12,700	4,170	5,050	1,990	1,490	1,680
17	1,530	*2,250	12,700	90,200	18,100	8,170	11,500	4,120	4,960	1,960	1,490	1,840
18	1,710	4,170	12,100	50,600	29,300	7,540	10,200	4,040	4,640	1,900	1,580	1,940
19	1,740	4,220	17,600	30,900	23,300	7,000	9,150	3,960	4,270	1,860	1,670	1,990
20	1,770	4,140	34,600	21,500	19,800	6,400	8,170	3,930	4,030	1,800	1,690	1,790
21	3,240	6,220	28,600	14,100	25,100	6,040	7,670	3,900	3,760	*1,750	1,680	1,550
22	2,680	31,100	20,400	17,600	23,200	5,690	7,190	3,870	*3,480	1,710	1,710	1,450
23	2,340	*173,000	15,400	41,400	18,500	5,330	6,400	3,820	3,300	1,670	1,750	1,470
24	2,060	*90,200	12,400	33,400	15,300	5,090	5,980	3,850	3,230	1,650	1,780	1,520
25	1,910	32,300	10,200	24,200	13,800	*4,960	5,750	3,900	3,150	1,630	1,840	1,540
26	1,630	20,200	9,300	23,600	12,300	4,780	5,600	3,960	3,090	1,600	1,900	1,570
27	1,630	16,600	8,750	36,300	10,700	4,620	5,500	4,010	3,050	1,570	1,880	1,590
28	1,460	17,300	9,300	83,000	9,430	5,510	5,390	4,080	2,990	1,560	1,740	1,530
29	1,600	12,900	8,680	63,700	-------	9,770	5,600	4,200	2,960	1,580	1,660	1,500
30	1,550	10,700	*8,080	55,700	-------	9,250	5,750	4,240	2,930	1,600	1,590	1,480
31	1,580	-------	7,280	38,900	-------	8,050	-------	4,200	-------	1,640	1,540	-------
Total	55,880	460,120	689,990	851,370	592,530	251,000	310,990	136,910	109,800	61,720	50,950	46,450
Mean	1,803	15,340	22,260	27,460	21,160	8,097	10,370	4,416	3,660	1,991	1,644	1,548
Cfsm	0.490	4.17	6.05	7.46	5.75	2.20	2.82	1.20	0.995	0.541	0.447	0.421
In.	0.56	4.65	6.97	8.60	5.99	2.54	3.14	1.38	1.11	1.62	0.51	0.47
Ac-ft	110,800	912,600	1,369,000	1,689,000	1,175,000	497,900	616,800	271,600	217,800	122,400	101,100	92,130

Calendar year 1953: Max 173,000 Min 1,300 Mean 11,580 Cfsm 3.15 In. 42.71 Ac-ft 8,385,000
Water year 1953-54: Max 173,000 Min 1,330 Mean 9,912 Cfsm 2.69 In. 36.54 Ac-ft 7,176,000

Peak discharge (base, 52,000 cfs).--Nov. 23 (5 p. m.) 195,000 cfs (42.4 ft); Dec. 7 (5 a. m.) 67,200 cfs (21.22 ft); Jan. 17 (10 a. m.) 105,000 cfs (28.6 ft); Jan. 28 (about 2 p. m.) 94,800 cfs (26.7 ft); Feb. 13 (5 p. m.) 54,800 cfs (18.60 ft).

* Discharge measurement made on this day.

South Fork Coquille River at Powers, Oreg.

Location.—Lat 42°53'40", long 124°04'10", in SE¼ sec. 12, T. 31 S., R. 12 W., on left bank half a mile northeast of bridge at Powers and three-quarters of a mile upstream from Woodward Creek.

Drainage area.—169 sq mi.

Records available.—September 1916 to September 1926, October 1928 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 197.42 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 17, 1938, staff or wire-weight gages at various sites within 1 mile of present site at different datums.

Average discharge.—35 years (1916-26, 1928-54), 755 cfs (546,600 acre-ft per year).

Extremes.—Maximum discharge during year, 24,500 cfs Nov. 22 (gage height, 17.49 ft), from rating curve extended above 14,000 cfs on basis of contracted-opening determination at gage height 18.14 ft; minimum, 35 cfs Sept. 9, 30.

1916-26, 1928-54: Maximum discharge, 30,500 cfs Dec. 28, 1945 (gage height, 20.57 ft), from rating curve extended above 14,000 cfs on basis of contracted-opening determination at at gage height 18.14 ft; minimum, 12 cfs Sept. 22-25, 27-30, 1939.

Remarks.—Records good. No regulation; small diversions for irrigation above station.

Revisions (water years).—WSP 1184: 1946(M).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 16				Jan. 17 to Sept. 30			
1.1	30	3.0	670	1.1	30	3.0	610
1.3	57	4.0	1,440	1.3	57	4.0	1,240
1.5	91	6.0	3,650	1.5	91	6.0	3,200
2.0	213	10.0	9,630	2.0	213	10.0	9,000
2.5	400	15.0	19,100	2.5	390	12.0	12,400

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	242	93	1,750	772	2,560	560	690	210	109	97	43	54
2	155	95	1,860	916	2,250	506	630	198	99	97	42	*50
3	101	86	2,550	1,640	2,090	466	1,220	190	99	89	42	47
4	78	84	4,070	3,010	1,890	430	2,370	184	138	86	40	44
5	65	111	4,070	3,100	1,680	398	3,310	179	193	80	40	42
6	59	1,100	6,800	2,080	1,420	374	3,070	170	193	77	40	40
7	54	688	4,610	2,960	1,200	354	1,950	*165	143	*77	40	39
8	50	386	3,510	2,990	1,050	730	1,900	157	135	80	40	38
9	51	287	3,830	2,310	948	4,260	1,840	152	133	77	40	36
10	333	347	3,810	1,890	846	3,570	1,430	147	122	86	40	46
11	312	506	2,580	1,490	846	2,010	1,140	143	118	95	39	80
12	168	534	1,800	1,200	6,510	1,410	918	140	140	87	39	129
13	129	409	1,340	962	6,240	1,110	924	133	184	77	42	115
14	107	355	1,070	946	3,530	954	828	129	157	73	43	84
15	91	319	888	4,580	2,240	924	714	126	322	71	44	77
16	82	1,190	766	9,630	1,670	*1,080	615	124	378	70	44	77
17	*114	1,680	706	4,680	3,060	948	551	118	280	65	44	73
18	1,420	1,170	804	*4,010	2,940	816	497	115	223	62	43	67
19	778	1,570	4,710	2,390	2,060	720	454	111	179	60	44	60
20	455	2,150	5,580	1,590	2,140	640	414	111	157	57	44	56
21	315	3,270	2,860	1,340	2,400	595	382	109	143	57	46	53
22	245	18,500	1,880	4,820	2,050	551	346	105	129	54	46	54
23	198	14,800	1,390	5,100	1,500	520	326	105	118	53	40	53
24	170	*4,760	1,090	2,810	1,190	533	308	103	111	51	39	49
25	152	*2,490	881	2,030	988	502	287	107	105	50	40	47
26	138	1,630	772	2,540	852	466	273	115	103	49	44	46
27	124	1,310	811	11,300	720	466	273	113	109	47	53	43
28	113	994	706	9,760	625	930	259	105	107	46	115	42
29	107	804	646	8,520	-------	1,160	232	99	97	46	105	39
30	99	1,480	586	5,070	-------	981	219	101	92	44	77	38
31	93	-------	539	3,200	-------	810	-------	105	-------	44	63	-------
Total	6,598	63,198	69,265	109,636	57,495	29,774	28,370	4,169	4,617	2,104	1,501	1,718
Mean	213	2,107	2,234	3,537	2,053	960	946	134	154	67.9	48.4	57.3
Cfsm	1.26	12.5	13.2	20.9	12.1	5.68	5.60	0.793	0.911	0.402	0.286	0.339
In.	1.45	13.91	15.24	24.13	12.65	6.55	6.24	0.92	1.02	0.46	0.33	0.38
Ac-ft	13,090	125,400	137,400	217,500	114,000	59,060	56,270	8,270	9,160	4,170	2,980	3,410

Calendar year 1953: Max 18,900 Min 30 Mean 1,212 Cfsm 7.17 In. 97.32 Ac-ft 877,200
Water year 1953-54: Max 18,500 Min 36 Mean 1,037 Cfsm 6.14 In. 83.28 Ac-ft 750,700

Peak discharge (base, 8,000 cfs).--Nov. 22 (11 p. m.) 24,500 cfs (17.49 ft); Dec. 6 (11:30 a. m.) 8,390 cfs (9.24 ft); Dec. 19 (10 p. m.) 10,600 cfs (10.53 ft); Jan. 16 (9 a. m.) 12,300 cfs (11.51 ft); Jan. 22 (8 p. m.) 8,460 cfs (9.66 ft); Jan. 27 (8:30 p. m.) 16,300 cfs (14.17 ft); Feb. 12 (6 p. m.) 8,460 cfs (9.66 ft).

* Discharge measurement made on this day.

Rogue River above Prospect, Oreg.

Location.—Lat 42°47', long 122°30', in NE¼ sec. 19, T. 32 S., R. 3 E., on left bank 1½ miles upstream from intake of diversion of The California Oregon Power Co., 2 miles northwest of Prospect, 3 miles upstream from Mill Creek, and at mile 169.7 (Geological Survey river-profile survey).

Drainage area.—332 sq mi.

Records available.—January 1908 to February 1912 (incomplete), October 1923 to September 1954. Published as "near Prospect" 1924-25, and as North Fork Rogue River at or near Prospect 1908-9, 1911-12.

Gage.—Water-stage recorder. Altitude of gage is 2,620 ft (from river-profile map). Prior to Feb. 17, 1912, staff gage at several sites within a few hundred feet upstream, at various datums.

Average discharge.—32 years (1910-11, 1923-54), 779 cfs (564,000 acre-ft per year).

Extremes.—Maximum discharge during year, 9,680 cfs Nov. 23 (gage height, 7.62 ft), from rating curve extended above 5,000 cfs; minimum, 512 cfs Oct. 28 to Nov. 1.

1908-12, 1923-54: Maximum discharge, 11,900 cfs Dec. 28, 1945 (gage height, 8.4 ft, from floodmark), from rating curve extended above 5,000 cfs; minimum observed, 200 cfs Nov. 20, 1931 (gage height, 1.07 ft).

Flood of Nov. 22 or 23, 1909, may have exceeded 11,900 cfs.

Remarks.—Records good. No regulation or diversion above station.

Cooperation.—Water-stage-recorder graph furnished by The California Oregon Power Co.

Revisions (water years).—WSP 1248: 1925, 1927(M).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22		Nov. 23 to Sept. 30	
1.7	485	1.7	500
2.0	655	2.0	670
3.0	1,510	3.0	1,560
4.7	3,860	5.0	4,340
		7.0	8,200

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	607	529	1,230	956	1,110	1,120	828	1,360	1,210	860	599	566
2	590	562	1,220	924	1,180	1,090	836	1,300	1,130	836	599	555
3	551	524	1,540	924	1,270	1,040	1,020	1,330	1,120	812	594	555
4	540	518	1,710	900	1,350	1,020	1,550	1,450	1,160	796	588	555
5	529	524	1,370	908	1,370	1,020	2,480	1,560	1,140	788	588	555
6	524	573	*1,400	908	1,370	1,040	2,010	1,620	1,110	772	594	550
7	524	568	1,240	940	1,380	1,070	1,580	1,790	1,050	756	588	550
8	518	556	1,200	916	1,430	1,290	1,490	1,970	1,110	748	588	550
9	518	556	1,420	892	1,470	2,130	1,430	2,020	1,110	740	582	544
10	631	573	1,620	900	1,440	2,370	1,300	1,920	1,020	733	582	544
11	590	637	1,350	900	1,390	1,800	1,260	1,870	998	726	582	572
12	540	631	1,250	876	2,150	1,500	1,290	1,710	1,120	712	582	572
13	529	578	1,210	852	2,550	1,350	1,850	1,590	1,090	705	582	555
14	529	562	1,170	844	1,970	1,240	2,030	1,590	1,060	691	588	555
15	524	556	1,170	868	1,600	1,180	1,800	1,690	1,510	*684	599	691
16	524	595	1,190	989	1,410	1,130	1,910	1,750	1,460	670	594	599
17	524	613	1,220	1,130	1,340	1,060	2,230	1,790	1,270	664	588	594
18	766	568	1,330	1,040	1,250	989	2,400	1,850	1,180	658	582	572
19	662	578	2,460	948	1,170	964	2,250	1,870	1,120	652	582	560
20	584	584	3,520	868	1,210	924	2,020	*1,780	1,100	652	588	550
21	*562	595	2,340	852	1,320	900	1,950	1,580	1,070	646	588	*544
22	546	3,750	1,850	940	1,380	876	1,980	1,440	1,040	640	582	544
23	540	8,040	1,560	1,050	1,310	868	2,070	1,380	1,020	634	577	544
24	534	3,960	1,380	948	1,330	868	1,990	1,380	1,010	628	572	538
25	529	2,460	1,260	876	1,350	836	1,910	1,300	980	628	588	538
26	524	1,910	1,190	*836	1,320	828	1,780	1,310	956	628	622	533
27	524	1,960	1,200	876	1,230	860	1,750	1,200	964	622	599	528
28	512	1,620	1,120	908	1,180	*876	1,770	1,130	924	616	594	528
29	512	1,380	1,060	1,070	-------	884	1,650	1,130	884	610	588	522
30	512	1,300	998	1,150	-------	868	1,490	1,120	876	604	577	522
31	512	-------	964	1,110	-------	852	-------	1,190	-------	604	582	-------
Total	17,111	38,360	44,742	29,099	39,830	34,843	51,904	47,970	32,792	21,515	18,238	16,685
Mean	552	1,279	1,443	939	1,422	1,124	1,730	1,547	1,093	694	588	556
Cfsm	1.66	3.85	4.35	2.83	4.28	3.39	5.21	4.66	3.29	2.09	1.77	1.67
In.	1.92	4.30	5.01	3.26	4.46	3.90	5.81	5.37	3.67	2.41	2.04	1.87
Ac-ft	33,940	76,090	88,740	57,720	79,000	69,110	103,000	95,150	65,040	42,670	36,170	33,090

Calendar year 1953: Max 8,880 Min 512 Mean 1,194 Cfsm 3.60 In. 48.82 Ac-ft 864,300
Water year 1953-54: Max 8,040 Min 512 Mean 1,077 Cfsm 3.24 In. 44.02 Ac-ft 779,700

Peak discharge (base, 2,700 cfs).--Nov. 23 (4:30 a. m.) 9,680 cfs (7.62 ft); Dec. 20 (4:30 a. m.) 4,070 cfs (4.83 ft); Feb. 12 (11 p. m.) 2,940 cfs (4.09 ft); Mar 9 (11 p. m.) 2,700 cfs (3.92 ft).

* Discharge measurement made on this day.

South Fork Rogue River near Prospect, Oreg.

Location.—Lat 42°42', long 122°23', in NE¼ sec. 18, T. 33 S., R. 4 E., on right bank 500 ft downstream from diversion dam and intake of South Fork power canal, an eighth of a mile downstream from Imnaha Creek, and 6 miles southeast of Prospect.

Drainage area.—79 sq mi, approximately.

Records available.—April 1924 to September 1931, October 1949 to September 1954. Equivalent records for period October 1931 to September 1949 may be obtained from combined flow of South Fork Rogue River above Imnaha Creek near Prospect and Imnaha Creek near Prospect.

Gage.—Water-stage recorder. Altitude of gage is 3,350 ft (from river-profile map). Apr. 28, 1924, to Sept. 30, 1931, at site about an eighth of a mile downstream at different datum.

Average discharge.—12 years (1924-31, 1949-54), 176 cfs (127,400 acre-ft per year).

Extremes.—Maximum discharge during year, 2,540 cfs Nov. 23 (river gage height, 7.34 ft), from rating curve extended above 780 cfs by logarithmic plotting (no flow in canal); minimum daily, 89 cfs Nov. 15.

1924-31, 1949-54: Maximum discharge, that of Nov. 23, 1953; minimum, about 35 cfs in September 1931, during period of no gage-height record.

Remarks.—Records good. All records presented herein include flow in South Fork power canal (completed in March 1932) which diverts 500 ft above station and returns water to Rogue River above South Fork Rogue River; practically no storage above diversion dam.

Cooperation.—Electrical-output record for power canal furnished by The California Oregon Power Co.

Revisions (water years).—WSP 1184: 1930(M).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	120	91	234	236	295	263	181	326	266	180	123	104
2	114	97	239	232	292	258	184	313	244	180	121	104
3	106	91	329	226	286	252	203	320	239	176	120	103
4	100	90	367	226	283	243	244	338	239	174	120	103
5	104	92	*305	233	281	240	332	352	246	172	120	103
6	100	102	293	227	278	237	315	364	251	166	117	103
7	98	97	272	221	277	235	297	388	238	165	117	98
8	98	92	282	211	283	265	301	409	269	164	116	100
9	96	94	383	209	289	323	293	402	266	161	114	100
10	124	93	363	207	282	333	287	381	261	156	114	100
11	114	99	321	207	291	310	264	374	260	156	113	100
12	104	99	300	206	337	289	278	349	300	152	111	100
13	100	95	283	197	337	276	368	335	280	*152	111	100
14	100	91	267	195	322	266	405	336	270	148	114	98
15	96	89	256	201	308	262	369	344	440	143	111	125
16	98	95	253	226	302	256	389	351	380	143	114	113
17	96	99	247	229	301	243	429	357	340	142	111	108
18	141	93	253	217	285	238	474	363	300	138	108	102
19	128	96	344	214	273	231	462	359	280	139	110	99
20	*114	98	460	211	280	222	430	341	260	138	110	*99
21	105	96	374	206	304	217	421	*313	240	137	110	97
22	102	566	347	218	315	212	433	294	230	135	109	98
23	99	2,090	323	227	301	211	443	283	220	133	106	98
24	97	1,040	310	215	299	207	427	280	220	133	104	96
25	97	556	296	212	292	201	405	273	210	133	112	95
26	94	377	284	213	278	201	387	270	210	127	114	93
27	95	328	282	256	277	*208	438	254	200	128	109	93
28	93	291	268	328	268	203	448	240	200	127	109	92
29	93	256	259	321	-------	204	387	250	190	125	108	92
30	93	244	251	311	-------	199	351	259	190	124	106	91
31	91	-------	241	299	-------	188	-------	263	-------	124	107	-------
Total	3,210	7,737	9,286	7,137	8,225	7,493	10,645	10,081	7,739	4,571	3,489	3,007
Mean	104	258	300	230	294	242	355	325	258	147	113	100
Cfsm	1.32	3.27	3.80	2.91	3.72	3.06	4.49	4.11	3.27	1.86	1.43	1.27
In.	1.51	3.64	4.37	3.36	3.87	3.53	5.01	4.75	3.64	2.15	1.64	1.42
Ac-ft	6,370	15,350	18,420	14,160	16,310	14,860	21,110	20,000	15,350	9,070	6,920	5,960

Calendar year 1953: Max 2,090 Min 83 Mean 256 Cfsm 3.24 In. 44.03 Ac-ft 185,400
Water year 1953-54: Max 2,090 Min 89 Mean 226 Cfsm 2.86 In. 38.89 Ac-ft 163,900

Peak discharge (base, 600 cfs).--Nov. 23 (9:30 a. m.) 2,540 cfs.
* Discharge measurement made on this day.

Middle Fork Rogue River near Prospect, Oreg.

Location.—Lat 42°44', long 122°24', in NE¼NE¼ sec. 1, T. 33 S., R. 3 E., on right bank 850 ft downstream from diversion dam and intake of Middle Fork power canal and 4½ miles southeast of Prospect.

Drainage area.—57 sq mi, approximately.

Records available.—May 1925 to September 1954 (includes flow of Middle Fork power canal since completion Nov. 10, 1931).

Gage.—Water-stage recorder. Datum of gage is 2,619 ft above mean sea level (levels by The California Oregon Power Co.). Prior to Nov. 10, 1949, water-stage recorder and staff gage at various sites and datums within 150 ft of present gage.

Average discharge.—29 years, 185 cfs (133,900 acre-ft per year).

Extremes.—Maximum discharge during year, 3,120 cfs Nov. 23, from river rating curve extended above 250 cfs on basis of shape of previous rating curves; minimum daily, 141 cfs Sept. 29.

1925-54: Maximum discharge, that of Nov. 23, 1953; minimum daily, 72 cfs Aug. 24 to Sept. 5, 1931.

Remarks.—Records good. All records presented herein include flow in Middle Fork power canal, which diverts 850 ft above station for hydroelectric power and returns water to Rogue River above South Fork Rogue River.

Cooperation.—Water-stage-recorder graph for canal furnished by The California Oregon Power Co.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	188	163	235	228	296	238	186	277	273	221	162	157
2	178	163	251	220	305	234	198	273	261	216	161	155
3	171	158	292	220	316	227	214	282	267	214	161	155
4	168	156	306	220	318	220	238	296	266	213	162	155
5	166	160	*296	233	321	218	294	309	263	210	161	155
6	165	166	306	226	312	218	266	325	250	208	160	150
7	163	162	296	223	312	219	256	340	240	203	159	150
8	163	160	303	220	315	257	252	360	264	198	159	150
9	163	159	356	214	315	335	249	360	253	189	158	150
10	194	162	353	224	305	318	238	350	248	186	158	150
11	173	162	325	222	312	276	235	350	240	183	158	150
12	167	167	307	195	349	257	235	332	283	183	158	150
13	164	162	297	191	352	244	282	324	275	182	160	150
14	162	159	290	194	331	232	307	328	267	*184	160	154
15	162	158	287	204	299	226	280	336	438	185	160	165
16	162	171	283	253	279	221	282	348	378	183	165	160
17	164	168	288	261	279	212	322	362	329	181	160	155
18	216	163	294	241	260	204	350	388	290	177	155	150
19	181	169	357	229	249	200	346	399	275	176	160	150
20	174	167	408	222	265	200	336	381	275	176	160	*147
21	*167	177	381	217	287	190	332	352	275	174	160	146
22	166	613	345	230	285	190	336	327	260	173	160	146
23	165	1,700	321	239	273	190	340	321	259	170	155	147
24	162	633	297	228	273	190	332	324	257	169	155	145
25	161	361	287	219	270	180	324	*300	254	168	164	145
26	160	305	273	223	264	180	317	277	250	167	165	144
27	159	297	269	249	256	*182	334	254	246	166	161	143
28	157	273	259	*299	248	189	330	248	242	164	160	143
29	157	249	249	309	-------	188	310	271	229	164	158	141
30	156	241	239	305	-------	181	290	261	229	164	158	142
31	154	-------	232	296	-------	179	-------	281	-------	163	160	-------
Total	5,208	8,104	9,282	7,254	8,246	6,795	8,611	9,936	8,136	5,710	4,953	4,500
Mean	168	270	299	234	294	219	287	321	271	184	160	150
Cfsm	2.95	4.74	5.25	4.11	5.16	3.84	5.04	5.63	4.75	3.23	2.81	2.63
In.	3.40	5.29	6.06	4.73	5.38	4.43	5.62	6.48	5.31	3.73	3.23	2.94
Ac-ft	10,330	16,070	18,410	14,390	16,360	13,480	17,080	19,710	16,140	11,330	9,820	8,930

Calendar year 1953: Max 1,700 Min 154 Mean 269 Cfsm 4.72 In. 64.17 Ac-ft 195,100
Water year 1953-54: Max 1,700 Min 141 Mean 238 Cfsm 4.18 In. 56.60 Ac-ft 172,000

Peak discharge (base, 500 cfs).--Nov. 23 (8:30 a. m.) 3,120 cfs; June 15 (2 p. m.) 508 cfs.
* Discharge measurement made on this day.

Red Blanket Creek near Prospect, Oreg.

Location.—Lat 42°47', long 122°26', in NE¼ sec. 23, T. 32 S., R. 3 E., on right bank 3 miles northeast of Prospect.
Drainage area.—40 sq mi, approximately.
Records available.—May 1925 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 2,780 ft (from river-profile map). Prior to Sept. 7, 1949, staff gages at several sites within 2½ miles of present site at various datums.
Average discharge.—29 years, 112 cfs (81,080 acre-ft per year).
Extremes.—Maximum discharge during year, 1,530 cfs Nov. 23 (gage height, 6.62 ft), from rating curve extended above 360 cfs on basis of slope-area determination for flood of Dec. 22, 1955, at gage height 7.30 ft; minimum, 72 cfs Sept. 13.
1925-54: Maximum discharge (revised), 1,630 cfs Nov. 29, 1942 (gage height, 5.1 ft, from floodmark, site and datum then in use), from rating curve extended above 350 cfs; minimum observed, 34 cfs Sept. 3, 4, 25, Oct. 9, 16, 1931.
Revisions.—The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Water year	Date	Discharge (cfs)	Gage height (feet)
984	1943	Nov. 29, 1942	1,630	*5.1
1064	1946	Dec. 28, 1945	1,250	*4.4
1124	1948	Jan. 7, 1948	1,200	*4.3
1288	1953	Jan. 18, 1953	1,280	6.02

* From floodmarks, site and datum then in use.

Remarks.—Records good. One diversion above station for irrigation below station.
Revisions.—Revised figures of discharge, in cubic feet per second, for high-water periods in water year 1953, superseding those published in WSP 1288, are given herewith:

Jan. 18, 1953.....1,040

Month	Cfs-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
January 1953.....	6,848	1,040	84	221	5.52	6.37	13,580
Water year 1952-53	-	1,040	72	149	3.74	50.58	107,900

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	82	155	122	160	136	120	157	157	131	91	80
2	89	82	160	117	164	133	120	154	154	129	89	78
3	86	78	197	117	170	131	131	157	154	126	89	78
4	84	78	187	120	174	129	164	167	157	124	88	78
5	84	81	174	122	174	126	206	170	157	122	88	78
6	84	88	*177	122	172	124	180	177	152	122	88	76
7	86	81	167	122	172	124	164	190	147	120	88	76
8	86	80	170	120	174	140	164	200	162	117	88	76
9	86	81	200	115	174	230	157	200	154	115	86	76
10	106	82	197	115	170	209	150	197	152	109	86	76
11	91	84	177	115	172	182	145	197	150	109	86	76
12	88	88	170	111	187	170	145	184	164	106	84	76
13	86	81	167	111	187	160	177	182	160	104	84	75
14	84	80	164	111	174	154	180	180	154	*103	86	94
15	84	78	167	115	162	150	172	184	275	102	86	102
16	82	89	170	133	157	147	177	192	200	102	86	86
17	84	84	172	138	154	142	194	197	174	102	86	82
18	124	81	174	129	145	138	203	212	167	100	86	78
19	97	84	260	122	142	133	197	215	162	100	84	80
20	*89	82	284	117	147	129	192	*209	160	98	86	81
21	86	93	203	110	157	126	192	194	154	98	84	*80
22	84	575	180	126	157	126	194	184	152	97	84	80
23	84	1,180	170	142	152	124	197	182	150	97	82	80
24	82	540	157	131	152	124	192	182	147	95	81	78
25	81	275	150	*129	152	120	190	174	145	95	86	78
26	80	203	145	126	150	120	182	170	145	93	86	76
27	80	190	140	138	145	124	187	162	145	93	84	76
28	78	164	136	152	140	*129	182	157	138	93	86	76
29	76	160	131	162	-------	126	172	162	136	95	81	76
30	78	155	126	160	-------	124	164	157	133	91	81	76
31	76	-------	124	157	-------	122	-------	164	-------	91	82	-------
Total	2,682	5,179	5,351	3,927	4,536	4,352	5,190	5,609	4,757	3,277	2,652	2,378
Mean	86.5	173	173	127	162	140	173	181	159	106	85.5	79.3
Ac-ft	5,320	10,270	10,610	7,790	9,000	8,630	10,290	11,130	9,440	6,500	5,260	4,720

Calendar year 1953: Max 1,180 Min 76 Mean 165 Ac-ft 119,400
Water year 1953-54: Max 1,180 Min 75 Mean 137 Ac-ft 98,960

46.50 in

Peak discharge (base, 300 cfs).--Nov. 23 (6:30 a. m.) 1,530 cfs (6.62 ft); Dec. 20 (1 a. m.) 372 cfs (3.80 ft); June 15 (1 p. m.) 366 cfs (3.73 ft).
* Discharge measurement made on this day.

Rogue River below South Fork Rogue River, near Prospect, Oreg.

Location.—Lat 42°42', long 122°36', in NW¼ sec. 16, T. 33 S., R. 2 E., on right bank at downstream side of county road bridge 6 miles southwest of Prospect and at mile 160.4 (Geological Survey river-profile survey).

Drainage area.—643 sq mi.

Records available.—April 1929 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 1,708 ft (from river-profile map).

Average discharge.—25 years, 1,747 cfs (1,265,000 acre-ft per year).

Extremes.—Maximum discharge during year, 20,000 cfs Nov. 23 (gage height, 12.31 ft), from rating curve extended above 5,000 cfs on basis of slope-area determination at gage height 8.6 ft; minimum, 654 cfs Sept. 29; minimum daily, 1,110 cfs Sept. 29.

1929-54: Maximum discharge, 20,500 cfs Jan. 18, 1953 (gage height, 12.50 ft), from rating curve extended above 5,000 cfs on basis of slope-area determination at gage height 8.6 ft; minimum since intake was lowered on Aug. 18, 1934, 493 cfs Sept. 1, 1934 (prior to Aug. 18, 1934, minimum discharge not determined).

Remarks.—Records good except those for periods of no gage-height record, which are fair. Small diversions above station for irrigation. Considerable diurnal fluctuation caused by powerplant 4 miles above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.0	1,060	7.0	8,900
2.0	1,880	11.0	17,000
4.0	4,130		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,380	1,260	2,000	2,210	2,920	2,630	1,900	2,700	2,520	1,860	1,330	1,260
2	1,370	1,300	2,400	2,160	3,030	2,540	1,900	2,600	2,370	1,800	1,330	1,250
3	1,300	1,260	,900	2,190	3,090	2,460	2,000	2,600	2,380	1,770	1,320	1,230
4	1,260	1,230	3,500	2,170	3,170	2,390	2,600	2,800	2,400	1,740	1,320	1,230
5	1,260	1,250	3,000	2,200	3,200	2,370	3,800	2,900	2,380	1,730	1,320	1,240
6	1,250	1,230	*3,710	2,190	3,150	2,370	3,200	3,000	2,330	1,700	1,330	1,230
7	1,250	1,310	3,200	2,230	3,160	2,410	3,000	3,200	2,230	1,670	1,290	1,220
8	1,270	1,280	3,400	2,210	3,200	2,700	2,900	3,400	2,400	1,650	1,300	1,220
9	1,260	1,270	3,510	2,140	3,270	3,750	2,800	3,600	2,330	1,640	1,290	1,220
10	1,420	1,280	3,710	2,170	3,210	4,090	2,700	3,600	2,270	1,630	1,290	1,240
11	1,430	1,350	3,200	2,170	3,150	3,400	2,600	3,400	2,180	1,600	1,300	1,250
12	1,320	1,370	2,950	2,110	4,030	3,030	2,600	3,200	2,430	1,570	1,290	1,250
13	1,270	1,320	2,820	2,050	4,720	2,820	3,000	3,200	2,410	1,570	1,290	1,220
14	1,270	1,270	2,710	2,030	3,940	2,680	3,400	3,000	2,300	1,550	1,290	1,240
15	1,250	1,260	2,700	2,190	3,430	2,600	3,000	3,000	3,160	*1,540	1,320	1,440
16	1,260	1,300	2,680	2,650	3,170	2,530	3,200	3,200	3,030	1,510	1,290	1,350
17	1,260	1,430	2,710	3,150	3,190	2,520	3,400	3,200	2,650	1,490	1,290	1,280
18	1,560	1,310	2,810	2,770	2,990	2,300	3,600	3,400	2,460	1,470	1,270	1,260
19	*1,550	1,330	4,200	2,510	2,810	2,270	3,400	3,400	2,360	1,470	1,270	1,240
20	1,400	1,350	5,710	2,330	2,870	2,180	3,200	3,200	2,300	1,460	1,290	1,210
21	1,320	1,370	4,260	2,260	3,100	2,120	3,000	3,200	2,220	1,450	1,270	*1,210
22	1,300	6,520	3,600	2,520	3,180	2,070	3,000	3,000	2,190	1,440	1,270	1,190
23	1,280	16,900	3,220	2,780	3,040	2,040	3,200	2,800	2,140	1,430	1,260	1,190
24	1,290	8,270	2,960	2,510	3,030	2,040	3,200	2,700	2,100	1,410	1,250	1,170
25	1,260	4,900	2,750	*2,280	3,000	1,970	3,000	*2,630	2,080	1,390	1,270	1,150
26	1,260	3,400	2,630	2,230	2,920	1,940	3,000	2,660	2,030	1,380	1,330	1,150
27	1,260	3,000	2,670	2,630	2,800	2,010	3,000	2,450	2,030	1,370	1,310	1,120
28	1,260	2,500	2,500	3,150	2,700	*2,040	2,900	2,370	1,960	1,370	1,290	1,140
29	1,230	2,200	2,420	3,200	-------	2,080	2,900	2,380	1,910	1,360	1,270	1,110
30	1,240	2,100	2,300	3,200	-------	2,000	2,800	2,380	1,870	1,350	1,280	1,150
31	1,240	-------	2,220	2,980	-------	1,930	-------	2,450	-------	1,340	1,290	-------
Total	40,530	77,120	95,410	75,570	89,470	76,290	88,200	91,620	69,420	47,710	40,110	36,660
Mean	1,307	2,571	3,078	2,438	3,195	2,461	2,940	2,955	2,314	1,539	1,294	1,222
Cfsm	2.03	4.00	4.79	3.79	4.97	3.83	4.57	4.60	3.60	2.39	2.01	1.90
In.	2.34	4.46	5.52	4.37	5.17	4.41	5.10	5.30	4.02	2.76	2.32	2.12
Ac-ft	80,390	153,000	189,200	149,900	177,500	151,300	174,900	181,700	137,700	94,630	79,560	72,710

Calendar year 1953: Max 16,900 Min 1,230 Mean 2,599 Cfsm 4.04 In. 54.88 Ac-ft 1,882,000
Water year 1953-54: Max 16,900 Min 1,110 Mean 2,269 Cfsm 3.53 In. 47.89 Ac-ft 1,642,000

Peak discharge (base, 5,300 cfs).--Nov. 23 (5 a. m.) 20,000 cfs (12.31 ft); Dec. 20 (5:30 a. m.) 6,490 cfs (5.62 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 26 to Dec 5, Dec. 7, 8, Apr. 1 to May 24; discharge estimated on basis of recorded range in stage and records for stations at Dodge Bridge near Eagle Point and Red Blanket near Prospect.

South Fork Big Butte Creek near Butte Falls, Oreg.

Location.—Lat 42°32', long 122°33', in SW¼ sec. 11, T. 35 S., R. 2 E., on right bank just downstream from Ginger Creek and 1 mile east of Butte Falls.

Drainage area.—135 sq mi.

Records available.—September 1910 to October 1911, August to October 1915, October 1917 to September 1922, October 1925 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 2,360 ft (from river-profile map). Sept. 20, 1910, to Sept. 30, 1922, staff gage at site 300 ft upstream at different datum.

Average discharge.—35 years (1910-11, 1917-22, 1925-54), 162 cfs (117,300 acre-ft per year).

Extremes.—Maximum discharge during year, 1,280 cfs Nov. 23 (gage height, 2.82 ft); minimum, 89 cfs Aug. 23 (gage height, 0.68 ft).

1910-11, 1915, 1917-22, 1925-54: Maximum discharge, 2,470 cfs Feb. 20, 1927 (gage height, 4.05 ft), from rating curve extended above 1,600 cfs; minimum, 39 cfs Oct. 14, 1931 (gage height, 0.32 ft).

Remarks.—Records fair except those for periods of no gage-height record, which are poor. Diversions for irrigation of about 1,000 acres above station and since 1927 for Medford municipal supply. No regulation.

Revisions (water years).—WSP 1288: 1911, 1918-19, 1921-22, 1929.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

0.6	72
1.0	172
1.5	387
2.0	695
2.7	1,190

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	112	103	185	213	a600	282	198	185	130	117	98	*103
2	107	103	239	220	572	269	202	175	127	117	98	100
3	103	112	376	239	a560	256	213	169	125	115	98	100
4	103	133	591	228	a540	243	243	166	133	115	98	100
5	100	138	511	235	a520	235	300	163	138	112	98	100
6	100	140	746	*235	a500	232	296	160	138	115	98	100
7	100	138	740	243	a480	224	282	*163	130	115	95	98
8	100	135	721	243	a460	235	286	158	152	112	93	98
9	103	133	754	235	457	273	282	152	149	112	*93	98
10	120	133	702	273	433	291	260	146	149	112	98	103
11	110	135	584	260	433	273	247	149	143	110	98	103
12	105	135	499	252	487	243	239	146	169	107	98	103
13	103	135	433	224	511	232	260	140	179	105	100	100
14	103	133	382	232	463	220	*273	135	166	105	105	103
15	100	130	355	286	404	224	256	133	202	105	103	103
16	100	*166	334	451	371	235	247	130	192	*105	103	100
17	100	146	*329	535	428	235	247	133	175	100	100	100
18	125	138	334	451	410	216	252	130	*163	98	98	95
19	112	140	371	393	355	*209	247	133	152	98	98	95
20	103	149	416	a350	355	205	239	133	146	98	98	93
21	100	152	387	a320	366	205	232	130	138	98	98	93
22	*98	531	350	a450	371	198	228	125	135	100	98	93
23	95	1,130	320	a550	*360	195	224	120	133	100	91	93
24	95	*643	296	a400	350	195	220	115	127	100	93	93
25	93	366	273	a360	339	192	213	130	125	98	103	93
26	98	269	264	366	324	185	205	133	125	98	110	93
27	98	224	269	a700	305	188	224	127	122	98	107	93
28	93	195	247	a900	296	213	228	122	122	98	105	93
29	98	179	228	a850	-------	224	205	122	120	98	103	93
30	100	182	216	a750	-------	213	195	135	117	98	103	93
31	100	-------	209	a650	-------	202	-------	133	-------	95	103	-------
Total	3,177	6,546	12,661	12,094	12,050	7,042	7,243	4,391	4,322	3,254	3,082	2,925
Mean	102	218	408	390	430	227	241	142	144	105	99.4	97.5
Ac-ft	6,300	12,980	25,110	23,990	23,900	13,970	14,370	8,710	8,570	6,450	6,110	5,800

Calendar year 1953: Max 1,290 Min 91 Mean 231 Ac-ft 167,200
Water year 1953-54: Max 1,130 Min 91 Mean 216 Ac-ft 156,300

Peak discharge (base, 450 cfs).--Nov. 23 (4 a. m.) 1,280 cfs (2.82 ft); Dec. 6 (8 p. m.) 935 cfs (2.35 ft); Jan. 17 (4 to 6 a. m.) 572 cfs (1.81 ft); Jan. 23 (time and discharge unknown); Jan. 27 or 28 (time unknown) 977 cfs (2.41 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for Big Butte Creek near McLeod and recorded range in stage.

Big Butte Creek near McLeod, Oreg.

Location.—Lat 42°39'25" long 122°41'20" in NW¼ sec. 3, T. 34 S., R. 1 E., on right bank 50 ft downstream from bridge on county road, 1 mile upstream from mouth, and 1 mile south of McLeod.

Drainage area.—249 sq mi.

Records available.—October 1945 to September 1954.

Gage.—Staff gage read twice daily. Datum of gage is 1,526.48 ft above mean sea level, datum of 1929, supplementary adjustment of 1947.

Average discharge.—9 years, 339 cfs (245,400 acre-ft per year).

Extremes.—Maximum discharge during year, 5,080 cfs Nov. 23 (gage height, 9.8 ft, from graph based on gage readings), from rating curve extended above 2,700 cfs by logarithmic plotting; minimum observed, 70 cfs Aug. 3, 9.

1945-54: Maximum discharge, 6,390 cfs Jan. 18, 1953 (gage height, 11.1 ft, observed at peak), from rating curve extended above 2,700 cfs by logarithmic plotting; minimum observed, 70 cfs Sept. 23, 1947, Aug. 3, 9, 1954.

Remarks.—Records fair. Slight regulation by fish hatchery 600 ft above station. Several diversions in vicinity of Butte Falls, the two largest being the city of Medford diversion and Eagle Point Irrigation District canal.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Jan. 18-26)

Oct. 1 to Jan. 27		Jan. 28 to Sept. 30	
1.8	100	1.5	66
2.0	154	2.0	185
3.0	505	3.0	520
5.0	1,460	5.0	1,460
8.0	3,380	7.0	2,620

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	126	176	394	461	1,250	a480	337	233	145	115	76	86
2	110	194	585	404	1,210	a460	344	222	219	106	74	86
3	108	190	900	a450	1,180	a440	372	216	140	110	72	86
4	105	190	1,330	509	1,140	a420	480	205	140	108	76	84
5	105	194	1,100	505	1,080	a400	667	202	155	106	78	84
6	103	216	1,780	481	1,000	a380	568	196	161	113	76	82
7	100	210	1,570	517	950	a380	524	193	146	106	78	82
8	100	213	1,910	529	910	a420	524	185	177	108	78	82
9	100	210	*1,560	501	883	a460	504	177	236	104	72	82
10	163	213	1,160	675	865	*500	459	177	264	101	74	90
11	154	210	1,050	569	838	492	442	169	254	104	74	90
12	154	223	970	541	1,010	445	417	166	303	101	74	84
13	163	216	820	493	1,000	420	459	163	a270	97	76	99
14	166	210	747	489	920	400	438	161	248	95	82	93
15	166	203	693	1,480	784	392	431	155	258	93	82	86
16	154	260	675	2,440	708	428	403	153	216	90	82	97
17	146	264	652	2,440	920	424	a400	161	199	84	78	120
18	226	233	652	1,420	811	396	392	148	177	80	78	125
19	*178	260	870	945	694	386	368	148	169	78	78	127
20	166	278	910	765	685	372	350	148	166	*80	78	127
21	160	282	760	670	a700	361	344	*140	150	82	78	125
22	160	2,200	666	1,040	703	364	358	137	137	84	74	127
23	160	3,140	608	1,260	685	354	316	a130	135	88	76	*122
24	157	1,500	561	955	a650	354	303	127	127	82	74	108
25	157	865	521	*756	a600	344	280	145	125	84	80	82
26	157	865	481	760	a550	326	264	150	125	82	90	74
27	154	533	521	1,900	a520	330	290	140	125	80	90	74
28	154	437	561	2,320	a500	358	296	135	125	80	90	76
29	154	429	441	*1,960	-------	414	264	172	122	82	86	76
30	154	418	404	1,710	-------	375	242	161	115	80	84	74
31	151	-------	404	1,380	-------	354	-------	155	-------	76	84	-------
Total	4,511	14,871	26,256	31,325	23,746	12,429	11,836	5,170	5,331	2,879	2,442	2,830
Mean	146	496	847	1,010	848	401	395	167	178	92.9	78.8	94.3
Ac-ft	8,950	29,500	52,080	62,130	47,100	24,650	23,480	10,250	10,570	5,710	4,840	5,610

Calendar year 1953: Max 4,880 Min 81 Mean 447 Ac-ft 323,700
Water year 1953-54: Max 3,140 Min 72 Mean 393 Ac-ft 284,900

21.43

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for South Fork Rogue River near Prospect, South Fork Little Butte Creek near Lake Creek, and South Fork Big Butte Creek near Butte Falls.

Elk Creek near Trail, Oreg.

Location.—Lat 42°39'50", long 122°44'50", in NE¼NW¼ sec. 31, T. 33 S., R. 1 E., on right bank 0.4 mile upstream from mouth and 3.3 miles northeast of Trail. Prior to May 24, 1954, at site 0.3 mile upstream.

Drainage area.—133 sq mi.

Records available.—October 1945 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 1,456.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to July 5, 1946, staff gages at various sites within 1 mile of present site at different datums. July 5, 1946, to June 22, 1950, staff gage and June 23, 1950, to May 23, 1954, water-stage recorder, at site 0.3 mile upstream from present site at datum 12.14 ft higher.

Average discharge.—9 years, 247 cfs (178,800 acre-ft per year).

Extremes.—Maximum discharge during year, 8,000 cfs Nov. 23 (gage height, 11.75 ft); minimum, 1.6 cfs Aug. 6.

1945-54: Maximum discharge, 10,000 cfs Jan. 18, 1953 (gage height, 13.32 ft); minimum observed, 0.9 cfs Aug. 29, 1946.

Remarks.—Records good except those for periods of backwater from rock dam and leaves, which are fair, and those for periods of no gage-height record, which are poor. No regulation. Several small diversions above station for irrigation.

Rating tables, water year 1953-54, except periods of backwater from rock dam and leaves (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to May 23				May 24 to Sept. 30			
0.2	7.2	2.0	265	0.6	44	3.0	635	2.0	1.0	2.4	16
.4	20	3.0	585	1.0	98	4.0	1,100	2.1	3.1	2.8	47
.6	37	5.0	1,580	1.5	188	7.0	3,100	2.2	6.2	3.1	81
1.0	83	7.0	3,030	2.0	303	9.0	4,900				
1.5	160										

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	33	276	256	1,440	293	168	116	46	23	4.0	8.8
2	25	39	571	268	1,620	273	157	108	39	22	4.3	7.9
3	25	40	1,160	313	1,510	252	196	a95	38	21	4.3	7.1
4	20	38	1,550	351	1,400	229	507	a100	39	20	4.3	6.6
5	19	36	1,040	450	1,200	218	1,100	a110	43	18	4.0	6.2
6	18	44	1,850	450	1,040	218	837	a110	49	18	2.7	7.1
7	14	57	*1,390	454	1,000	227	567	a120	42	19	3.4	5.3
8	12	50	1,280	422	955	249	470	a130	53	17	3.4	*5.0
9	14	46	1,720	380	873	357	419	a120	49	17	4.0	6.2
10	28	45	1,480	383	734	*416	357	a110	45	16	a4.0	6.6
11	36	48	940	395	671	332	306	a100	43	14	a3.6	8.8
12	28	55	693	363	1,710	276	278	a90	59	10	3.1	9.6
13	25	55	627	313	1,680	247	326	a80	58	11	*3.4	9.2
14	22	48	643	290	1,100	229	335	a70	51	12	6.6	8.4
15	22	46	623	444	814	220	293	a75	61	10	14	11
16	21	47	559	2,140	643	222	278	a80	69	9.6	10	14
17	22	94	494	2,550	680	213	280	a75	59	9.6	10	14
18	56	84	464	1,160	647	194	280	a80	53	8.4	9.6	13
19	*70	80	651	760	547	184	256	a80	46	7.1	9.2	13
20	52	108	1,200	551	611	170	231	a70	42	*6.6	8.4	10
21	44	112	850	467	765	160	213	*59	37	6.6	7.9	10
22	42	2,300	627	1,070	698	149	207	52	35	6.6	7.5	9.2
23	39	4,850	484	*1,650	583	144	201	48	32	6.6	6.6	8.8
24	37	1,580	392	955	531	142	188	*43	31	6.2	7.1	8.4
25	35	801	332	675	484	135	172	44	29	5.9	7.9	7.5
26	33	512	303	563	422	126	158	50	26	5.3	10	6.2
27	32	392	357	1,580	366	128	157	48	26	5.0	11	6.6
28	32	308	335	2,280	324	157	149	42	24	5.0	11	5.9
29	31	254	311	2,060	-------	194	140	42	21	4.6	12	5.6
30	31	240	283	1,850	-------	203	126	44	23	4.6	12	5.9
31	31	-------	264	1,430	-------	184	-------	45	-------	4.6	9.6	-------
Total	936	12,442	23,749	27,273	25,048	6,741	9,352	2,436	1,268	350.3	218.9	251.9
Mean	30.2	415	766	880	895	217	312	78.6	42.3	11.3	7.06	8.40
Ac-ft	1,860	24,680	47,110	54,100	49,680	13,370	18,550	4,830	2,520	695	434	500

Calendar year 1953: Max 7,120 Min 10 Mean 363 Ac-ft 262,900
Water year 1953-54: Max 4,850 Min 2.7 Mean 302 Ac-ft 218,300

30.83

Peak discharge (base, 2,700 cfs).--Nov. 23 (2 a. m.) 8,000 cfs (11.75 ft); Jan. 16 (5 p. m.) 3,600 cfs (7.63 ft); Jan. 27 (9 p. m.) 3,550 cfs (7.56 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for South Umpqua River near Tiller.

Note.--Backwater from rock dam and leaves Oct. 1 to Nov. 21.

Rogue River at Dodge Bridge, near Eagle Point, Oreg.

Location.—Lat 42°31'30", long 122°50'30", in SE¼ sec. 17, T. 35 S., R. 1 W., on right bank at Dodge Bridge, 0.6 mile downstream from Reese Creek, 4½ miles northwest of Eagle Point, and at mile 134.9 (Geological Survey river-profile survey).

Drainage area.—1,210 sq mi, approximately.

Records available.—October 1938 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 1,273.66 ft above mean sea level, datum of 1929. Prior to Dec. 21, 1938, staff gage at same site and datum.

Average discharge.—16 years, 2,614 cfs (1,892,000 acre-ft per year).

Extremes.—Maximum discharge during year, 43,400 cfs Nov. 23 (gage height, 10.92 ft), from rating curve extended above 17,000 cfs by logarithmic plotting; minimum, 1,090 cfs Sept. 30; minimum daily, 1,300 cfs Sept. 27, 29, 30.

1938-54: Maximum discharge, 44,600 cfs Jan. 18, 1953 (gage height, 11.08 ft), from rating curve extended above 17,000 cfs by logarithmic plotting; maximum gage height, 11.52 ft Dec. 28, 1945; minimum discharge, 611 cfs Aug. 6, 14, 29, Sept. 9, 1940 (gage height, 0.99 ft); minimum daily, 830 cfs Sept. 1, 1940.

Remarks.—Records good except those for periods of no gage-height record, which are fair. Many small diversions above station for irrigation; most of flow of Big Butte Creek is diverted near Butte Falls. Some diurnal fluctuation caused by powerplant about 30 miles upstream.

Revisions (water years).—WSP 1094: 1942(M), 1943, 1945(M), 1946.

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,570	1,470	3,220	2,920	6,980	3,620	2,570	3,230	2,890	2,000	1,400	1,400
2	1,620	1,590	4,100	2,900	7,310	3,480	2,560	3,100	2,730	1,950	1,400	1,380
3	1,530	1,510	5,700	3,520	7,070	3,310	2,780	3,050	2,610	1,920	1,400	1,420
4	1,460	1,510	*7,680	3,280	6,830	3,200	4,040	3,200	2,660	1,800	1,400	1,390
5	1,440	1,520	5,960	3,340	6,460	3,120	6,860	3,370	2,690	1,830	1,400	1,380
6	1,400	1,610	9,430	3,280	6,010	3,120	5,720	3,440	2,620	1,820	1,430	1,380
7	1,440	1,660	7,650	3,360	5,820	3,140	4,560	3,620	2,470	1,800	1,430	1,340
8	1,440	1,610	8,100	3,280	5,750	3,400	4,280	3,880	2,640	1,800	1,420	*1,340
9	1,430	1,600	8,420	3,090	5,670	4,720	4,180	3,960	2,640	1,790	1,400	1,340
10	1,600	1,600	7,830	3,400	5,320	5,440	3,820	3,840	2,590	1,790	1,390	1,360
11	1,720	1,730	6,030	3,300	5,150	4,590	3,620	3,780	2,470	1,770	1,400	1,360
12	1,570	1,720	4,990	3,110	8,270	3,980	3,540	3,580	2,730	a1,700	1,400	1,360
13	1,530	1,690	4,560	2,920	8,930	3,700	4,020	3,420	2,780	a1,700	1,400	1,380
14	1,520	1,620	4,300	2,870	7,160	3,480	4,760	3,350	2,610	a1,600	1,420	1,360
15	1,510	1,600	4,120	5,090	5,800	3,330	4,300	3,440	3,220	a1,600	1,420	1,560
16	1,470	1,640	3,970	13,500	5,000	3,350	4,240	3,540	3,580	a1,600	1,430	1,520
17	1,510	1,910	3,920	11,800	5,510	3,230	4,590	3,560	3,010	a1,600	1,390	1,470
18	1,870	1,750	3,990	6,930	5,200	3,070	4,930	3,700	2,760	a1,600	1,390	1,460
19	2,010	1,760	5,830	5,500	4,520	2,940	4,790	3,760	2,610	a1,600	1,390	1,420
20	1,700	1,900	8,870	4,600	4,500	2,890	4,480	3,660	2,570	a1,600	1,400	1,420
21	1,610	1,900	6,510	4,000	4,930	2,760	4,260	3,370	2,500	a1,600	1,400	1,380
22	1,570	15,400	5,210	5,000	4,980	2,730	4,260	3,140	2,400	a1,600	1,390	1,390
23	1,550	33,300	4,520	*8,100	4,560	2,620	4,320	2,980	2,370	*1,530	1,380	1,390
24	1,560	14,300	4,010	a5,540	4,500	2,610	4,240	2,980	2,310	1,520	1,380	1,390
25	1,520	7,530	3,680	a4,380	4,370	2,570	4,100	2,940	2,260	1,510	1,400	1,350
26	1,510	5,310	3,480	a4,270	4,020	2,470	3,920	*2,890	2,230	1,490	1,490	1,310
27	1,500	4,780	3,680	a11,900	3,960	2,500	3,900	2,740	2,210	1,480	1,460	1,300
28	1,500	4,030	3,360	13,000	3,780	2,640	4,000	2,610	2,160	1,460	1,440	1,320
29	1,480	3,440	3,190	10,700	--------	*2,780	2,820	2,620	2,080	1,440	1,440	1,300
30	1,470	3,340	2,980	9,170	--------	2,730	3,520	2,710	2,020	1,430	1,430	1,300
31	1,480	--------	2,900	7,550	--------	2,620	--------	2,710	--------	1,420	1,440	--------
Total	48,130	126,330	162,190	175,600	158,360	100,140	124,980	102,170	77,420	51,350	43,760	41,470
Mean	1,553	4,211	5,232	5,665	5,656	3,230	4,166	3,296	2,581	1,656	1,412	1,382
Ac-ft	95,460	250,600	321,700	348,300	314,100	198,600	247,900	202,700	153,600	101,900	86,800	82,250

Calendar year 1953: Max 33,500 Min 1,400 Mean 3,738 Ac-ft 2,706,000
Water year 1953-54: Max 33,300 Min 1,300 Mean 3,320 Ac-ft 2,404,000

Peak discharge (base, 9,000 cfs).--Nov. 23 (1:30 a. m.) 43,400 cfs (10.92 ft); Dec. 6 (12:30 p. m.) 13,000 cfs (5.78 ft); Dec. 20 (7 a. m.) 9,780 cfs (4.97 ft); Jan. 16 (1:30 p. m.) 19,200 cfs (7.13 ft); Jan. 23 (time unknown) 12,500 cfs (5.64 ft); Jan. 27 (9:30 p. m.) 24,600 cfs (6.10 ft); Feb. 12 (5 p. m.) 11,100 cfs (5.30 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage when available and records for stations at Raygold near Central Point and below South Fork.

South Fork Little Butte Creek near Lake Creek, Oreg.

Location.—Lat 42°24'30", long 122°36'00", in SE¼ sec. 29, T. 36 S., R. 2 E., on left bank a quarter of a mile upstream from intake of Rogue River Valley Canal and 1½ miles southeast of Lake Creek Post Office.

Drainage area.—138 sq mi.

Records available.—April 1921 to September 1954.

Gage.—Water-stage recorder. Altitude of gage is 1,720 ft (by barometer). Prior to June 17, 1921, staff gage at same site and datum.

Average discharge.—33 years, 106 cfs (76,740 acre-ft per year).

Extremes.—Maximum discharge during year, 2,360 cfs Nov. 23 (gage height, 6.08 ft), from rating curve extended above 840 cfs by logarithmic plotting; minimum, 12 cfs Sept. 27.

1921-54: Maximum discharge, 3,920 cfs Jan. 7, 1948 (gage height, 6.48 ft), from rating curve extended above 840 cfs by logarithmic plotting; minimum, 2 cfs Aug. 10, 1931 (gage height, 0.97 ft).

Remarks.—Records good except those for periods of no gage-height record and those above 1,000 cfs, which are poor. Diversions for irrigation of about 1,000 acres above station.

Revisions (water years).—WSP 934: 1925(M).

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

(Shifting-control method used Nov. 22, 23)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30					
1.2	14	1.7	101	1.2	14	1.7	101	3.0	580
1.3	24	2.0	200	1.3	24	2.0	186	4.0	1,130
1.5	57	3.0	680	1.5	57	2.5	360	5.0	1,820

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	23	150	159	364	216	145	250	82	a40	21	22
2	34	24	243	165	364	204	148	230	73	a38	18	22
3	30	23	529	198	364	195	162	216	65	a37	18	*21
4	27	23	605	204	352	189	210	210	67	a36	23	21
5	27	24	396	195	332	189	268	219	77	a35	23	21
6	26	24	628	174	313	192	257	223	82	*34	*23	21
7	26	24	522	162	310	192	236	226	71	34	22	21
8	26	23	504	145	310	a200	250	230	87	36	23	21
9	26	22	481	136	299	a240	250	226	87	36	22	20
10	39	24	499	162	285	a320	226	213	82	36	21	21
11	39	28	376	145	282	a250	226	204	*75	33	18	23
12	32	28	313	120	427	a220	*236	192	a85	32	20	23
13	30	26	278	106	432	a200	292	177	a95	32	21	22
14	28	26	257	106	372	a200	324	165	a90	28	24	21
15	*27	24	243	186	*328	a210	320	156	a120	28	24	22
16	27	*30	236	414	292	*223	328	150	a100	28	24	24
17	27	34	230	445	356	213	356	139	a95	27	22	28
18	48	28	230	299	313	204	376	128	a85	26	21	27
19	53	32	268	240	268	192	376	123	a80	26	22	24
20	36	36	324	*180	264	177	356	117	a70	24	21	21
21	33	41	274	186	274	168	344	109	a65	27	22	21
22	30	515	240	240	278	162	336	96	a60	28	20	21
23	28	*1,840	216	296	260	153	336	91	a55	26	22	22
24	26	900	201	226	260	156	328	89	a52	26	22	22
25	26	440	177	174	257	148	310	99	a50	24	23	21
26	26	302	177	174	247	139	302	94	a48	23	26	20
27	24	240	230	701	230	139	332	87	a46	23	24	17
28	24	195	189	700	223	139	340	82	a44	23	24	19
29	24	165	177	544	-------	150	306	82	a42	22	26	20
30	24	159	153	458	-------	145	282	96	a40	20	24	21
31	23	-------	148	384	-------	145	-------	87	-------	20	23	-------
Total	932	5,323	9,494	8,024	8,656	5,870	8,558	4,806	2,170	908	687	650
Mean	30.1	177	306	259	309	189	285	155	72.3	29.3	22.2	21.7
Ac-ft	1,850	10,560	18,830	15,920	17,170	11,640	16,970	9,530	4,300	1,800	1,360	1,290

Calendar year 1953: Max 1,840 Min 19 Mean 190 Ac-ft 137,400
Water year 1953-54: Max 1,840 Min 17 Mean 154 Ac-ft 111,200

15.15

Peak discharge (base, 500 cfs).--Nov. 23 (4 a. m.) 2,360 cfs (6.08 ft); Dec. 3 (9 p. m.) 1,170 cfs (4.17 ft); Dec. 6 (5 p. m.) 868 cfs (3.60 ft); Jan. 17 (7 a. m.) 571 cfs (2.98 ft); Jan. 27 (8 p. m.) 1,560 cfs (4.85 ft); Feb. 12 (3 to 4 p. m.) 580 cfs (3.00 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records, recorded range in stage when available, records for South Fork Big Butte Creek near Butte Falls, and North Fork Little Butte Creek near Lake Creek.

North Fork Little Butte Creek at Fish Lake, near Lake Creek, Oreg.

Location.—Lat 42°23', long 122°21', in SE¼ sec. 4, T. 37 S., R. 4 E., on right bank half a mile downstream from outlet of Fish Lake and 14 miles east of Lake Creek Post Office.

Drainage area.—18 sq mi, approximately.

Records available.—October 1914 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 4,571.41 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Oct. 21, 1914, to July 20, 1915, staff gage just above wasteway in temporary dam at different datum. June 11, 1916, to July 9, 1918, staff gage and July 10, 1918, to Oct. 28, 1932, water-stage recorder, at site a quarter of a mile upstream at different datums.

Average discharge.—38 years (1916-54), 35.3 cfs (25,560 acre-ft per year).

Extremes.—Maximum discharge during year, 135 cfs Aug. 24; minimum, 13 cfs Sept. 16-20.
1914-54: Maximum discharge, about 940 cfs June 5, 1917, computed from rate of change in contents of reservoir after break in dam (occurred during period of no gage-height record); no flow at times.

Remarks.—Records fair. Flow regulated by Fish Lake. Since September 1923, water has been diverted by Cascade Canal from Fourmile Lake, in Klamath River basin, into Fish Lake basin. No diversion from creek above station.

Revisions (water years).—WSP 654: Drainage area. WSP 1218: 1917(M).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	22	27	41	42	29	31	63	57	49	128	77
2	21	22	27	41	42	29	31	63	57	47	121	77
3	21	22	27	41	41	28	31	60	57	67	119	77
4	21	22	28	41	41	28	31	57	60	72	*125	*77
5	21	22	28	40	40	28	31	57	71	75	124	75
6	21	22	28	39	37	28	32	57	81	83	124	75
7	21	22	28	40	35	28	32	57	88	102	119	74
8	21	22	28	40	33	28	32	58	88	115	119	72
9	21	22	29	40	33	32	32	60	88	117	115	72
10	21	22	30	40	32	36	32	61	86	117	117	69
11	21	22	39	40	34	36	32	61	81	119	111	57
12	21	22	49	40	41	36	32	61	81	*119	113	49
13	21	22	45	40	47	32	32	61	81	119	117	49
14	*21	22	44	40	47	28	33	61	81	119	109	39
15	21	22	39	40	47	29	34	60	81	119	106	25
16	21	22	38	40	41	29	35	49	81	119	113	18
17	21	22	38	41	34	30	36	45	81	119	104	13
18	22	22	37	41	34	30	37	45	71	119	*106	13
19	22	22	37	41	34	30	36	45	58	119	109	13
20	22	22	41	41	32	30	35	45	54	119	86	14
21	22	23	40	44	31	30	38	52	*58	119	77	14
22	22	24	40	45	31	30	40	*52	58	121	81	14
23	22	28	40	45	29	31	41	52	58	124	115	15
24	22	27	40	45	28	31	41	52	67	121	135	15
25	22	27	40	45	28	31	42	52	94	121	110	15
26	22	27	40	45	28	31	44	56	77	124	81	15
27	22	27	40	45	28	31	44	56	69	126	64	27
28	22	27	40	45	29	31	46	48	66	130	64	39
29	22	27	40	45	-------	31	47	49	64	126	72	39
30	22	27	40	44	-------	31	56	58	75	130	83	56
31	22	-------	40	44	-------	31	-------	58	-------	126	81	-------
Total	665	704	1,127	1,299	999	943	1,096	1,711	2,169	3,402	3,248	1,284
Mean	21.5	23.5	36.4	41.9	35.7	30.4	36.5	55.2	72.3	110	105	42.8
Ac-ft	1,320	1,400	2,240	2,580	1,980	1,870	2,170	3,390	4,300	6,750	6,440	2,550

Calendar year 1953: Max 141 Min 20 Mean 50.9 Ac-ft 36,840
Water year 1953-54: Max 130 Min 13 Mean 51.1 Ac-ft 36,990

* Discharge measurement made on this day.

North Fork Little Butte Creek near Lake Creek, Oreg.

Location.—Lat 42°24'10", long 122°32'20", in SW¼ sec. 25, T. 36 S., R. 2 E., on right bank a quarter of a mile upstream from Hanley South Canal diversion and 4½ miles east of Lake Creek Post Office.

Drainage area.—38 sq mi, approximately.

Records available.—September 1911 to March 1913, May 1922 to September 1928 (incomplete), and October 1931 to September 1954 in reports of Geological Survey. September 1911 to March 1913, and May 1922 to September 1941, in reports of State engineer.

Gage.—Water-stage recorder. Datum of gage is 2,125.01 ft above mean sea level, datum of 1929. Sept. 10, 1911, to Mar. 31, 1913, staff gages near present site at different datums.

Average discharge.—28 years (1911-12, 1922-23, 1928-54), 71.9 cfs (52,050 acre-ft per year).

Extremes.—Maximum discharge during year, 485 cfs Nov. 23 (gage height, 2.86 ft), from rating curve extended above 200 cfs; minimum, 42 cfs Sept. 18-22 (gage height, 1.69 ft).

1911-13, 1922-28, 1931-54: Maximum discharge, 680 cfs Dec. 30, 1942 (gage height, 3.30 ft), from rating curve extended above 170 cfs; minimum, 11 cfs (computed on basis of records for station at Fish Lake, near Lake Creek) Oct. 29 to Nov. 8, 1931.

Remarks.—Records good. Flow regulated by Fish Lake. Diversions for irrigation of about 100 acres above station; some water diverted into Fish Lake from Fourmile Lake, in Klamath River basin, since September 1923.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22		Nov. 23 to Sept. 30	
1.8	39	1.6	34
2.0	66	1.8	55
2.2	110	2.0	92
2.4	180	2.3	185
		2.6	335

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	49	82	84	134	76	74	102	92	90	144	108
2	49	49	115	84	131	76	74	100	92	84	144	105
3	47	49	164	86	131	74	74	100	90	97	154	*105
4	47	47	144	90	128	72	76	97	95	115	154	105
5	49	49	124	88	124	72	78	*97	108	115	157	102
6	49	49	192	88	115	70	76	97	113	115	*150	100
7	47	49	147	88	113	70	76	97	118	121	150	100
8	47	47	160	86	108	70	76	97	124	131	157	100
9	47	47	157	86	102	80	76	97	121	134	157	100
10	56	49	150	90	97	86	74	97	118	137	154	100
11	49	49	128	88	100	84	74	97	*115	137	147	88
12	49	49	131	86	113	82	*76	97	124	140	150	82
13	49	49	118	84	115	80	84	95	124	140	150	80
14	49	49	113	84	113	74	84	92	118	140	140	78
15	*47	49	113	100	*105	74	84	92	131	140	128	58
16	47	*56	*110	115	102	*78	84	84	121	140	134	53
17	47	52	110	118	105	78	86	78	118	137	134	43
18	58	50	105	105	97	78	88	78	113	137	131	42
19	49	52	108	100	92	76	88	78	100	137	131	42
20	49	56	113	*95	95	76	88	78	95	*134	113	42
21	49	58	105	100	92	76	88	80	95	134	110	42
22	47	168	97	110	90	74	90	84	92	131	110	42
23	47	*311	92	113	86	74	90	84	90	134	128	43
24	47	164	88	102	84	74	92	84	97	134	140	43
25	47	110	86	97	82	74	92	86	118	134	131	43
26	47	97	88	97	80	72	92	90	115	134	105	43
27	47	88	90	144	78	72	97	92	108	137	92	48
28	47	84	86	154	78	76	97	86	105	137	92	67
29	47	80	84	157	-------	78	95	84	95	137	97	67
30	47	84	82	140	-------	76	97	97	113	140	110	74
31	47	-------	80	134	-------	76	-------	95	-------	140	108	-------
Total	1,500	2,239	3,562	3,193	2,890	2,348	2,520	2,812	3,258	4,013	4,102	2,145
Mean	48.4	74.6	115	103	103	75.7	84.0	90.7	109	129	132	71.5
Ac-ft	2,980	4,440	7,070	6,330	5,730	4,660	5,000	5,580	6,460	7,960	8,140	4,250

Calendar year 1953: Max 377 Min 47 Mean 102 Ac-ft 73,880
Water year 1953-54: Max 311 Min 42 Mean 94.7 Ac-ft 68,600

* Discharge measurement made on this day.

Diversions from Little Butte Creek near Lake Creek, Oreg.

The following canals divert water from Little Butte Creek and its tributaries near Lake Creek Post Office:

Hanley South and Hanley North Canals, from North Fork in SE¼ sec. 26, T. 36 S., R. 2 E. Water used for irrigation of land on both sides of Little Butte Creek near Lake Creek.

Rogue River Valley Canal, from South Fork in SE¼ sec. 29, T. 36 S., R. 2 E., and from North Fork in NE¼ sec. 20, T. 36 S., R. 2 E. Water used for irrigation of about 15,000 acres of land, chiefly in Bear Creek basin, on both sides of that creek below Phoenix.

Eagle Point Canal, from main stream in SE¼ sec. 31, T. 35 S., R. 1 E. Water used for irrigation of lands near Eagle Point.

Records for Hanley North and South Canals and Eagle Point Canal are partly estimated.

Records for these canals, published as a group, are available from April 1929 to September 1954; records of some of the canals published separately prior to 1929. Publication of records for these canals discontinued September 1954.

Many smaller canals divert from Little Butte Creek and its tributaries.

Diversions, in acre-feet, water year October 1953 to September 1954

Month	Hanley South Canal [a]	Hanley North Canal [b]	Rogue River Valley Canal below junction of intakes [c]	Eagle Point Canal [d]
October	-	-	-	-
November	-	-	-	-
December	-	-	-	-
January	-	-	-	-
February	-	-	-	-
March	-	-	-	-
April	-	-	-	-
May	-	-	7,670	-
June	-	-	5,140	-
July	353	611	8,330	1,080
August	320	614	7,200	960
September	-	-	4,220	716
Water year 1953-54	-	-	-	-

[a] Canal gate closed sometime after Oct. 15, diversions began Apr. 25 and noted closed June 11. Daily discharge records June 25 to Sept. 18 in files of State engineer.

[b] Canal gate closed sometime after Sept. 28, 1953. Continuous diversion began about June 25, but water noted turned in canal Apr. 26. Daily discharge records June 25 to Sept. 18 in files of State engineer.

[c] Canal gates closed sometime after Oct. 3, diversions began Apr. 16; daily discharge records Oct. 1-3, Apr. 21 to Sept. 30 in files of State engineer.

[d] Canal gates closed sometime after Nov. 15, diversions began Apr. 1; daily discharge record June 25 to Sept. 30 in files of State engineer.

Emigrant Creek near Ashland, Oreg.

Location.—Lat 42°09'50", long 122°36'20", in NE¼ sec. 20, T. 39 S., R. 2 E., on right bank 1,100 ft downstream from Emigrant Gap Reservoir Dam and 6 miles southeast of Ashland.
Drainage area.—64.3 sq mi.
Records available.—January 1920 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 2,053.73 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation). Prior to Oct. 1, 1926, water-stage recorders or staff gage at sites within 800 ft of present site at different datums.
Average discharge.—15 years (1924-28, 1929-30, 1933-35, 1940-47, 1953-54), 21.8 cfs (15,780 acre-ft per year).
Extremes.—Maximum discharge during year, 2,160 cfs Jan. 27 (gage height, 6.86 ft); no flow at times.
1920-54: Maximum discharge, 5,260 cfs Feb. 20, 1927, by computation of peak flow over dam; no flow at times.
Remarks.—Records fair except those below 3.0 cfs, which are poor. Flow regulated since December 1924 by Emigrant Gap Reservoir. Diversion above station for irrigation; principal canals are Ashland lateral and East lateral. Water diverted by Keene Creek Canal from Klamath River basin into Emigrant Creek above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 1-27, Dec. 20-29, Jan. 12-17, May 16-28, June 19-24; backwater from debris Sept. 29, 30)

0.0	0	1.5	58
.1	.3	2.0	120
.3	1.5	2.5	200
.5	4.0	3.0	310
.7	9	4.0	630
1.0	20	5.0	1,060
1.3	39		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	0	230	129	58	20	1.3	30	39	16
2		0	0	0	242	111	61	18	1.3	30	39	*16
3		0	0	0	240	96	68	18	1.3	30	*39	17
4		0	0	0	226	88	96	19	1.4	30	39	17
5		0	0	0	206	90	141	27	1.5	30	39	16
6		.1	0	0	186	88	117	*22	1.6	30	39	16
7		.1	0	0	172	88	98	11	1.7	30	33	15
8		.1	0	0	171	40	88	4.0	1.3	30	27	11
9		.1	0	0	168	9.9	84	1.4	1.2	*29	27	10
10		.2	0	0	165	10	78	1.3	1.0	29	27	6.5
11		.2	0	0	164	12	76	1.3	1.0	29	30	0
12		.2	0	0	516	73	76	1.3	1.3	29	33	0
13		.2	0	0	502	111	91	1.2	1.2	29	30	0
14		.2	0	0	268	108	104	1.2	1.2	29	27	0
15		.2	0	.1	202	98	97	.9	1.0	29	24	0
16		.2	0	.3	176	100	84	.8	.9	30	15	0
17		.3	0	23	168	102	84	.6	.9	43	4.6	0
18		.3	0	230	170	96	88	.5	.9	43	4.4	0
19		.4	0	165	166	82	80	.3	.8	43	4.4	0
20		.5	14	132	165	81	57	.2	.8	44	4.4	0
21		.6	23	124	164	74	39	.2	.6	44	4.4	0
22		.8	*23	151	162	69	32	.1	.6	44	4.4	0
23	(*)	1.2	23	302	160	*64	*33	.1	.6	44	6.6	0
24		1.2	22	172	159	65	29	.1	6.3	43	18	0
25		1.0	22	138	*158	62	24	.1	17	43	24	0
26		1.0	22	124	156	58	20	.1	29	42	20	0
27		.6	23	844	154	58	22	.1	24	41	16	0
28		0	24	595	152	59	33	.8	25	41	12	0
29		0	15	459	--------	64	31	1.4	26	41	12	.5
30		0	0	*355	--------	61	26	1.4	30	39	12	1
31		--------	0	252	--------	59	--------	1.4	--------	39	13	--------
Total	0	9.7	211	4,066.4	5,768	2,305.9	2,015	155.8	182.7	1,107	667.2	142.0
Mean	0	0.32	6.81	131	206	74.4	67.2	5.03	6.09	35.7	21.5	4.73
Ac-ft	0	19	419	8,070	11,440	4,570	4,000	309	362	2,200	1,320	282

Calendar year 1953: Max 992 Min 0 Mean 42.9 Ac-ft 31,030
Water year 1953-54: Max 844 Min 0 Mean 45.6 Ac-ft 32,980

* Discharge measurement or observation of no flow made on this day.

Bear Creek at Medford, Oreg.

Location.—Lat 42°19'40", long 122°52'00", in NW¼ sec. 30, T. 37 S., R. 1 W., on left bank just upstream from Main Street Bridge in Medford.

Drainage area.—279 sq mi.

Records available.—March 1915 to September 1954 (incomplete prior to April 1927).

Gage.—Water-stage recorder and concrete control. Datum of gage is 1,343.47 ft above mean sea level, datum of 1929. Mar. 13, 1915, to June 30, 1918, staff gage and Sept. 20, 1918, to Oct. 19, 1943, water-stage recorder, at site 40 ft upstream at datum 0.42 ft higher. Oct. 20, 1943, to Dec. 30, 1947, water-stage recorder at site 40 ft upstream at present datum.

Average discharge.—33 years (1920-26, 1927-54), 91.6 cfs (66,320 acre-ft per year).

Extremes.—Maximum discharge during year, 6,080 cfs Jan. 27 (gage height, 6.09 ft), from rating curve extended above 3,000 cfs by logarithmic plotting; minimum, 12 cfs Aug. 6, 24, Sept. 30.

1915-54: Maximum discharge, 10,200 cfs Feb. 20, 1927 (gage height, 10.57 ft, present datum, site then in use), from rating curve extended above 1,600 cfs; practically no flow at times.

Remarks.—Records good except those for periods of no gage-height record, which are poor. Diversions above station for irrigation. Flow partly regulated since December 1924 by Emigrant Gap Reservoir.

Revisions (water years).—WSP 1044: 1944.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 27				Jan. 28 to Sept. 30			
0.3	16	2.0	600	0.2	6	0.6	59
.5	38	2.5	965	.3	14	1.0	148
.7	72	3.0	1,430	.4	26		
1.0	148	4.0	2,600	Note.--Same as preceding table above 1.0 ft.			
1.5	335						

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	28	98	90	754	390	148	194	85	29	19	24
2	64	31	167	98	754	326	148	180	77	24	19	*24
3	55	30	391	204	747	294	167	177	*63	22	16	24
4	48	28	530	145	705	250	218	158	73	22	15	26
5	47	27	229	142	642	243	326	145	90	28	*15	39
6	42	41	422	128	582	240	282	*138	102	25	16	44
7	36	36	326	128	546	240	240	127	94	26	14	44
8	32	30	366	115	522	236	222	122	120	28	15	42
9	32	25	322	110	504	262	218	120	120	29	15	36
10	44	31	290	142	475	278	204	125	113	*28	16	24
11	41	41	204	140	470	270	198	115	111	31	15	47
12	47	38	174	115	1,140	258	194	107	174	29	16	49
13	46	32	154	105	1,320	299	229	107	201	21	18	47
14	46	31	148	102	775	294	266	107	167	32	37	65
15	44	32	142	274	*600	282	254	98	154	*28	65	102
16	44	34	140	1,020	528	274	246	102	145	25	45	81
17	46	47	137	1,080	719	274	254	98	132	28	32	77
18	68	40	128	614	600	262	278	81	127	25	35	69
19	57	42	134	*528	516	246	270	81	118	20	24	65
20	47	*53	154	415	498	232	240	81	104	20	28	63
21	44	50	140	353	486	222	*208	92	83	20	19	57
22	*37	317	*131	430	470	208	208	94	56	20	19	56
23	34	1,100	123	1,140	450	*201	204	87	47	19	18	54
24	33	460	118	594	440	201	187	102	45	18	13	50
25	33	215	112	419	430	194	170	100	34	17	22	50
26	31	151	112	528	420	187	161	90	42	16	54	47
27	30	123	145	2,240	425	161	204	81	50	15	47	42
28	28	105	131	2,450	420	161	232	75	49	25	29	20
29	28	95	123	*1,530	-------	177	215	65	36	18	36	18
30	28	100	98	1,200	-------	187	198	81	36	18	47	12
31	28	-------	88	870	-------	180	-------	87	-------	16	39	-------
Total	1,302	3,413	5,977	17,440	16,938	7,529	6,589	3,417	2,848	722	818	1,398
Mean	42.0	114	193	563	605	243	220	110	94.9	23.3	26.4	46.6
Ac-ft	2,580	6,770	11,860	34,590	33,600	14,930	13,070	6,780	5,650	1,430	1,620	2,770

Calendar year 1953: Max 2,590 Min 20 Mean 182 Ac-ft 131,400
Water year 1953-54: Max 2,450 Min 12 Mean 187 Ac-ft 135,600

Peak discharge (base, 400 cfs).--Nov. 23 (4 a. m.) 1,520 cfs (3.09 ft); Dec. 3 (11:30 p. m.) 1,640 cfs (3.21 ft); Jan. 16 (1:30 p. m.) 1,580 cfs (3.15 ft); Jan. 23 (3 a. m.) 1,540 cfs (3.11 ft); Jan. 27 (10 p. m.) 6,080 cfs (6.09 ft); Feb. 12 (10 to 11 p. m.) 1,480 cfs (3.05 ft); Feb. 17 (1 to 3 p. m.) 957 cfs (2.49 ft).

* Discharge measurement made on this day.

Note.--No gage-height record July 16 to Aug. 4; discharge estimated on basis of records for Emigrant Creek near Ashland and Bear Creek near Medford.

Diversions in Bear Creek basin, Oreg.

The following canals divert from streams in Bear Creek basin:

Ashland lateral of Talent Irrigation District, from Sampson Creek in SE¼ sec. 27, T. 39 S., R. 2 E. Water used to irrigate lands near Ashland. Most of flow is received from Keene Creek, in Klamath River basin, through Keene Creek Canal. Record for year incomplete.

East lateral of Talent Irrigation District, from Emigrant Gap Reservoir in SE¼ sec. 20, T. 39 S., R. 2 E. Water used to irrigate lands mostly on east side of Bear Creek above Medford.

Talent lateral of Talent Irrigation District, from Bear Creek in SW¼ sec. 33, T. 38 S., R. 1 E. Water used to irrigate lands near Talent.

Phoenix Canal, from Bear Creek in NW¼ sec. 23, T. 38 S., R. 1 W. Water supplements flow of Medford Irrigation District Canal, used to irrigate lands west of Bear Creek.

Bear Creek Canal, from Bear Creek at Medford. Water used to irrigate lands west of Bear Creek near Central Point.

Records of these canals, published as a group are available from April 1929 to September 1954; records for some of the canals published separately prior to 1929.

Publication discontinued Sept. 30, 1954, except that in future years East lateral will be published with records for Emigrant Creek near Ashland.

Many smaller canals also divert from Bear Creek and its tributaries.

Diversion, in acre-feet, water year October 1953 to September 1954

Month	Ashland lateral	East lateral	Talent lateral	Phoenix Canal	Bear Creek Canal
October	0	0	0	10	250
November	0	0	0	0	0
December	0	0	0	0	0
January	0	0	0	0	0
February	0	26	0	0	0
March	0	151	0	0	0
April	-	1,350	591	57	165
May	-	3,250	2,070	1,220	932
June	228	1,520	1,480	570	811
July	910	3,960	2,310	1,600	1,120
August	752	2,580	1,620	977	766
September	266	1,120	605	673	722
Water year 1953-54	-	13,960	8,680	5,110	4,770

Rogue River at Raygold, near Central Point, Oreg.

Location.—Lat 42°26'20", long 122°59'10", in sec. 18, T. 36 S., R. 2 W., on right bank at Raygold, just downstream from dam and powerhouse of The California Oregon Power Co., half a mile downstream from Bear Creek, 6 miles northwest of Central Point, and at mile 121.9 (Geological Survey river-profile survey).

Drainage area.—2,020 sq mi, approximately.

Records available.—August 1905 to September 1954. Prior to 1922, published as Rogue River near Tolo.

Gage.—Water-stage recorder. Datum of gage is 1,121.78 ft above mean sea level, datum of 1929. Prior to Sept. 19, 1914, staff gage at same site and datum.

Average discharge.—49 years, 2,861 cfs (2,071,000 acre-ft per year).

Extremes.—Maximum discharge during year, 52,300 cfs Nov. 23 (gage height, 16.93 ft); minimum, 770 cfs July 18 (gage height, 0.30 ft); minimum daily, 1,390 cfs Sept. 29, 30.

1905-54: Maximum discharge, 91,500 cfs Feb. 21, 1927 (gage height, 24.8 ft, from floodmark), from rating curve extended above 36,000 cfs; minimum not determined; minimum daily, 616 cfs Sept. 6, 1931.

Greatest flood known occurred during winter of 1861-62 and reached a stage of about 32 ft; flood in February 1890 reached a stage of about 27½ ft. (Information furnished by Corps of Engineers.)

Remarks.—Records excellent. Many diversions above station for irrigation. Diurnal fluctuation caused by powerplant just above station.

Revisions (water years).—WSP 1248: 1906, 1910(M), 1914(M), 1915.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.0	1,330	7.0	13,300
2.0	2,460	15.0	43,500
4.0	5,900		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,730	1,630	3,950	3,690	8,770	4,550	3,110	3,900	3,190	2,160	1,510	1,530
2	1,850	1,740	5,130	3,710	8,940	4,490	3,050	3,710	2,990	2,120	1,500	1,460
3	1,740	1,670	7,350	5,310	8,640	4,140	3,280	3,630	2,860	2,080	1,480	1,460
4	1,660	1,670	*11,300	4,460	8,380	3,950	4,330	3,690	2,880	2,030	1,500	1,460
5	1,630	1,660	7,920	4,440	*7,900	3,830	7,900	3,830	3,020	2,010	1,490	1,450
6	1,600	1,770	12,200	4,210	7,570	3,800	6,910	3,860	3,100	1,980	1,490	1,470
7	1,590	1,830	11,100	4,210	7,130	3,850	5,590	4,000	2,920	1,960	1,500	1,440
8	1,560	1,760	11,100	4,190	6,950	4,020	5,130	4,240	3,140	1,880	1,450	1,450
9	1,560	1,740	10,800	3,900	6,800	5,330	5,070	4,390	3,280	1,880	1,470	1,430
10	1,810	1,730	10,100	4,480	6,490	6,550	4,550	4,310	3,110	1,890	1,450	1,460
11	2,040	1,860	7,790	4,390	6,170	5,710	4,300	4,220	2,990	1,850	1,430	1,560
12	1,780	1,850	6,450	4,000	9,660	4,940	4,220	4,000	3,310	1,800	1,440	1,550
13	1,720	1,830	5,860	3,690	11,800	4,600	4,580	3,760	3,590	1,750	1,450	1,570
14	1,700	1,760	5,490	3,540	8,940	4,370	5,690	3,710	3,330	1,710	1,500	1,550
15	1,680	1,720	5,250	8,100	7,350	4,210	5,250	3,730	3,660	1,710	1,580	1,850
16	1,660	1,760	5,010	16,800	6,470	4,190	5,050	3,850	4,420	1,680	1,560	1,830
17	1,610	2,150	4,900	19,600	7,760	4,100	5,370	3,860	3,660	1,660	1,500	1,760
18	2,070	1,930	4,960	10,100	7,350	3,860	5,770	3,920	3,360	1,630	1,500	1,660
19	2,500	1,930	6,150	7,970	6,070	3,710	5,750	4,030	3,140	*1,640	1,490	1,620
20	2,010	2,200	9,720	6,170	5,840	3,560	5,370	3,920	3,020	1,630	1,520	1,570
21	1,860	2,120	7,760	5,430	6,190	3,460	5,050	3,730	2,870	1,630	1,530	1,550
22	1,770	12,900	6,380	7,520	6,360	3,350	4,960	3,460	2,670	1,610	1,470	1,550
23	1,740	43,300	5,550	13,200	5,840	3,270	5,010	3,300	2,560	1,590	1,460	*1,520
24	1,710	20,000	5,000	8,150	5,650	3,220	4,900	3,280	2,500	1,570	1,430	1,500
25	1,680	9,540	4,550	6,320	5,490	3,140	4,710	3,300	2,430	1,590	1,500	1,450
26	1,670	6,610	4,220	7,260	5,310	3,050	4,510	3,250	2,400	1,570	1,660	1,430
27	1,650	5,750	4,670	15,100	5,030	3,000	4,570	*3,120	2,380	1,530	1,630	1,420
28	1,640	4,980	4,310	24,400	4,750	3,190	4,820	2,920	2,360	1,540	1,590	1,410
29	1,650	4,260	4,070	15,200	-------	*3,410	4,550	2,870	2,300	1,520	1,580	1,390
30	1,640	4,050	3,810	12,500	-------	3,300	4,170	3,050	2,180	1,520	1,550	1,390
31	1,620	-------	3,590	9,840	-------	3,220	-------	2,990	-------	1,510	1,560	-------
Total	54,130	149,700	206,440	251,880	199,600	123,370	147,520	113,830	89,620	54,230	46,770	45,740
Mean	1,746	4,990	6,659	8,125	7,129	3,980	4,917	3,672	2,987	1,749	1,509	1,525
Ac-ft	107,400	296,900	409,500	499,600	395,900	244,700	292,600	225,800	177,800	107,600	92,770	90,720

Calendar year 1953: Max 43,300 Min 1,530 Mean 4,603 Ac-ft 3,332,000
Water year 1953-54: Max 43,300 Min 1,390 Mean 4,063 Ac-ft 2,941,000

Peak discharge (base, 11,000 cfs).--Nov. 23 (6 a. m.) 52,300 cfs (16.93 ft); Dec. 4 (2 a. m.) 18,700 cfs (8.67 ft); Dec. 6 (5 p. m.) 18,800 cfs (8.69 ft); Dec. 8 (8 p. m.) 14,900 cfs (7.52 ft); Jan. 16 (7 p. m.) 26,800 cfs (10.90 ft); Jan. 23 (4 a. m.) 16,800 cfs (8.11 ft); Jan. 28 (1:30 a. m.) 42,000 cfs (14.64 ft); Feb. 13 (12:30 a. m.) 14,200 cfs (7.29 ft).

* Discharge measurement made on this day.

Rogue River at Grants Pass, Oreg.

Location.—Lat 42°25'50", long 123°19'00", in NW¼ sec. 20, T. 36 S., R. 5 W., on right bank at city of Grants Pass filter plant, 0.6 mile upstream from U. S. Highway 99 bridge at Grants Pass and at mile 98.0 (Geological Survey river-profile survey).

Drainage area.—2,420 sq mi, approximately.

Records available.—January 1939 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 888.28 ft above mean sea level, datum of 1929.

Average discharge.—15 years, 3,426 cfs (2,480,000 acre-ft per year).

Extremes.—Maximum discharge during year, 66,000 cfs Nov. 23 (gage height, 21.15 ft), from rating curve extended above 28,000 cfs on basis of slope-area determination at gage height 21.25 ft; minimum, 1,010 cfs Aug. 28; minimum daily, 1,220 cfs Sept. 28, 30.

1939-54: Maximum discharge, 77,000 cfs Jan. 18, 1953 (gage height, 23.9 ft), from rating curve extended above 28,000 cfs on basis of slope-area determination at gage height 21.25 ft; minimum, 560 cfs Aug. 8, 1940; minimum daily, 637 cfs Aug. 8, 1940.

Flood in winter of 1861-62 reached a stage of about 39 ft (information furnished by Corps of Engineers). Flood in February 1890 reached a stage of about 32 ft, and that of Feb. 21, 1927, about 28 ft, according to local resident.

Remarks.—Records good except those for period of shifting control, which are fair. Many diversions from Rogue River and tributaries above station, the largest of which are at Savage Rapids Dam of Grants Pass Irrigation District, 5 miles above station. Flow regulated by dams at Savage Rapids and Raygold and slightly by Fish Lake and Emigrant Gap Reservoir. Records of chemical analyses and water temperatures for the water year 1954 are given in WSP 1353.

Rating tables, water year 1953-54, except period of shifting control
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 27				Jan. 28 to Sept. 30			
0.5	1,580	7.0	14,700	-0.1	1,150	8.0	20,000
1.0	2,190	17.0	48,000	1.0	2,600	14.0	41,600
3.0	5,450	19.0	55,900	3.0	6,430		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,780	1,680	4,290	3,800	12,700	5,400	3,440	3,820	2,940	1,950	1,330	1,470
2	2,320	1,770	5,050	3,940	12,600	5,070	3,390	3,730	2,820	1,900	1,330	1,410
3	1,880	1,760	6,840	5,780	12,000	4,870	3,470	3,580	2,650	1,780	1,330	1,340
4	1,770	1,700	13,300	5,130	11,500	4,630	4,710	3,560	2,660	1,780	1,300	1,340
5	1,690	1,740	9,000	5,050	10,700	4,410	9,560	3,620	2,780	1,750	1,280	1,370
6	1,680	1,840	12,700	4,770	9,840	4,350	8,850	3,780	2,920	1,740	1,290	1,300
7	1,650	1,920	14,200	4,920	9,340	4,330	6,870	3,910	2,730	1,740	1,320	*1,300
8	1,600	1,840	*12,200	4,860	8,970	4,570	6,080	4,080	2,900	*1,680	1,320	1,320
9	1,620	1,800	13,100	4,530	8,730	6,010	6,010	4,240	3,230	1,680	1,320	1,300
10	1,760	1,800	11,800	4,920	8,290	7,850	5,360	4,220	3,030	1,680	1,290	1,300
11	2,110	1,880	9,040	5,130	7,870	6,910	4,990	*4,100	2,780	1,650	1,270	1,510
12	*1,950	1,900	7,280	4,530	13,100	5,910	4,770	3,890	3,050	1,610	1,280	1,420
13	1,780	1,930	6,460	4,150	17,000	5,400	4,910	3,670	3,530	1,540	1,270	1,410
14	1,740	1,860	6,100	3,970	12,200	5,050	6,230	3,560	3,230	1,530	1,290	1,470
15	1,720	1,800	5,640	9,950	9,740	4,830	5,840	3,530	3,250	1,530	1,340	1,570
16	1,710	1,800	5,410	24,700	8,380	4,770	4,930	3,600	4,530	1,500	1,380	1,930
17	1,690	2,160	5,220	28,800	9,860	4,710	5,860	3,670	3,710	1,490	1,360	1,710
18	1,920	2,060	5,260	14,400	10,400	4,430	6,060	3,710	3,100	1,480	1,350	1,530
19	2,700	2,020	6,220	10,800	8,080	4,200	6,140	3,760	3,050	1,480	1,320	1,550
20	2,060	2,330	10,400	8,000	7,500	*4,060	5,680	3,740	2,890	1,450	1,330	1,530
21	1,890	2,280	8,690	6,820	7,640	3,910	5,300	3,530	2,580	1,440	1,340	1,490
22	1,810	12,400	7,080	9,590	7,850	3,820	5,150	3,270	2,460	1,450	1,490	1,420
23	1,780	52,800	6,180	18,300	7,180	3,710	5,070	3,050	2,340	1,420	1,870	1,410
24	1,770	23,900	5,390	11,400	6,850	3,640	5,050	3,030	2,280	1,410	1,450	1,410
25	1,740	11,400	4,880	8,330	6,630	3,580	4,810	3,050	2,210	1,380	1,490	1,390
26	1,680	7,560	4,550	9,180	6,360	3,440	4,590	3,030	2,180	1,350	1,640	1,320
27	1,690	6,280	4,960	22,000	5,970	3,350	4,610	2,920	2,160	1,350	1,730	1,300
28	1,680	5,560	4,560	*39,900	5,700	3,530	4,930	2,650	2,080	1,360	1,480	1,220
29	1,660	4,650	4,310	23,500	-------	3,730	4,790	2,580	2,020	1,350	1,340	1,340
30	1,680	4,350	4,010	19,400	-------	3,680	4,310	2,860	1,980	1,340	1,420	1,220
31	1,660	-------	3,750	14,800	-------	3,560	-------	2,810	-------	1,300	1,370	-------
Total	56,170	168,770	227,870	345,350	262,980	141,630	161,760	108,550	84,070	48,090	42,920	42,600
Mean	1,812	5,626	7,351	11,140	9,392	4,569	5,392	3,502	2,802	1,551	1,385	1,420
Ac-ft	111,400	334,800	452,000	685,000	521,600	280,900	320,800	215,300	166,800	95,390	85,130	84,500

Calendar year 1953: Max 57,300 Min 1,440 Mean 5,043 Ac-ft 3,651,000
Water year 1953-54: Max 52,800 Min 1,220 Mean 4,632 Ac-ft 3,354,000

Peak discharge (base, 13,000 cfs).--Nov. 23 (8 a. m.) 66,000 cfs (21.15 ft); Dec. 4 (5:30 a. m.) 16,300 cfs (7.28 ft); Dec. 6 (9 p. m.) 20,600 cfs (8.77 ft); Jan. 16 (9 p. m.) 40,600 cfs (14.75 ft); Jan. 23 (6:30 a. m.) 22,200 cfs (9.30 ft); Jan. 28 (3:30 a. m.) 64,000 cfs (19.19 ft); Feb. 13 (1:30 a. m.) 19,800 cfs (7.95 ft).

* Discharge measurement made on this day.

Note.—Shifting-control method used Nov. 23 to Jan. 27.

Applegate River near Copper, Oreg.

Location.—Lat 42°03'30", long 123°06'50", in SE¼ sec. 25, T. 40 S., R. 4 W., on right bank a quarter of a mile downstream from French Gulch, 1½ miles downstream from Squaw Creek, and 3 miles northeast of Copper store.

Drainage area.—220 sq mi.

Records available.—December 1938 to September 1954.

Gage.—Water-stage recorder. Datum of gage is 1,759.66 ft above mean sea level, datum of 1929.

Average discharge.—15 years (1939-54), 438 cfs (317,100 acre-ft per year).

Extremes.—Maximum discharge during year, 7,550 cfs Nov. 23 (gage height, 12.03 ft); minimum, 47 cfs Sept. 28 (gage height, 1.12 ft).

1938-54: Maximum discharge, 15,300 cfs Jan. 18, 1953 (gage height, 19.48 ft), from rating curve extended above 6,300 cfs by logarithmic plotting; minimum, 20 cfs Sept. 23-25, 1939.

Remarks.—Records good. About 11 cfs diverted for irrigation of 482 acres above station in Applegate River basin; Grand Applegate ditch diverts about 3.3 cfs around station on left bank. An average of about 8 cfs for irrigation is diverted into Thompson Creek basin. Several hundred acre-feet normally stored each winter in Squaw Lake for irrigation the following summer.

Revisions.—WSP 1064: Drainage area.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

1.1	45	4.0	920
1.5	95	7.0	3,200
2.0	181	10.0	5,720
3.0	470		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	84	446	373	1,600	820	542	785	388	179	77	64
2	74	91	460	367	1,560	785	554	752	373	169	77	58
3	71	85	542	385	1,600	756	684	785	376	*163	77	57
4	66	81	648	370	1,570	724	2,100	870	376	157	77	56
5	63	94	550	376	1,460	720	2,390	950	364	150	77	56
6	63	126	698	376	1,350	729	1,750	986	343	147	77	56
7	64	110	729	435	1,280	752	1,400	1,140	337	145	76	55
8	63	106	639	407	1,260	1,520	1,270	1,190	388	140	73	54
9	64	106	675	407	1,240	3,360	1,110	1,050	379	136	73	53
10	133	169	693	428	1,170	2,480	950	*956	352	138	76	56
11	101	261	602	414	1,320	1,760	892	926	334	131	71	74
12	81	232	554	397	4,600	1,450	892	850	373	141	68	61
13	73	183	518	379	3,420	1,260	1,180	810	364	116	68	60
14	72	181	486	376	2,310	1,140	1,240	815	349	115	72	60
15	69	159	470	598	1,820	1,050	1,120	892	490	113	73	67
16	*68	163	456	2,540	1,540	974	1,270	938	414	112	*71	62
17	73	177	449	2,180	1,540	855	1,540	962	352	113	69	67
18	292	156	463	1,200	1,390	795	1,560	980	316	108	68	64
19	165	169	957	870	1,250	*760	1,450	898	298	108	67	60
20	124	173	1,250	706	1,140	720	1,310	805	295	102	68	58
21	110	177	825	662	1,120	675	1,260	720	283	100	66	56
22	96	3,660	693	1,120	1,080	639	1,310	639	275	95	63	56
23	94	*5,180	618	1,680	1,030	610	1,330	614	261	96	61	54
24	91	2,140	558	1,190	1,040	594	1,240	594	250	92	60	54
25	92	1,210	514	938	1,030	562	1,160	542	240	89	64	54
26	89	825	478	835	974	542	1,080	506	225	87	74	53
27	87	648	494	2,130	909	550	1,120	466	213	85	71	50
28	84	550	446	2,960	860	558	1,120	449	201	84	72	49
29	82	478	418	*2,750	-------	558	998	442	183	81	73	49
30	81	490	394	2,320	-------	550	876	418	181	81	68	48
31	81	-------	382	1,840	-------	546	-------	410	-------	78	66	-------
Total	2,843	18,264	18,105	32,009	42,463	29,794	36,698	24,140	9,573	3,651	2,193	1,721
Mean	91.7	609	584	1,033	1,517	961	1,223	779	319	118	70.7	57.4
Ac-ft	5,640	36,230	35,910	63,490	83,220	59,100	72,790	47,880	18,990	7,240	4,350	3,410

Calendar year 1953: Max 11,000 Min 56 Mean 656 Ac-ft 474,800
Water year 1953-54: Max 5,180 Min 48 Mean 607 Ac-ft 439,200

Peak discharge (base, 1,700 cfs).--Nov. 23 (5 a. m.) 7,550 cfs (12.03 ft); Jan. 16 (3 p. m.) 3,120 cfs (6.90 ft); Jan. 22 (11:30 p. m.) 2,140 cfs (5.67 ft); Jan. 27 (9:30 p. m.) 4,750 cfs (8.92 ft); Feb. 12 (1 p. m.) 5,860 cfs (10.15 ft); Mar. 9 (12:30 p. m.) 3,770 cfs (7.71 ft); Apr. 4 (7 p. m.) 3,140 cfs (6.92 ft).

* Discharge measurement made on this day.

Applegate River near Applegate, Oreg.

Location.—Lat 42°14'30", long 123°08'10", in NE¼ sec. 26, T. 38 S., R. 4 W., on left bank 0.9 mile downstream from Keeler Creek and 2 miles southeast of Applegate.
Drainage area.—480 sq mi.
Records available.—October 1938 to September 1954.
Gage.—Water-stage recorder. Datum of gage is 1,285.33 ft above mean sea level, datum of 1929. Prior to Dec. 23, 1938, staff gage at same site and datum.
Average discharge.—16 years, 520 cfs (376,500 acre-ft per year).
Extremes.—Maximum discharge during year, 12,900 cfs Jan. 27 (gage height, 10.88 ft), from rating curve extended above 5,600 cfs by logarithmic plotting; minimum, 30 cfs Aug. 25.
1938-54: Maximum discharge, 25,100 cfs Jan. 18, 1953 (gage height, 15.60 ft), from rating curve extended above 5,600 cfs by logarithmic plotting; minimum, 7 cfs Sept. 18, 1945, Aug. 28, 1951.
Remarks.—Records good. Many diversions above station for irrigation of about 4,000 acres in Applegate River basin. About 10 cfs is diverted through Wagner Gap to Bear Creek basin for several months each year; Fowler-Keeler and Berryman ditches may divert 4.3 and 13.6 cfs, respectively, around station.
Revisions.—WSP 1064: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 27				Jan. 28 to Sept. 30			
1.1	62	3.0	720	0.7	26	2.0	295
1.5	130	4.0	1,500	1.0	57	3.0	760
2.0	249	5.0	2,500	1.5	145	4.0	1,500
2.5	445	8.0	6,860	Note.--Same as preceding table above 4.0 ft.			

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66	99	500	404	2,470	1,140	680	943	474	188	44	55
2	78	110	495	386	2,300	1,070	670	874	438	170	47	49
3	76	106	556	440	2,280	1,020	802	887	428	*150	45	46
4	78	103	878	427	2,210	985	2,100	971	438	150	47	46
5	75	103	678	440	2,040	957	2,860	1,050	424	141	45	44
6	70	145	829	432	1,850	971	2,080	1,080	411	133	45	43
7	68	138	1,010	528	1,730	985	1,660	1,200	383	129	44	40
8	65	124	822	495	1,660	1,650	1,500	1,300	464	121	41	39
9	62	122	801	475	1,640	3,880	1,340	1,200	469	123	41	35
10	118	143	885	500	1,560	3,110	1,190	*1,060	433	123	40	36
11	134	312	762	490	1,570	2,140	1,110	1,060	407	119	40	57
12	105	246	678	470	5,880	1,730	1,100	964	456	113	37	53
13	92	208	622	440	5,080	1,500	1,290	915	478	100	38	49
14	89	201	588	432	3,420	1,370	1,470	908	446	96	42	56
15	87	189	556	736	2,610	1,300	1,330	992	536	91	44	67
16	*81	180	539	4,210	2,160	1,150	1,420	1,030	536	89	43	70
17	78	208	522	4,240	2,290	1,110	1,740	1,050	451	91	*40	71
18	284	184	528	2,070	2,080	1,040	1,820	1,090	411	96	40	76
19	224	171	864	1,460	1,850	*985	1,700	1,030	383	96	40	70
20	155	214	1,590	1,150	1,690	922	1,520	957	371	84	39	64
21	136	198	992	1,000	1,630	880	1,430	826	355	77	36	64
22	126	3,130	794	1,460	1,560	832	1,460	748	327	76	34	64
23	122	*6,180	690	2,740	1,470	808	1,510	700	307	71	33	63
24	114	2,890	622	1,940	1,460	778	1,410	695	292	65	31	58
25	112	1,540	572	1,510	1,390	730	1,320	640	267	64	34	51
26	112	1,030	528	1,430	1,300	700	1,260	600	260	63	45	52
27	108	756	578	5,260	1,250	695	1,270	565	253	60	49	45
28	106	622	500	6,530	1,180	718	1,280	541	228	53	53	41
29	103	534	470	*4,910	-------	712	1,190	536	201	52	56	41
30	99	544	432	4,020	-------	700	1,050	523	190	51	51	42
31	99	-------	414	3,080	-------	690	-------	505	-------	46	51	-------
Total	3,322	20,730	21,295	54,105	59,610	37,258	42,562	27,440	11,517	3,081	1,315	1,587
Mean	107	691	687	1,745	2,129	1,202	1,419	885	384	99.4	42.4	52.9
Ac-ft	6,590	41,120	42,240	107,300	118,200	73,900	84,420	54,430	22,840	6,110	2,610	3,150

Calendar year 1953: Max 16,400 Min 42 Mean 814 Ac-ft 589,600
Water year 1953-54: Max 6,530 Min 31 Mean 778 Ac-ft 562,900

Peak discharge (base, 2,200 cfs).--Nov. 23 (8 a. m.) 8,480 cfs (8.88 ft); Jan. 17 (3 a. m.) 5,700 cfs (7.27 ft); Jan. 23 (2:30 a. m.) 3,350 cfs (5.68 ft); Jan. 27 (10 p. m.) 12,900 cfs (10.88 ft); Feb. 12 (3:30 p. m.) 7,820 cfs (8.54 ft); Mar. 9 (2 p. m.) 4,550 cfs ((6.50 ft); Apr. 4 (10 p. m.) 3,560 cfs (5.83 ft).
* Discharge measurement made on this day.

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Powell Creek near Williams, Oreg.

Location.—Lat 42°16'00", long 123°17'40", near center of sec. 16, T. 38 S., R. 5 W., on left bank 0.1 mile upstream from Blodgett ditch intake and 2 miles northwest of Williams.
Drainage area.—8.6 sq mi, approximately.
Records available.—September 1946 to September 1954.
Gage.—Water-stage recorder. Altitude of gage is 1,680 ft (by barometer).
Average discharge.—8 years, 16.2 cfs (11,730 acre-ft per year).
Extremes.—Maximum discharge during year, 791 cfs Jan. 27 (gage height, 4.93 ft); minimum, 1.4 cfs Sept. 25, 26, 27.
1946-54: Maximum discharge, 1,110 cfs Jan. 18, 1953 (gage height, 5.36 ft), from rating curve extended above 550 cfs on basis of slope-area determination at gage height 4.92 ft; minimum, 0.9 cfs Oct. 3, 4, 1950.
Remarks.—Records fair. No regulation or diversion above station.

Rating table, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 22, Feb. 14-25, Apr. 4-13, Aug. 17 to Sept. 30)

0.6	1.2	2.0	32
.8	1.9	2.5	62
1.0	3.5	3.0	110
1.2	6.2	3.5	190
1.5	13	4.1	356

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.1	2.8	17	12	93	22	13	11	5.3	3.3	1.8	1.7
2	2.9	2.8	16	12	84	a21	13	10	5.2	3.2	1.8	1.7
3	2.7	2.8	23	15	*81	a20	14	9.9	5.2	3.1	1.8	1.7
4	2.5	2.8	44	18	76	a19	48	9.7	5.3	3.0	1.8	1.7
5	2.5	3.6	32	23	67	a19	97	9.2	5.6	2.8	1.8	1.7
6	2.3	6.6	61	23	58	a19	80	9.0	5.3	2.8	1.8	1.6
7	2.3	4.2	71	30	52	a20	57	*8.8	5.2	2.7	1.7	1.6
8	2.3	3.2	51	31	49	a30	48	8.6	5.6	2.6	1.7	1.6
9	2.5	3.0	43	28	47	a65	42	8.3	5.4	*2.5	1.7	1.6
10	4.5	4.0	38	26	43	a55	36	8.1	5.3	2.6	1.7	1.9
11	3.0	4.3	*34	24	42	a48	32	8.1	5.0	2.5	1.7	2.2
12	2.8	4.2	29	23	83	a42	29	7.9	5.3	2.5	1.7	1.9
13	2.6	3.6	26	21	96	a36	26	7.7	5.2	2.4	1.8	1.9
14	2.8	3.2	23	20	70	a32	24	7.5	4.8	2.3	1.8	1.9
15	*2.6	3.1	20	106	53	a29	22	7.2	5.4	2.3	1.8	2.0
16	2.6	4.6	18	277	44	a27	20	7.0	4.8	2.2	1.7	2.2
17	3.1	5.2	16	164	53	a25	19	6.8	4.5	2.2	*1.7	2.1
18	8.1	4.3	15	92	51	a24	18	6.6	4.2	2.2	1.9	1.8
19	4.2	7.2	24	65	44	*23	17	6.4	4.1	2.1	2.0	1.7
20	3.2	6.8	40	50	40	22	16	6.4	4.0	2.2	2.1	1.7
21	3.0	7.9	35	44	38	20	15	6.4	3.8	2.2	2.1	1.7
22	2.9	196	30	105	36	18	15	6.2	3.7	2.1	2.0	1.6
23	2.8	263	27	137	33	18	14	5.9	3.6	2.0	2.0	1.6
24	2.8	94	23	87	32	17	13	5.9	3.6	2.0	2.0	1.6
25	2.6	52	21	63	29	16	13	6.0	3.6	2.0	3.4	1.5
26	2.6	36	18	54	28	15	12	6.0	3.6	1.9	2.7	1.5
27	2.6	28	17	325	25	14	13	5.9	3.6	1.9	2.5	1.5
28	2.6	22	15	289	24	15	12	5.8	3.5	1.9	2.5	1.5
29	2.6	18	14	192	-------	15	11	5.8	3.3	1.9	2.3	1.5
30	2.6	19	13	140	-------	14	11	5.8	3.4	1.8	1.9	1.5
31	2.6	-------	12	108	-------	14	-------	5.6	-------	1.8	1.9	-------
Total	92.3	818.2	866	2,604	1,471	774	800	229.5	136.5	73.0	61.1	51.7
Mean	2.97	27.3	27.9	84.0	52.5	25.0	26.7	7.40	4.55	2.35	1.97	1.72
Cfsm	0.345	3.17	3.24	9.77	6.10	2.91	3.10	0.860	0.529	0.273	0.229	0.200
In.	0.40	3.54	3.74	11.26	6.36	3.35	3.46	0.99	0.59	0.32	0.26	0.22
Ac-ft	183	1,620	1,720	5,160	2,920	1,540	1,590	455	271	145	121	103

Calendar year 1953: Max 584 Min 2.2 Mean 21.5 Cfsm 2.50 In. 33.93 Ac-ft 15,570
Water year 1953-54: Max 325 Min 1.5 Mean 21.9 Cfsm 0.255 In. 34.49 Ac-ft 15,830

Peak discharge (base, 150 cfs).--Nov. 22 (11:30 p. m.) 568 cfs (4.55 ft); Jan. 16 (1 p. m.) 450 cfs (4.32 ft); Jan. 22 (8 p. m.) 213 cfs (3.61 ft); Jan. 27 (9 p. m.) 791 cfs (4.93 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage and records for Sucker Creek near Holland.

Applegate River near Wilderville, Oreg.

Location.—Lat 42°21'10", long 123°24'10", in W½ sec. 15, T. 37 S., R. 6 W., on left bank 900 ft downstream from Jackson Creek and 4 miles southeast of Wilderville.
Drainage area.—694 sq mi.
Records available.—October 1938 to September 1954.
Gage.—Staff gage read once or twice daily. Datum of gage is 949.54 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).
Average discharge.—16 years, 753 cfs (545,100 acre-ft per year).
Extremes.—Maximum discharge during year, 20,500 cfs Jan. 28 (gage height, 15.0 ft, from graph based on gage readings), from rating curve extended above 12,000 cfs by logarithmic plotting; minimum observed, 26 cfs Aug. 24.

1938-54: Maximum discharge, 27,700 cfs Jan. 18, 1953 (gage height, 18.3 ft, from floodmark), from rating curve extended above 12,000 cfs by logarithmic plotting; minimum, 3.0 cfs Sept. 12-15, 18-25, 1939, Sept. 3, 1950.

Remarks.—Records fair. Many diversions above station for irrigation and mining. Two irrigation ditches on left bank divert about 17 cfs around station. No regulation.
Revisions.—WSP 1064: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 27				Jan. 28 to Sept. 30			
1.9	118	4.0	1,170	1.1	25	3.0	550
2.0	140	5.0	2,100	1.3	43	4.0	1,230
2.5	290	7.0	4,900	1.5	69	5.0	2,230
3.0	510	11.0	12,300	2.0	167	7.0	4,910
				2.5	320	12.0	14,300

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	118	162	894	614	3,950	1,680	948	1,180	590	209	50	75
2	140	170	817	602	3,650	1,550	934	1,090	570	198	53	96
3	160	172	880	880	3,580	1,440	1,100	1,070	540	187	50	99
4	155	162	1,540	803	3,390	1,360	2,120	1,050	550	172	58	101
5	165	165	1,210	824	3,110	1,300	2,070	1,150	560	167	56	80
6	165	224	1,500	761	2,720	1,300	3,890	1,170	540	158	54	56
7	145	255	2,120	1,080	2,540	1,330	2,950	1,280	500	*146	58	40
8	140	220	1,590	1,010	2,410	1,740	2,510	*1,430	580	136	45	38
9	140	205	1,540	943	2,330	4,310	2,210	1,370	636	121	28	42
10	220	208	1,540	950	2,230	4,270	1,900	1,200	580	123	34	47
11	269	535	*1,310	901	2,130	3,160	1,740	1,210	560	127	30	55
12	208	362	1,150	838	7,140	2,690	1,620	1,170	600	115	31	111
13	185	342	1,030	789	7,230	2,280	1,560	1,100	624	103	34	107
14	178	298	964	740	4,910	2,050	2,010	1,050	590	99	36	99
15	*175	302	908	3,330	3,950	1,910	1,800	1,130	612	96	33	115
16	165	286	866	10,700	3,290	1,830	1,860	1,150	672	103	32	131
17	155	334	817	9,540	4,040	1,680	2,190	1,180	612	105	35	140
18	510	314	810	4,430	3,650	1,500	2,320	1,210	540	115	*39	151
19	500	314	1,020	3,120	2,990	1,420	2,210	1,200	500	85	36	156
20	298	451	2,440	2,220	2,760	*1,350	1,970	1,150	450	82	42	146
21	255	446	1,460	1,880	2,540	1,260	1,820	990	432	79	42	142
22	224	3,500	1,210	3,400	2,420	1,210	1,800	920	369	82	29	134
23	202	12,300	1,090	5,450	2,240	1,160	1,840	836	336	79	29	125
24	190	5,060	999	3,670	2,160	1,130	1,700	822	320	79	26	121
25	185	2,550	894	2,760	2,090	1,070	1,600	768	313	75	59	85
26	180	1,720	838	2,820	1,990	1,030	1,480	720	306	82	80	72
27	180	1,310	803	5,980	1,850	983	1,560	696	285	72	80	69
28	175	1,080	761	*14,000	1,710	1,040	1,540	654	264	66	99	66
29	180	957	722	8,150	--------	1,060	1,410	636	238	55	96	61
30	170	922	674	6,400	--------	1,030	1,300	636	220	53	92	58
31	165	--------	632	4,610	--------	990	--------	612	--------	53	82	--------
Total	6,287	35,326	35,029	104,195	89,000	52,113	58,962	31,830	14,489	3,422	1,537	2,818
Mean	203	1,178	1,130	3,361	3,179	1,681	1,965	1,027	483	110	49.6	93.9
Ac-ft	12,470	70,070	69,480	206,700	176,500	103,400	116,900	63,130	28,740	6,790	3,050	5,590

Calendar year 1953: Max 21,300 Min 59 Mean 1,195 Ac-ft 865,100
Water year 1953-54: Max 14,000 Min 26 Mean 1,192 Ac-ft 862,800

* Discharge measurement made on this day.

Slate Creek at Wonder, Oreg.

Location.—Lat 42°21'40", long 123°31'10", in SW¼ sec. 10, T. 37 S., R. 7 W., on left bank half a mile upstream from Elliot Creek and 0.4 mile east of Wonder.

Drainage area.—30.9 sq mi.

Records available.—July to November 1913, October 1945 to September 1954 in reports of Geological Survey. October 1943 to September 1945 in files of State engineer.

Gage.—Water-stage recorder. Datum of gage is 1,034.85 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Nov. 21, 1946, staff gages at several sites within half a mile of present site at various datums.

Average discharge.—10 years (1944-54), 82.3 cfs (59,580 acre-ft per year).

Extremes.—Maximum discharge during year, 3,580 cfs Jan. 27 (gage height, 9.15 ft), from rating curve extended above 2,100 cfs on basis of slope-area determinations at gage heights 8.29 and 9.72 ft; minimum, 1.2 cfs Sept. 10.

1913, 1943-54: Maximum discharge, 4,020 cfs Oct. 29, 1950 (gage height, 9.72 ft), from rating curve extended above 2,100 cfs on basis of slope-area determinations at gage heights 8.29 and 9.72 ft; minimum observed, 0.3 cfs July 16, 17, 1944.

Remarks.—Records good except those for period of no gage-height record, which are fair. Several small diversions above station for irrigation. No regulation.

Revisions (water years).—WSP 1184: 1948.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 26						Jan. 27 to Sept. 30					
1.0	2.4	1.5	21	4.0	515	0.9	0.9	1.4	11.5	3.0	252
1.1	4.2	2.0	64	5.0	910	1.0	2.0	1.6	22	4.0	570
1.2	6.8	2.5	130	6.5	1,750	1.1	3.5	2.0	63	5.0	990
1.3	10	3.0	230			1.2	5.4	2.5	146	8.0	2,730

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.8	5.5	70	46	305	90	47	27	11	5.9	a2.2	2.8
2	6.5	6.0	67	47	264	86	47	25	10	5.9	a2.2	2.4
3	5.8	5.8	69	80	*236	77	52	24	9.8	5.9	a2.2	2.4
4	4.5	5.8	98	94	214	73	195	23	11	5.7	a2.2	2.3
5	4.0	6.8	100	110	192	67	351	22	12	5.2	a2.2	1.8
6	4.0	48	255	106	172	64	327	21	12	5.0	a2.2	1.8
7	3.7	29	264	226	152	62	207	21	11	*4.8	a2.2	1.8
8	3.5	19	186	205	144	114	170	*21	12	4.8	a2.2	2.0
9	3.7	14	165	153	131	502	136	20	13	4.8	a2.1	1.6
10	16	31	155	120	122	390	114	20	12	4.8	a2.0	2.6
11	8.9	43	130	104	146	252	102	18	12	4.6	a2.0	4.8
12	6.5	29	102	92	1,520	199	89	18	12	4.3	a2.0	3.5
13	6.0	22	86	81	1,140	166	82	17	13	3.5	a2.0	3.0
14	5.5	20	76	78	650	146	74	16	12	3.7	a2.0	3.0
15	5.2	16	67	501	363	138	64	16	13	3.5	a2.0	3.0
16	4.7	20	61	1,740	266	131	61	15	12	3.5	a2.0	3.0
17	6.5	33	57	903	519	114	55	14	11	3.5	a1.8	3.0
18	35	32	55	456	481	*106	51	14	9.8	3.5	*1.7	3.0
19	19	66	115	305	319	97	48	13	9.0	3.4	1.7	2.6
20	12	77	230	215	257	89	44	13	8.7	3.4	1.8	2.3
21	9.2	84	169	209	240	82	41	12	8.0	3.5	1.8	2.2
22	7.8	1,290	123	775	209	76	39	13	7.5	3.5	1.8	2.0
23	6.8	1,300	97	676	180	70	37	12	7.2	3.2	1.8	2.3
24	6.5	327	82	355	158	66	35	12	7.2	3.2	1.8	2.3
25	6.3	175	71	254	140	62	33	12	7.0	2.8	2.9	2.2
26	6.0	113	64	340	123	57	31	12	6.4	2.4	4.3	2.0
27	5.8	*85	57	2,280	107	55	34	12	6.7	a2.4	3.5	1.7
28	5.8	69	52	1,380	99	56	30	12	6.4	a2.4	3.9	1.6
29	5.5	59	49	1,140	-------	58	28	10	5.9	a2.4	3.7	1.6
30	5.5	73	45	638	-------	53	28	11	5.7	a2.2	3.0	1.8
31	5.2	-------	42	397	-------	50	-------	11	-------	a2.2	2.9	-------
Total	238.2	4,101.9	3,262	14,106	8,849	3,648	2,652	507	294.3	119.9	72.1	72.4
Mean	7.68	137	105	455	316	118	88.4	16.4	9.81	3.87	2.33	2.41
Cfsm	0.249	4.43	3.40	14.7	10.2	3.82	2.86	0.531	0.317	0.125	0.075	0.078
In.	0.29	4.94	3.93	16.98	10.65	4.39	3.19	0.61	0.35	0.14	0.09	0.09
Ac-ft	472	8,140	6,470	27,980	17,550	7,240	5,260	1,010	584	238	143	144

Calendar year 1953: Max 2,860 Min 2.4 Mean 103 Cfsm 3.33 In. 45.25 Ac-ft 74,550
Water year 1953-54: Max 2,280 Min 1.6 Mean 104 Cfsm 3.37 In. 45.65 Ac-ft 75,230

Peak discharge (base, 900 cfs).--Nov. 23 (2 a. m.) 2,480 cfs (7.64 ft); Jan. 16 (6:30 p. m.) 1,880 cfs (6.72 ft); Jan. 22 (7:30 p. m.) 1,290 cfs (5.73 ft); Jan. 27 (6 p. m.) 3,580 cfs (9.15 ft); Feb. 12 (10:30 a. m.) 2,360 cfs (7.47 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for Deer Creek near Dryden and Powell Creek near Williams and weather records.

Grave Creek at Pease Bridge, near Placer, Oreg.

Location.—Lat 42°38'40", long 123°12'20", in NW¼SW¼ sec. 5, T. 34 S., R. 4 W., on left bank 100 ft downstream from Pease Bridge, 1 mile upstream from Boulder Creek, and 5½ miles northeast of Placer.

Drainage area.—22 sq mi, approximately.

Records available.—October 1945 to September 1954 in reports of Geological Survey. September 1940 to September 1941 in reports of State engineer and October 1941 to September 1945 in files of State engineer.

Gage.—Water-stage recorder. Datum of gage is 2,384.1 ft above mean sea level, datum of 1929. Prior to Aug. 22, 1947, at site 100 ft upstream at same datum.

Average discharge.—9 years, 63.6 cfs (46,040 acre-ft per year).

Extremes.—Maximum discharge during year, 2,600 cfs Nov. 23 (gage height, 5.95 ft), from rating curve extended above 830 cfs on basis of slope-area determination at gage height 5.73 ft; minimum not determined; minimum daily, 1.6 cfs Sept. 8, 9.

1940-54: Maximum discharge, 3,550 cfs Oct. 29, 1950 (gage height, 6.95 ft), from rating curve extended above 830 cfs on basis of slope-area determination at gage height 5.73 ft, minimum, 0.3 cfs Sept. 13, 1944, Aug. 16-27, 1946, Aug. 18, 21, 1950.

Remarks.—Records good except those for periods of no gage-height record or shifting control, which are poor. One small diversion above station. Prior to 1945, Columbia upper ditch diverted water about 2 miles above station (bypassing station).

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.1	6.6	a95	59	*299	88	40	24	8.6	6.2	2.2	2.5
2	6.1	7.8	a90	57	324	82	41	23	8.2	5.8	2.1	2.4
3	4.1	7.2	a110	66	324	75	52	21	7.8	5.8	2.2	2.4
4	3.2	7.2	a200	73	315	73	188	21	8.2	5.4	2.2	2.1
5	2.4	9.0	a180	88	285	75	271	21	11	5.0	2.2	2.0
6	2.4	30	a460	92	267	78	204	20	11	*4.8	2.2	1.8
7	2.1	23	a380	122	271	82	143	19	9.6	4.8	2.2	1.7
8	2.1	18	a270	115	267	143	131	19	13	4.5	2.1	1.6
9	2.4	16	a280	115	255	307	118	18	11	4.5	2.1	*1.6
10	17	19	*333	140	221	243	96	17	10	4.5	2.1	2.8
11	14	29	214	138	228	158	86	17	9.0	4.5	2.0	6.6
12	9.0	25	155	115	216	118	76	*15	13	4.2	2.1	5.0
13	6.6	21	134	96	566	100	86	14	16	4.0	2.1	4.8
14	6.1	18	120	90	320	88	82	14	14	3.8	2.4	7.0
15	5.1	15	109	111	218	*78	71	13	19	3.8	2.8	21
16	5.1	20	96	446	165	73	69	12	17	3.8	2.5	11
17	6.1	31	88	307	214	64	69	11	14	3.5	2.5	9.0
18	34	26	86	191	179	57	66	11	11	3.5	2.2	7.4
19	24	37	152	140	140	52	56	10	10	3.2	2.2	6.2
20	17	47	243	113	136	49	51	10	9.6	3.2	2.4	5.0
21	13	52	168	100	170	48	48	10	8.2	3.2	2.5	4.8
22	11	583	127	269	179	45	42	9.6	7.8	3.2	2.4	4.8
23	9.6	1,310	102	342	158	42	41	9.0	7.4	3.2	2.2	4.5
24	9.0	390	86	207	155	42	38	9.0	7.0	3.0	2.2	4.2
25	8.4	210	75	152	148	40	34	9.0	7.0	2.8	2.8	3.8
26	7.8	148	73	131	129	38	32	10	6.6	2.8	3.5	3.5
27	7.2	115	88	336	107	38	33	9.6	6.6	2.5	3.2	3.0
28	6.6	88	80	452	94	42	30	8.6	6.6	2.5	3.2	a2.5
29	6.6	a70	75	494	-------	42	27	8.6	6.2	2.4	3.5	a2.5
30	6.1	a85	66	395	-------	41	26	9.0	6.2	2.4	3.2	a2.0
31	6.1	-------	59	303	-------	40	-------	9.0	-------	2.2	3.0	-------
Total	266.3	3,463.8	4,794	5,855	7,048	2,541	2,347	431.4	300.6	119.0	76.5	139.5
Mean	8.59	115	155	189	252	82.0	78.2	13.9	10.0	3.84	2.47	4.65
Cfsm	0.390	5.23	7.05	8.59	11.5	3.73	3.55	0.632	0.455	0.175	0.112	0.211
In.	0.45	5.86	8.10	9.90	11.91	4.30	3.97	0.73	0.51	0.20	0.13	0.24
Ac-ft	528	6,870	9,510	11,610	13,980	5,040	4,660	856	596	236	152	277

Calendar year 1953: Max 1,730 Min 1.8 Mean 88.7 Cfsm 4.03 In. 54.74 Ac-ft 64,230
Water year 1953-54: Max 1,510 Min 1.6 Mean 75.0 Cfsm 3.41 In. 46.30 Ac-ft 54,320

Peak discharge (base, 650 cfs).--Nov. 23 (2 a. m.) 2,600 cfs (5.95 ft); Jan. 16 (1:30 p. m.) 692 cfs (3.56 ft); Jan. 27 (7:30 p. m.) 692 cfs (3.56 ft); Feb. 12 (11:30 a. m.) 1,510 cfs (4.68 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for station near Placer (not published by U. S. G. S.) and Cow Creek near Azalea and recorded range in stage when available.

Note.--Shifting-control method used Aug. 30 to Sept. 27.

East Fork Illinois River near Takilma, Oreg.

Location.—Lat 42°00'40", long 123°37'30", in SE¼ sec. 10, T. 41 S., R. 8 W., on right bank 500 ft upstream from county road bridge, a quarter of a mile upstream from Long Gulch, and 3 miles south of Takilma.

Drainage area.—42.6 sq mi.

Records available.—October 1945 to September 1954 in reports of Geological Survey. October 1941 to September 1945 in files of State engineer.

Gage.—Water-stage recorder. Datum of gage is 1,746.6 ft above mean sea level (Bureau of Reclamation benchmark). Prior to Oct. 31, 1946, staff gages at nearby sites at different datums. Oct. 31, 1946, to May 13, 1949, staff gage at same site and datum.

Average discharge.—13 years (1941-54), 187 cfs (135,400 acre-ft per year).

Extremes.—Maximum discharge during year, 5,900 cfs Nov. 23 (gage height, 8.40 ft); minimum, 7.4 cfs Sept. 10.

1941-54: Maximum discharge, 6,750 cfs Oct. 29, 1950 (gage height, 8.75 ft); minimum observed, 5.2 cfs Sept. 24-29, 1944.

Remarks.—Records good except those for period of shifting control, which are fair. No regulation. Esterly Upper Canal and Osgood Canal diverted water around station prior to 1942. Occasional small diversions above station during summer months.

Revisions (water years).—WSP 1184: 1948. WSP 1288: 1951(P).

Rating table, water year 1953-54, except period of shifting control
(gage height, in feet, and discharge, in cubic feet per second)

0.6	8.2	3.0	299
.7	10	4.0	660
1.0	20	5.0	1,220
1.4	44	6.0	2,060
2.0	108	7.0	3,260
2.5	188	7.6	4,220

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	16	196	90	572	194	121	121	53	32	16	13
2	20	18	183	94	564	175	126	112	51	29	13	12
3	16	17	380	114	568	165	309	114	55	29	14	12
4	15	16	529	136	525	155	1,320	128	59	28	16	11
5	14	22	332	181	436	153	1,560	137	58	28	18	11
6	14	83	630	175	369	155	926	148	54	24	17	11
7	13	58	651	310	344	165	580	172	50	23	16	11
8	13	40	510	236	335	652	522	174	54	23	15	11
9	13	36	556	203	321	1,450	462	*153	54	*24	14	9.5
10	63	67	541	198	291	904	347	134	53	26	14	15
11	30	162	372	181	382	518	281	128	50	25	12	20
12	20	111	273	158	2,170	350	259	116	55	22	9.5	13
13	18	107	225	140	1,210	278	323	108	56	22	10	14
14	17	177	199	139	760	247	335	111	53	21	12	14
15	16	125	184	679	503	240	281	125	124	21	15	14
16	15	122	168	2,040	415	227	304	128	96	20	17	17
17	18	131	162	1,190	572	*205	378	126	73	20	16	23
18	162	108	170	619	488	184	356	124	63	20	13	16
19	79	147	554	398	366	172	302	111	56	20	9.5	14
20	47	156	888	*281	338	160	254	100	52	18	*11	*12
21	38	322	480	289	391	148	242	89	50	17	14	12
22	32	4,030	310	819	408	140	245	80	46	17	13	12
23	28	4,090	236	860	362	137	249	73	43	17	12	11
24	24	1,570	188	506	353	136	221	73	40	17	11	11
25	22	685	162	344	321	126	194	70	38	16	13	9.5
26	20	405	142	318	278	122	174	68	37	16	16	8.9
27	19	*268	132	1,540	242	122	175	61	36	16	17	8.9
28	18	207	116	1,640	211	122	172	57	36	16	21	8.4
29	18	168	108	1,460	-------	125	156	58	35	17	21	8.4
30	18	205	98	994	-------	124	137	55	33	17	16	8.4
31	17	-------	91	675	-------	124	-------	54	-------	16	15	-------
Total	883	13,669	9,766	17,007	14,095	8,175	11,311	3,308	1,613	657	447.0	372.0
Mean	28.5	456	315	549	503	264	377	107	53.8	21.2	14.4	12.4
Cfsm	0.669	10.7	7.39	12.9	11.8	6.20	8.85	2.51	1.26	0.498	0.338	0.291
In.	0.77	11.93	8.53	14.85	12.31	7.14	9.87	2.89	1.41	0.57	0.39	0.32
Ac-ft	1,750	27,110	19,370	33,730	27,960	16,210	22,440	6,560	3,200	1,300	887	738

Calendar year 1953: Max 5,180 Min 12 Mean 269 Cfsm 6.31 In. 85.79 Ac-ft 194,900
Water year 1953-54: Max 4,090 Min 8.4 Mean 223 Cfsm 5.23 In. 70.98 Ac-ft 161,300

Peak discharge (base, 2,500 cfs).--Nov. 23 (4 a. m.) 5,900 cfs (8.40 ft); Jan. 16 (3:30 p. m.) 2,850 cfs (6.69 ft); Jan. 27 (7:30 p. m.) 2,950 cfs (6.77 ft); Feb. 12 (7 a. m.) 2,950 cfs (6.77 ft).

* Discharge measurement made on this day.

Note.--Shifting-control method used June 22 to Sept. 30.

Sucker Creek near Holland, Oreg.

Location.—Lat 42°09'00", long 123°27'50", in NE¼ sec. 25, T. 39 S., R. 7 W., on right bank 1 mile downstream from Grayback Creek and 4.3 miles northeast of Holland.

Drainage area.—76 sq mi, approximately.

Records available.—October 1945 to September 1954 in reports of Geological Survey. April 1940 to August 1941 in reports of State engineer and September 1941 to September 1945 in files of State engineer.

Gage.—Water-stage recorder. Datum of gage is 1,777.22 ft above mean sea level (Bureau of Reclamation benchmark). Prior to Sept. 16, 1947, staff gages at several sites within half a mile of present site at various datums. Sept. 16, 1947, to Sept. 19, 1952, staff gage at site 280 ft upstream at datum 0.62 ft higher.

Average discharge.—13 years (1941-54), 209 cfs (151,300 acre-ft per year).

Extremes.—Maximum discharge during year, 3,520 cfs Nov. 23 (gage height, 6.18 ft), from rating curve extended above 1,300 cfs on basis of shape of previous curve defined to 5,100 cfs by a slope-area measurement; minimum, 30 cfs part of each day Sept. 27-30.

1940-54: Maximum discharge, 6,580 cfs Jan. 18, 1953 (gage height, 7.75 ft), from rating curve extended above 1,300 cfs on basis of shape of previous curve defined to 5,100 cfs by a slope-area measurement; minimum, 19 cfs Sept. 27, 28, 1947, Oct. 21, 1952.

Remarks.—Records good. Grayback Canal diverts water from Grayback Creek above station for domestic use and irrigation; most of return flow from this canal enters creek above station. No regulation.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 22				Nov. 23 to Sept. 30			
1.7	34	3.5	650	1.5	28	3.5	690
2.0	76	4.0	980	1.7	51	4.0	1,040
2.4	161	5.0	1,900	2.0	99	5.0	1,970
3.0	395			2.5	230	5.5	2,570
				3.0	425		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	39	212	173	666	336	230	300	158	92	45	39
2	50	41	224	170	666	316	234	290	152	86	44	38
3	42	40	307	179	690	300	316	293	158	83	44	38
4	39	39	389	188	684	290	871	304	165	79	44	37
5	38	46	320	209	636	282	1,210	312	162	78	44	37
6	35	76	430	215	582	282	921	332	150	76	43	36
7	36	59	475	293	555	286	690	368	148	75	43	36
8	35	53	438	279	545	530	606	384	160	75	41	36
9	39	50	452	268	535	1,170	520	*356	160	*73	41	35
10	85	107	430	265	505	942	470	332	148	75	40	44
11	54	100	368	251	530	697	434	324	138	70	40	46
12	45	89	324	234	1,940	565	416	304	148	68	39	39
13	42	80	293	215	1,380	500	461	293	140	67	41	38
14	41	89	276	206	1,010	456	456	293	140	64	43	38
15	40	71	258	368	788	438	434	316	212	64	43	40
16	40	87	248	1,250	636	416	470	328	170	62	41	45
17	47	92	237	942	684	*402	535	336	150	61	40	49
18	132	80	237	540	618	376	550	336	135	58	39	40
19	78	102	356	407	540	356	515	316	130	57	39	37
20	57	104	438	*328	505	336	475	290	128	55	*39	36
21	50	141	352	332	500	316	461	262	122	55	38	36
22	46	1,540	316	540	480	300	475	234	118	54	37	36
23	44	2,560	282	630	452	286	470	224	116	52	36	35
24	42	*1,070	258	510	443	279	448	215	112	52	36	34
25	41	582	240	384	425	265	412	200	107	50	45	32
26	40	416	224	356	402	251	394	194	107	49	46	31
27	40	332	221	984	376	248	398	179	105	47	44	31
28	40	268	203	1,180	356	254	384	173	97	47	50	31
29	39	230	194	1,070	--------	254	360	170	95	47	49	31
30	39	237	182	942	--------	248	324	162	95	46	43	31
31	38	--------	176	753	--------	237	--------	168	--------	46	41	--------
Total	1,496	8,820	9,360	14,661	18,129	12,214	14,940	8,588	4,126	1,963	1,298	1,112
Mean	48.3	294	302	473	647	394	498	277	138	63.3	41.9	37.1
Cfsm	0.636	3.87	3.97	6.22	8.51	5.18	6.55	3.64	1.82	0.833	0.551	0.488
In.	0.73	4.32	4.58	7.17	8.87	5.98	7.31	4.20	2.02	0.96	0.64	0.54
Ac-ft	2,970	17,490	18,570	29,080	35,960	24,230	29,630	17,030	8,180	3,890	2,570	2,210

Calendar year 1953: Max 4,400 Min 34 Mean 279 Cfsm 3.67 In. 49.81 Ac-ft 201,900
Water year 1953-54: Max 2,560 Min 31 Mean 265 Cfsm 3.49 In. 47.32 Ac-ft 191,800

Peak discharge (base, 1,400 cfs).--Nov. 23 (4 to 5:30 a. m.) 3,520 cfs (6.18 ft); Jan. 16 (4 p. m.) 1,830 cfs (4.87 ft); Jan. 27 (8 p. m.) 1,820 cfs (4.86 ft); Feb. 12 (10 a. m.) 2,540 cfs (5.48 ft).

* Discharge measurement made on this day.

West Fork Illinois River near O'Brien, Oreg.

Location.—Lat 42°03'50", long 123°43'00", in NW¼ sec. 25, T. 40 S., R. 9 W., on left bank 500 ft upstream from bridge on U. S. Highway 199 and half a mile southwest of O'Brien. Prior to Dec. 17, 1953, at site 220 ft upstream.

Drainage area.—48.6 sq mi.

Records available.—October 1946 to September 1954 in reports of Geological Survey (discontinued). February to November 1930, February 1943 to September 1945 in files of State engineer and October 1945 to October 1946 in reports of Geological Survey, at sites 1½ miles upstream; records not equivalent owing to diversion and inflow.

Gage.—Staff gage read one or more times daily. Datum of gage is 1,402.23 ft above mean sea level, datum of 1929. Prior to Dec. 17, 1953, at site 220 ft upstream at datum 2.14 ft higher.

Average discharge.—8 years (1946-54), 260 cfs (188,200 acre-ft per year).

Extremes.—Maximum discharge during year, 11,600 cfs Nov. 23 (gage height, 11.6 ft, former site and datum, from floodmark), from rating curve extended above 1,000 cfs on basis of slope-area determination at gage height, 12.96 ft and shape of previous curve defined to 7,300 cfs; minimum observed, 8 cfs Aug. 12, 23, 24, Sept. 8-10.

1946-54: Maximum discharge, 14,200 cfs Oct. 28, 1950 (gage height, 12.96 ft, from floodmark), from rating curve extended above 7,300 cfs on basis of slope-area determination of peak flow; minimum, 2.1 cfs Sept. 16, 17, 1945.

Remarks.—Records fair except those for periods of backwater from diversion dam or shifting control, which are poor. Diversions above station for irrigation of about 280 acres of which 140 acres is below station. An interbasin diversion from Rough and Ready Creek irrigates 16 acres above station. Since Oct. 1, 1950, a right exists to divert 2 cfs to log pond upstream. No regulation.

Revisions.—WSP 1288: Drainage area, present site and former site.

Rating tables, water year 1953-54, except periods of backwater from diversion dam or shifting control
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 16								Dec. 17 to Sept. 30							
-1.3	10	-0.5	69	1.0	410	7.0	4,880	0.5	6.6	1.3	37	3.0	490	7.0	3,600
-1.0	25	0.0	145	2.0	840	10.0	8,800	.7	10	1.6	65	4.0	1,000	8.5	5,500
-0.8	39	.5	250	4.0	2,120			1.0	20	2.0	135	5.0	1,670		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	19	340	96	588	133	81	43	37	27	10	13
2	25	20	302	89	486	115	75	42	36	26	10	13
3	17	18	418	212	410	105	151	41	36	26	10	12
4	14	18	614	363	349	96	1,120	40	40	25	10	12
5	12	25	590	378	293	86	2,110	38	50	24	10	9
6	12	163	1,360	352	251	80	1,210	36	43	22	10	9
7	12	122	952	892	206	74	670	36	39	22	12	10
8	11	97	786	645	175	410	675	34	40	20	10	8
9	12	66	646	434	159	1,990	593	*52	45	*19	12	8
10	76	128	628	338	146	1,190	426	50	40	20	10	8
11	40	158	410	279	212	611	314	50	38	20	10	14
12	25	150	281	234	2,300	438	248	49	40	17	8	10
13	21	123	228	182	2,250	349	223	48	39	16	10	9
14	18	108	182	178	1,390	310	175	47	37	16	10	*10
15	17	92	154	2,160	780	314	146	45	135	19	10	10
16	16	154	138	5,220	530	363	151	45	78	15	10	9
17	19	236	128	2,430	1,150	*307	113	44	62	15	10	13
18	182	190	133	1,290	850	251	98	42	52	15	9	12
19	104	262	1,110	790	580	216	88	42	45	15	9	10
20	61	350	1,380	*539	522	185	78	42	44	16	10	10
21	46	530	665	530	606	165	73	40	40	16	9	10
22	38	7,600	430	2,510	518	154	70	39	37	16	9	10
23	32	6,000	314	1,620	398	143	65	37	36	16	8	10
24	29	1,660	237	868	324	135	58	37	35	13	8	10
25	26	*763	188	570	272	117	56	42	34	14	9	10
26	24	482	151	735	230	107	54	40	34	10	10	10
27	23	358	133	3,960	182	100	58	37	36	10	11	9
28	21	284	115	2,920	151	96	50	36	31	10	17	9
29	21	231	102	2,370	-------	111	47	36	29	10	18	10
30	20	438	98	1,240	-------	102	45	40	28	10	14	9
31	20	-------	100	795	-------	89	-------	38	-------	10	13	-------
Total	1,027	20,845	13,313	35,219	16,308	8,942	9,321	1,288	1,316	530	326	306
Mean	33.1	695	429	1,136	582	288	311	41.5	43.9	17.1	10.5	10.2
Ac-ft	2,040	41,350	26,410	69,860	32,350	17,740	18,490	2,550	2,610	1,050	647	607

Calendar year 1953: Max 9,480 Min 10 Mean 352 Ac-ft 254,600
Water year 1953-54: Max 7,600 Min 8 Mean 298 Ac-ft 215,700

* Discharge measurement made on this day.

Note.--Backwater from diversion dam Oct. 1-21, July 1 to Sept. 30. Shifting-control method used Nov. 24 to Dec. 5.

Illinois River at Kerby, Oreg.

Location. —Lat 42°12'00", long 123°39'20", in NW¼ sec. 9, T. 39 S., R. 8 W., on right bank at Finch Bridge and half a mile west of Kerby.
Drainage area. —364 sq mi.
Records available. —March 1926 to September 1954.
Gage. —Staff gage read once or twice daily. Datum of gage is 1,234.00 ft above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to May 9, 1928, staff gage at site a half a mile upstream at different datums. May 9, 1928, to Nov. 2, 1934, staff gage at present site at different datums. Nov. 3, 1934, to Sept. 30, 1950, water-stage recorder 1 mile downstream at datum 18.76 ft lower than present datum.
Average discharge. —28 years, 1,167 cfs (844,900 acre-ft per year).
Extremes. —Maximum discharge during year, 39,500 cfs Nov. 23 (gage height, 12.2 ft, from floodmark), from rating curve extended above 9,700 cfs on basis of slope-area determination at gage height 13.7 ft; minimum, 33 cfs Aug. 17-20.
1926-54: Maximum discharge, 52,000 cfs Feb. 20, 1927 (gage height, 19.6 ft, site and datum then in use), from rating curve extended above 26,000 cfs on basis of slope-area determination at gage height 19.2 ft; minimum, 13 cfs Sept. 10-15, 1934.
Remarks. —Records good. Diversions for irrigation of about 5,500 acres above station. Some diversions for mining during winter months. No regulation.
Revisions (water years). —WSP 864: 1936-37. WSP 1184: 1927(M), 1942(M), 1943, 1946(M), 1948. WSP 1218: Drainage area.

Rating tables, water year 1953-54 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 26				Jan. 27 to Sept. 30			
2.2	58	5.0	3,830	1.6	28	3.0	1,060
2.4	127	6.0	6,850	1.7	37	3.5	1,750
2.7	307	8.0	15,200	1.8	54	4.0	2,660
3.0	590	11.0	31,600	1.9	80	5.0	5,020
4.0	1,880			2.0	119	7.0	12,100
				2.2	236	8.0	16,900
				2.5	490		

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	156	1,590	772	3,860	1,430	928	796	310	161	44	*44
2	127	165	1,420	712	3,440	1,330	892	736	303	150	44	44
3	119	156	2,360	1,190	3,260	1,260	1,320	712	295	140	44	44
4	112	146	3,100	1,450	3,100	1,180	4,740	700	327	119	40	40
5	104	146	2,330	1,790	2,780	1,160	9,650	689	327	111	40	47
6	104	590	4,600	1,590	2,460	1,120	6,480	689	318	103	44	44
7	97	678	4,960	3,180	2,220	1,090	3,860	724	303	103	40	47
8	97	487	3,140	2,600	2,100	2,860	3,350	*772	318	103	40	47
9	97	374	3,270	1,980	2,030	8,200	3,120	760	336	*103	40	40
10	487	1,060	3,500	1,730	1,910	6,380	2,520	689	310	103	44	40
11	449	1,060	2,430	1,550	2,080	3,740	2,080	645	303	96	35	54
12	264	820	1,880	1,360	11,600	2,900	1,810	623	303	96	35	50
13	211	678	1,590	1,220	11,000	2,400	1,810	590	303	96	35	54
14	175	678	1,400	1,190	6,960	2,130	1,780	580	295	80	35	51
15	156	656	1,240	6,920	4,380	2,000	1,560	601	433	80	35	51
16	146	569	1,110	18,200	3,240	2,050	1,540	601	601	80	35	59
17	146	1,140	1,040	*10,900	5,390	1,860	1,640	580	452	75	33	64
18	1,590	892	1,110	5,470	4,580	*1,640	1,640	601	386	70	33	54
19	1,010	820	3,360	3,250	3,300	1,520	1,570	570	327	70	33	75
20	528	1,590	5,800	2,210	3,020	1,400	1,390	530	303	64	33	75
21	429	2,030	3,140	2,190	3,300	1,320	1,330	500	280	64	35	75
22	341	20,200	2,220	7,200	3,120	1,260	1,280	462	258	64	35	70
23	278	30,400	1,760	7,200	2,600	1,200	1,270	424	223	59	35	70
24	249	11,400	1,450	3,540	2,320	1,180	1,200	404	223	54	35	70
25	223	4,900	1,290	2,380	2,120	1,100	1,120	386	204	54	35	64
26	211	2,700	1,090	3,140	1,910	1,050	1,040	378	197	54	37	64
27	199	*2,000	988	15,600	1,690	1,000	1,020	378	190	51	40	64
28	187	1,650	940	14,900	1,540	976	1,020	352	171	47	40	64
29	175	1,400	868	12,100	-------	1,070	940	336	161	47	70	59
30	175	1,700	*784	7,080	-------	1,020	856	327	161	47	70	59
31	165	-------	748	4,820	-------	964	-------	327	-------	44	51	-------
Total	8,728	91,241	66,508	149,414	101,310	59,790	64,756	17,462	8,921	2,588	1,245	1,683
Mean	282	3,041	2,145	4,820	3,618	1,929	2,159	563	297	83.5	40.2	56.1
Ac-ft	17,310	181,000	131,900	296,400	200,900	118,600	128,400	34,640	17,690	5,130	2,470	3,340

Calendar year 1953: Max 40,200 Min 42 Mean 1,869 Ac-ft 1,353,000
Water year 1953-54: Max 30,400 Min 33 Mean 1,572 Ac-ft 1,138,000

* Discharge measurement made on this day.

Deer Creek near Dryden, Oreg.

Location.—Lat 42°15'50", long 123°27'00", near center of sec. 18, T. 38 S., R. 6 W., on left bank 500 ft downstream from confluence of North and South Forks and 5 miles east of Dryden.

Drainage area.—23 sq mi, approximately.

Records available.—October 1945 to September 1954 in reports of Geological Survey. November 1941 to September 1945 in files of State engineer.

Gage.—Water-stage recorder. Datum of gage is 1,650.10 ft above mean sea level (surveys by Bureau of Reclamation). Prior to Sept. 12, 1946, staff gage at same site at datum 1.26 ft higher.

Average discharge.—12 years (1942-54), 72.7 cfs (52,630 acre-ft per year).

Extremes.—Maximum discharge during year, about 2,300 cfs Nov. 23 (gage height, 6.71 ft, backwater from logs); minimum, 1.7 cfs Aug. 24.

1941-54: Maximum discharge, about 5,000 cfs Jan. 18, 1953 (gage height, 7.61 ft, backwater from logs); maximum gage height, 7.92 ft Oct. 29, 1950; minimum discharge, 0.9 cfs part of each day Sept. 20-24, 1951.

Remarks.—Records fair except those for periods of backwater from logs, which are poor. No regulation. One small diversion above station for irrigation.

Rating tables, water year 1953-54, except periods of backwater from logs (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Sept. 1						Sept. 2-30	
1.3	1.7	2.3	73	3.5	510	1.4	1.9
1.5	7.3	2.6	128	4.0	820	1.5	3.5
1.7	16	3.0	260	5.0	1,590	1.6	5.7
2.0	37						

Discharge, in cubic feet per second, water year October 1953 to September 1954

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.2	5.5	51	23	248	55	40	34	11	6.7	3.3	2.7
2	7.7	6.1	45	23	244	55	41	31	10	6.1	3.3	3.0
3	5.5	5.8	63	26	244	55	65	30	11	5.2	3.3	2.9
4	4.0	5.8	103	33	213	53	754	31	12	5.2	3.3	*2.9
5	3.8	8.0	75	47	173	53	612	31	14	5.2	3.3	2.7
6	3.3	46	225	461	144	57	552	31	13	5.2	3.3	2.7
7	3.0	26	202	84	131	63	296	31	12	5.2	3.3	2.5
8	2.7	20	154	79	131	228	264	*32	12	*5.5	3.3	2.4
9	3.3	17	170	66	126	606	252	31	14	6.1	3.3	2.4
10	18	23	146	66	107	450	182	28	15	6.1	3.0	2.5
11	12	32	105	63	115	232	141	27	14	6.1	3.0	3.7
12	8.4	34	79	54	636	146	118	25	14	5.5	3.0	3.2
13	7.0	25	63	47	588	118	124	23	13	5.2	3.0	3.0
14	6.4	21	53	45	345	102	122	21	12	5.2	3.0	2.9
15	5.5	17	46	339	199	96	105	21	21	4.9	3.0	2.9
16	5.2	28	40	*1,130	136	87	105	21	18	4.9	3.0	2.9
17	6.7	34	36	618	220	75	115	20	14	4.6	2.7	3.9
18	49	26	34	244	196	*66	111	18	12	4.6	2.7	3.0
19	25	48	75	144	136	59	93	17	10	4.3	2.2	2.5
20	16	57	136	102	124	53	75	17	10	4.0	2.2	2.4
21	12	106	105	103	144	48	67	15	10	4.3	2.0	2.4
22	10	1,340	78	548	141	45	67	14	8.8	4.0	2.0	2.2
23	8.8	1,490	60	534	122	43	66	14	7.7	3.8	2.0	2.2
24	7.7	*552	49	236	109	40	59	13	7.7	3.8	1.7	2.2
25	7.3	199	42	149	96	37	52	13	7.3	3.5	2.2	2.1
26	7.0	111	37	131	84	35	49	14	7.3	3.5	3.3	1.9
27	6.7	78	33	1,070	70	35	51	13	7.7	3.5	3.3	1.9
28	6.4	59	28	1,070	62	40	46	12	7.3	3.5	3.5	1.9
29	6.1	45	27	854	-------	48	40	12	7.0	3.5	4.6	1.9
30	6.1	57	26	488	-------	46	36	12	6.7	3.3	3.5	1.8
31	5.8	-------	23	310	-------	44	-------	12	-------	3.3	3.0	-------
Total	285.6	4,524.2	2,409	8,752	5,284	3,170	4,700	664	339.5	145.8	91.6	77.6
Mean	9.21	151	77.7	282	189	102	157	21.4	11.3	4.70	2.95	2.59
Cfsm	0.400	6.57	3.38	12.3	8.22	4.43	6.83	0.930	0.491	0.204	0.128	0.113
In.	0.46	7.32	3.90	14.15	8.54	5.13	7.60	1.07	0.55	0.24	0.15	0.13
Ac-ft	566	8,970	4,780	17,360	10,480	6,290	9,320	1,320	673	289	182	154

Calendar year 1953: Max 2,900 Min 1.7 Mean 104 Cfsm 4.52 In. 61.20 Ac-ft 75,060
Water year 1953-54: Max 1,490 Min 1.7 Mean 83.4 Cfsm 3.63 In. 49.24 Ac-ft 60,380

Peak discharge (base, 930 cfs).--Nov. 23 (3:30 a. m.) about 2,300 cfs (6.71 ft); Jan. 16 (1 to 3 p. m.) 1,500 cfs (5.46 ft); Jan. 22 (6:30 p. m.) 1,140 cfs (4.67 ft); Jan. 27 (8 p. m.) about 2,100 cfs (6.41 ft); Apr. 4 (11:30 p. m.) 1,730 cfs (5.15 ft).

* Discharge measurement made on this day.

Note.--Backwater from logs Nov. 22, 23, Jan. 16, 22, 27, 28.

Reservoirs in Rogue River basin, Oreg.

Fish Lake.—Lat 42°23', long 122°21', in SE¼ sec. 4, T. 37 S., R. 4 E., at reservoir outlet, 14 miles east of Lake Creek Post Office. Drainage area, 17 sq mi, approximately. Records available, December 1915 to September 1954. Staff gage read daily, except for July 17. Datum of gage is 185.4 ft below sea level, datum of 1929, supplementary adjustment of 1947. Prior to Oct. 1, 1921, staff gage on former gate tower at datum 4,799 ft higher. Maximum contents observed during year, 8,020 acre-ft June 6 (elevation, 4,827.20 ft); minimum observed, 3,090 acre-ft Sept. 13-15 (elevation, 4,813.70 ft). Maximum contents observed during period 1915-54, 8,020 acre-ft June 1, 1943, June 6, 1954 (elevation, 4,827.20 ft); no usable contents at times.

Reservoir is formed by rock-faced earth dam, completed in fall of 1915; storage began in November 1915. Capacity, 8,150 acre-ft between elevations 4,799 ft (outlet tunnel) and 4,827.5 ft (spillway crest, incomplete). Water is diverted during summer from Fourmile Lake in Klamath River basin through Cascade Canal into Fish Lake.

Emigrant Gap Reservoir.—Lat 42°09'40", long 122°36'20", in SE¼ sec. 20, T. 39 S., R. 2 E., at Emigrant Gap Dam of Talent Irrigation District on Emigrant Creek, 6 miles southeast of Ashland. Drainage area, 64 sq mi, approximately. Records available, December 1924 to September 1954. Staff gage read 1 to 10 times each month. Datum of gage is at mean sea level (levels by Talent Irrigation District). Maximum contents observed during year, 8,320 acre-ft Jan. 27 (elevation, 2,176.0 ft); minimum observed, 113 acre-ft Oct. 10 (elevation, 2,094.0 ft). Maximum contents during period 1924-54, 8,490 acre-ft (revised) Feb. 20, 1927 (elevation, 2,175.2 ft), from revised original capacity table, sedimentation being assumed negligible at that time; maximum elevation, that of Jan. 27, 1954; no usable contents at times.

Capacity table used is based on survey made by Bureau of Reclamation in 1951, which indicated that a net amount of 366 acre-ft of silt had accumulated in reservoir from 1924 to 1951.

Maximum and minimum contents for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated:

WSP	Water year	Maximum			Minimum		
		Date	Contents (acre-feet)	Elevation (feet)	Date	Contents (acre-feet)	Elevation (feet)
654	1927	Feb. 20, 1927	8,490	2,175.2	(†)	0	
1218	1951	May 13, 1951	7,760	ǂ2,173.7	Aug. 29, 1951	61	ǂ 2,089.8
1248	1952	Mar. 24, 1952	8,020	ǂ2,174.8	Oct. 25, 1951	96	ǂ 2,092.8
1288	1953	Jan. 18, 1953	8,290	††2,175.9	Sept. 28, 1953	113	ǂ 2,094.0

† At times.
ǂ Observed.
†† From high-water mark.

Reservoir is formed by concrete arch dam, completed in 1924 by Talent Irrigation District; storage began in December 1924. Capacity, 7,720 acre-ft (revised) between elevations 2,075 and 2,173.5 ft (crest of spillway). No dead storage. Water is used for irrigation of lands near Talent.

Revisions (water years).—WSP 834: 1936. WSP 1064: 1945. Revised figures of month-end contents and change in contents for the water year 1951-53, are given herein. They supersede figures published in WSP 1218, 1248, and 1288.

Revised figures of monthly elevation and contents, of Emigrant Gap Reservoir near Ashland, October 1950 to September 1953

Date	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30, 1950	-	a210	-
Oct. 31	2,155.3	4,250	+4,040
Nov. 30	-	a4,140	-110
Dec. 31	-	a5,090	+950
Calendar year 1950	-	-	+4,190
Jan. 31, 1951	-	a6,170	+1,080
Feb. 28	-	a6,190	+20
Mar. 31	-	a7,600	+1,410
Apr. 30	2,170.8	7,100	-500
May 31	2,170.4	7,020	-80
June 30	-	a4,360	-2,660
July 31	2,123.2	1,050	-3,310
Aug. 31	-	a62	-988
Sept. 30	-	a75	+13
Water year 1950-51	-	-	-135

a Interpolated.

Reservoirs in Rogue River basin, Oreg.—Continued

Revised figures of monthly elevation and contents, of Emigrant Gap Reservoir near Ashland, October 1950 to September 1953—Continued

Date	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Oct. 31, 1951	-	a194	+119
Nov. 30	-	a1,090	+896
Dec. 31	-	a6,880	+5,790
Calendar year 1951	-	-	+1,790
Jan. 31, 1952	-	a5,470	-1,410
Feb. 29	-	a6,110	+640
Mar. 31	-	a7,720	+1,610
Apr. 30	-	a7,720	0
May 31	-	a7,010	-710
June 30	2,166.5	6,210	-800
July 31	2,138.1	2,190	-4,020
Aug. 31	-	a599	-1,590
Sept. 30	-	a238	-361
Water year 1951-52	-	-	+163
Oct. 30, 1952	-	a285	+47
Nov. 30	-	a495	+210
Dec. 31	-	a2,250	+1,760
Calendar year 1952	-	-	-4,630
Jan. 31, 1953	-	a7,740	+5,490
Feb. 28	-	a7,300	-440
Mar. 31	-	a7,740	+440
Apr. 30	-	a7,670	-70
May 31	-	a7,850	+180
June 30	-	a6,980	-870
July 31	2,148.4	3,300	-3,680
Aug. 31	-	a893	-2,410
Sept. 30	-	a113	-780
Water year 1952-53	-	-	-125

a Interpolated.

Monthly elevation and contents, water year October 1953 to September 1954

Date	Fish Lake			Emigrant Gap Reservoir		
	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	4,816.70	4,070	-		a113	-
Oct. 31	4,819.80	5,150	+1,080		a220	+107
Nov. 30	4,822.60	6,190	+1,040		a1,490	+1,270
Dec. 31	4,823.80	6,650	+460		a3,860	+2,370
Calendar year 1953	-	-	+770	-	-	+1,610
Jan. 31	4,823.70	6,610	-40		a8,160	+4,300
Feb. 28	4,823.60	6,570	-40		a6,930	-1,230
Mar. 31	4,824.60	6,960	+390		a7,740	+810
Apr. 30	4,826.50	7,730	+770		a7,740	0
May 31	4,827.10	7,980	+250		a6,500	-1,240
June 30	4,826.80	7,860	-120	2,164.5	5,820	-680
July 31	4,820.30	5,330	-2,530		a2,250	-2,570
Aug. 31	4,814.80	3,770	-1,560		a970	-1,280
Sept. 30	4,815.10	3,540	-230		a340	-630
Water year 1953-54	-	-	-530	-	-	+227

a Interpolated.

Note.—Time of gage reading not known.

Springs in the Walla Walla River basin, Oreg.-Wash.

Ground-water overflow through many springs on the alluvial fan of the Walla Walla River near Milton-Freewater, Oreg., amounts to about 50,000 acre-ft a year. During the irrigation season practically all the overflow is used to water crops on land not served by diversion from the river. A survey made in 1933 listed 57 springs or spring groups in the area, arranged in "inner," "intermediate," and "outer" zones concentric about the apex of the alluvial fan.[1]

The inner zone is 3 to 3½ miles below Milton-Freewater and extends from the vicinity of Nicholas Spring, which is about half a mile east of the Walla Walla River at McCoy Bridge, to springs in the vicinity of Dugger Creek. Within this zone are fully three-fourths of the springs in the Walla Walla River basin. The intermediate and outer zones, each of which contains only a few springs, are about 2 miles and 4 miles, respectively, beyond the inner zone.

In order to bring about a more effective use of the available water supply through a better understanding of the relation between surface-and ground-water supplies in the basin, discharge measurements of each of the principal springs and measurements of ground-water levels in representative wells have been made and the results published periodically since 1932.

Discharge measurements, in cubic feet per second, of springs in Walla Walla River basin, Oreg.-Wash., during water year October 1953 to September 1954†

Date	Spring	Locality	Discharge (cfs)
Springs of the inner zone			
Feb. 22	Nicholas Spring, Oreg..	NE¼NE¼ sec. 24, T. 6 N., R. 35 E., 150 ft above confluence of spring channel and Walla Walla River....	1.27
Nov. 5	Big Spring Branch (west prong), Oreg.	SE¼NW¼ sec. 24, T. 6 N., R. 35 E., at Ballou residence, 75 ft above bridge on county road.	7.33
Feb. 2	.....do.....	.....do.....	6.75
June 5	.....do.....	.....do.....	17.07
Aug. 18	.....do.....	.....do.....	5.83
Feb. 2	Big Spring Branch (east prong), Oreg.	NE¼SW¼ sec. 24, T. 6 N., R. 35 E., above flow line of small reservoir supplying two diversion pumps.	3.10
June 3	.....do.....	.....do.....	3.79
Aug. 18	.....do.....	.....do.....	1.89
Nov. 3	.....do.....	.....do.....	2.25
5	Engle Spring, Oreg.	NW¼SE¼ sec. 23, T. 6 N., R. 35 E., total flow at diversion dam.	4.96
Feb. 16	.....do.....	.....do.....	3.47
June 4	.....do.....	.....do.....	4.21
Aug. 18	.....do.....	.....do.....	3.73
Nov. 5	Downing Spring, Oreg.	SE¼SW¼ sec. 23, T. 6 N., R. 35 E., at weir 200 ft below spring orifice.	1.50
Feb. 15	.....do.....	.....do.....	.71
June 3	.....do.....	.....do.....	3.48
Aug. 18	.....do.....	.....do.....	2.06
Nov. 5	Haun Spring, Oreg.	NW¼SE¼ sec. 23, T. 6 N., R. 35 E., at Haun farm 200 ft above highway crossing.	1.54
Feb. 15	.....do.....	.....do.....	1.25
June 3	.....do.....	.....do.....	2.29
Aug. 18	.....do.....	.....do.....	1.31
Springs of the intermediate and outer zones			
Nov. 6	McEvoy Spring, Wash.	SE¼NW¼ sec. 10, T. 6 N., R. 35 E., at McEvoy farm, 200 ft above Walla Walla Ry.	3.92
Feb. 22	.....do.....	.....do.....	2.49
June 5	.....do.....	.....do.....	3.89
Aug. 18	.....do.....	.....do.....	3.55
Nov. 5	Lewis Spring, Oreg.	NW¼NW¼ sec. 23, T. 6 N., R. 35 E., below road crossing.	2.11
Feb. 15	.....do.....	.....do.....	1.66
June 3	.....do.....	.....do.....	2.92
Aug. 18	.....do.....	.....do.....	2.22
Nov. 6	Unnamed spring, Wash.	NW¼NE¼ sec. 16, T. 6 N., R. 35 E., at small diversion structure.	2.52
Feb. 22	.....do.....	.....do.....	1.44
June 5	.....do.....	.....do.....	2.42
Aug. 18	.....do.....	.....do.....	1.97

† Measurements by Umatilla County deputy watermaster.

[1] Piper, A. M., Robinson, T. W., and Thomas, H. E., Ground Water in the Walla Walla River basin, Oreg.-Wash.: Supreme Court of the United States, October term 1935, State of Washington vs. State of Oregon, transcript of record, p. 132A, Oct. 14, 1935.

Discharge measurements, in cubic feet per second, of springs in Walla Walla River basin, Oreg.-Wash., during water year October 1953 to September 1954--Continued †

Springs of the intermediate and outer zones--Continued

Date	Spring	Locality	Discharge (cfs)
Feb. 22	East Mud Creek (west prong), Oreg.	SW¼SW¼ sec. 22, T. 6 N., R. 35 E., at two weirs.	0.76
June 4	.....do.....	.....do.....	3.87
Nov. 6	East Mud Creek (east prong), Oreg.	SE¼SW¼ sec. 22, T. 6 N., R. 35 E., in diversion ditch, 150 ft below diversion dam.	3.31
Feb. 22	.....do.....	.....do.....	.56
Aug. 19	.....do.....	.....do.....	3.59
Nov. 7	East Mud Creek (branch of), Oreg.	SW¼SW¼ sec. 16, T. 6 N., R. 35 E., near Lockwood dwelling.	4.34
Feb. 22	.....do.....	.....do.....	1.71
June 5	.....do.....	.....do.....	2.78
Aug. 19	.....do.....	.....do.....	2.07
Nov. 7	South Mud Creek, Oreg.	SE¼NW¼ sec. 28, T. 6 N., R. 35 E., at Von Der Ahe farm.	1.57
Feb. 23	.....do.....	.....do.....	.89
June 5	.....do.....	.....do.....	5.03
Aug. 20	.....do.....	.....do.....	1.70
Feb. 15	Johnson Creek, Oreg.	SE¼NW¼ sec. 29, T. 6 N., R. 35 E., at two weirs.	1.42
June 2	.....do.....	.....do.....	3.25
Aug. 14	.....do.....	.....do.....	2.61

† Measurements made by Umatilla County deputy watermaster.

Measurements of streamflow in the Pacific slope basins in Oregon and lower Columbia River basin made at points other than regular gaging stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements when correlated with the simultaneous discharge of a nearby stream where continuous records are available will give a picture of the low-flow potentiality of stream. For many sites measurements have been made in other years.

Determinations of peak flow at points other than regular gaging stations are given in a separate table on page 281.

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River basin during the water year October 1953 to September 1954

Walla Walla River basin, Wash.

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
Mar. 1	Touchet River.....	Walla Walla River.	SE¼SW¼ sec. 35, T. 8 N., R. 33 E., at Johnson Bridge, 6 miles north of Touchet.	245
Apr. 28	....do.....	....do.....	....do.....	301
June 24	....do.....	....do.....	NE¼ sec. 15, T. 7 N., R. 33 E., at former site of gaging station, 3½ miles north of Touchet.	107
July 27	....do.....	....do.....	....do.....	44.9
Sept. 4	....do.....	....do.....	....do.....	36.8

Umatilla River basin, Oreg.

Aug. 13	Meacham Creek.....	Umatilla River....	At mouth 1 mile east of Gibbon.....	9.51
Jan. 14	Minnehaha Springs..	....do.....	NW¼ sec. 21, T. 4 N., R. 28 E., 2 miles southwest of Hermiston.	5.34
14	....do.....	....do.....	....do.....	4.65

John Day River basin, Oreg.

Sept. 9	Canyon Creek.....	John Day River....	SW¼ sec. 13, T. 14 S., R. 31 E., 2⅝ miles south of Canyon City.	4.71
8	Rock Creek.....	....do.....	At mouth, 6½ miles northwest of Dayville.	2.15

Deschutes River basin, Oreg.

May 7	Deschutes River....	Columbia River....	NW¼NW¼ sec. 28, T. 21 S., R. 8 E., at former gaging station below Sheep Springs near Lapine.	607
Aug. 5	....do.....	....do.....	....do.....	871
Sept. 17	....do.....	....do.....	....do.....	848
24	Unnamed stream.....	Deschutes River...	Sec. 4, T. 22 S., R. 9 E., at road crossing about 2 miles northeast of Wickiup Dam.	7.58
Nov. 3	Deschutes River....	Columbia River....	SE¼ sec. 3, T. 21 S., R. 10 E., at Big Tree at Foster Ranch, 1 mile upstream from Fall River and 8 miles north of Lapine.	41.5
Oct. 15	....do.....	....do.....	N½ sec. 7, T. 20 S., R. 11 E., at former gaging station at Peters Ranch near Camp Abbott.	1,390
15	Little Deschutes River.	Deschutes River...	SE¼ sec. 30, T. 20 S., R. 11 E., at former gaging station at Johnson's ranch.	178
Oct. 14	Deschutes River....	Columbia River....	SW¼ sec. 31, T. 19 S., R. 11 E., at former gaging station at Camp Abbott Bridge.	1,770
8	....do.....	....do.....	SW¼ sec. 9, T. 19 S., R. 11 E., at former gaging station below Benham Falls.	1,850
15	....do.....	....do.....	....do.....	1,720
8	....do.....	....do.....	SW¼ sec. 4, T. 19 S., R. 11 E., at former gaging station at Ryan Ranch.	1,790
8	....do.....	....do.....	SW¼ sec. 27, T. 18 S., R. 11 E., at former gaging station above Lava Island.	1,800
13	....do.....	....do.....	SW¼NE¼ sec. 7, T. 18 S., R. 12 E., at former gaging station above millpond.	1,260
Nov. 30	South Fork Tumalo Creek.	Tumalo Creek.....	SE¼NE¼ sec. 7, T. 18 S., R. 10 E., 30 ft below Bend City intake, and 170 ft above former gaging station.	20.8
30	....do.....	....do.....	SE¼NE¼ sec. 7, T. 18 S., R. 10 E., 200 ft below Bend City intake, at former gaging station.	23.1
Oct. 12	South Fork Beaver Creek.	Beaver Creek.....	At former gaging station near Paulina.	1.59
Nov. 17	....do.....	....do.....	....do.....	6.31

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River basin during water year October 1953 to September 1954--Continued

Deschutes River basin, Oreg.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
Oct. 11	North Fork Crooked River.	Crooked River.....	At former gaging station below Deep Creek, near Paulina.	16.0
8	Clear Creek.....	White River.....	At former gaging station near Government camp.	6.00

Tributaries to Columbia River between Deschutes River and Sandy River, Oreg.

Oct. 6	Fivemile Creek.....	Eightmile Creek...	At former gaging station near The Dalles.	0.71
Jan. 11	....do.....	....do.....	....do.....	11.6
Oct. 7	Eightmile Creek....	Fifteenmile Creek.	At former gaging station near Boyd.....	4.13
7	Fifteenmile Creek.	Columbia River....	At former gaging station near Wrentham.	6.42
Mar. 2	Viento Creek.....	Unnamed lake.....	W½ sec. 35, T. 3 N., R. 9 E., at highway crossing, 7 miles west of Hood River.	20.5
3	....do.....	....do.....	....do.....	12.4

Sandy River basin, Oreg.

Apr. 13	Lady Creek.....	Zig Zag River.....	Mouth, 4 miles east of Rhododendron.	52.8

Washougal River basin, Wash.

Sept. 4	Dougan Creek.....	Washougal River...	E½ sec. 11, T. 2 N., R. 5 E., 10 ft above mouth, 6 miles north of Prindle.	3.66
22	....do.....	....do.....	....do.....	10.2
4	Bobs Creek.....	....do.....	NW¼ sec. 23, T. 5 E., at mouth, 4½ miles north of Prindle.	3.19
22	....do.....	....do.....	....do.....	2.82
4	Boyles Lake Outlet.	....do.....	W½ sec. 23, T. 2 N., R. 5 E., at mouth, 4½ miles north of Prindle.	2.02
22	....do.....	....do.....	....do.....	1.87
4	Unnamed stream.....	....do.....	W½ sec. 23, T. 2 N., R. 5 E., at mouth, 4¼ miles north of Prindle.	.80
22	....do.....	....do.....	....do.....	.79
4	West Fork Washougal River.	....do.....	Center sec. 32, T. 2 N., R. 5 E., 1,000 ft above mouth, and 7 miles northeast of Washougal.	29.5
22	....do.....	....do.....	....do.....	39.5

Willamette River basin, Oreg.

Oct. 7	Waldo Lake tunnel..	Black Creek.....	Outlet of unused tunnel from Klovdahl Bay.	13.0
Feb. 10	Coast Fork Willamette River.	Willamette River..	Below Bennett Creek at Cottage Grove....	252
Mar. 25	....do.....	....do.....	....do.....	143
May 21	Fish Lake Creek....	Clear Lake.....	SW¼NW¼ sec. 32, T. 13 S., R. 7 E., below outlet of Fish Lake.	215
July 13	....do.....	....do.....	....do.....	5.92
Aug. 30	McKenzie River.....	Willamette River..	NE¼ sec. 17, T. 14 S., R. 7 E., ½ mile downstream from outlet of Clear Lake..	340
30	....do.....	....do.....	On line between secs. 17 and 20, T. 14 S., R. 7 E., 400 ft upstream from Middle Falls.	351
30	....do.....	....do.....	....do.....	359
31	....do.....	....do.....	NW¼ sec. 20, T. 14 S., R. 7 E., ⅓ mile below Middle Falls.	566
31	....do.....	....do.....	SW¼ sec. 20, T. 14 S., R. 7 E., 0.6 mile downstream from Middle Falls.	570
June 11	....do.....	....do.....	NE¼ sec. 1, T. 15 S., R. 6 E., 1 mile below Lower Falls.	1,120
July 14	....do.....	....do.....	....do.....	911
Nov. 16	....do.....	....do.....	Below Frissell Creek, 3 miles northwest of Belknap Springs.	1,250
June 11	....do.....	....do.....	....do.....	1,640
Oct. 5	Unnamed stream.....	Lookout Creek.....	NE¼ sec. 31, T. 15 S., R. 5 E., 6.8 miles northwest of town of Blue River.	.109
Mar. 18	....do.....	....do.....	....do.....	1.64

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River basin during water year October 1953 to September 1954--Continued

Willamette River basin, Oreg.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
Oct. 6	Unnamed stream....	Lookout Creek,...	NW¼ sec. 6, T. 16 S., R. 5 E., 6 miles northeast of town of Blue River.	0.054
Mar. 18	....do.....	....do.....	....do.....	1.18
Aug. 14	McKenzie River....	Willamette River.	NW¼SW¼ sec. 10, T. 17 S., R. 1 E., at Leaburg.	524
Sept. 2	....do.....	....do.....	Emmerich Bridge, 1½ miles east of Walterville.	451
Nov. 3	Bowers Slough.....	....do.....	NE¼ sec. 33, T. 10 S., R. 4 W., at road crossing, 4 miles northwest of Albany.	0
Oct.	Albany power canal.	South Santiam River.	At county road crossing at south edge of Albany.	200
Mar. 18	Unnamed stream....	Breitenbush River.	SE¼ sec. 30, T. 9 S., R. 6 E., 2 miles northeast of Detroit (new location).	4.45
Nov. 3	North Santiam River.	Santiam River....	At former gaging station above Mayflower Creek, near Detroit.	1,110
Dec. 9	Mitchell Creek....	Little Luckiamute River.	NW¼ sec. 22, T. 8 S., R. 6 W., at road crossing, 1 mile east of Fall City.	120
10	....do.....	....do.....	....do.....	65.2
14	....do.....	....do.....	....do.....	18.8
Jan. 22	....do.....	....do.....	....do.....	139
Dec. 10	Unnamed stream....	South Yamhill River.	NW¼ sec. 19, T. 6 S., R. 6 W., at road crossing, 3 miles south of Willamina.	20.4
14	....do.....	....do.....	....do.....	8.8
Jan. 22	....do.....	....do.....	....do.....	54.7
23	....do.....	....do.....	....do.....	24.1
July 19	Mill Creek.....	Pudding River....	At Aurora ½ mile above mouth.	9.5
Aug. 31	....do.....	....do.....	....do.....	3.5
July 30	McKay Creek.....	Dairy Creek.....	SW¼ sec. 6, T. 1 N., R. 2 W., at North Plains.	1.70
Aug. 6	....do.....	....do.....	NW¼SW¼ sec. 6, T. 1 N., R. 2 W., at county road crossing at North Plains.	2.20
6	....do.....	....do.....	SE¼NW¼ sec. 7, T. 1 N., R. 2 W., at highway crossing, 1 mile southeast of North Plains.	2.58
June 13	Shellrock Creek...	Oak Grove Fork...	NE¼ sec. 23, T. 5 S., R. 7 E., near town of Estacada.	84.0
July 14	....do.....	....do.....	....do.....	39.8
Aug. 8	....do.....	....do.....	....do.....	27.2
Sept. 12	....do.....	....do.....	....do.....	29.8
July 14	....do.....	....do.....	Near north line sec. 2, T. 6 S., R. 7 E., at road bridge near town of Estacada.	50.9
4	Cripple Creek.....	Clackamas River..	On line between secs 22 and 23, T. 5 S., R. 6 E., near town of Estacada.	17.0
14	....do.....	....do.....	....do.....	10.2
4	....do.....	....do.....	In S½ sec. 22, T. 5 S., R. 6 E., near town of Estacada.	19.5
14	....do.....	....do.....	....do.....	9.4
Aug. 8	....do.....	....do.....	....do.....	4.2
Jan. 22	Unnamed stream....	Willamette River.	SE¼ sec. 13, T. 1 N., R. 1 W., at road crossing, at Portland.	100

Lewis River basin, Wash.

Aug. 3	Swift Creek.....	Lewis River.....	SW¼NE¼ sec. 28, T. 7 N., R. 5 E., 800 ft above mouth, and 5 miles east of Cougar.	194
6	....do.....	....do.....	....do.....	192
Dec. 2	Lewis River.....	Columbia River...	NW¼ sec. 32, T. 6 N., R. 4 E., ¼ mile below Yale Dam and 3 miles southeast of Yale.	8,800
9	....do.....	....do.....	....do.....	24,600
10	....do.....	....do.....	....do.....	23,900
22	....do.....	....do.....	....do.....	12,800
Jan. 29	....do.....	....do.....	....do.....	7,760
Mar. 11	....do.....	....do.....	....do.....	8,070
Apr. 20	....do.....	....do.....	....do.....	8,000
May 18	....do.....	....do.....	....do.....	8,020
June 22	....do.....	....do.....	....do.....	7,870
July 22	....do.....	....do.....	....do.....	2,900
Aug. 16	....do.....	....do.....	....do.....	2,890
31	....do.....	....do.....	....do.....	3,020
Sept. 2	Speelyai Creek....	Lewis River.....	W½ sec. 23, T. 6 N., R. 3 E., 100 ft above mouth near road crossing, just above backwater from Ariel Dam.	26.4
21	....do.....	....do.....	....do.....	28.9

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River basin during water year October 1953 to September 1954--Continued

Lewis River basin, Wash.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
Mar. 10	Basket Creek	East Fork Lewis River.	NE¼ sec. 17, T. 4 N., R. 3 E., at railroad bridge, 1½ miles northeast of Heisson.	13.0
Sept. 2	East Fork Lewis River.	Lewis River	SW¼ sec. 3, T. 4 N., R. 1 E., 800 ft below highway crossing at La Center.	123
21	do	do	do	148

Kalama River basin, Wash.

Sept. 2	Little Kalama River.	Kalama River	NE¼ sec. 22, T. 6 N., R. 1 E., near old schoolhouse, 6½ miles northeast of Woodland.	2.28
22	do	do	do	2.40
Dec. 7	Kalama River	Columbia River	NW¼ sec. 7, T. 6 N., R. 1 E., 5 miles east of Kalama.	3,770

Tributary to Columbia River between Kalama River and Cowlitz River, Wash.

Jan. 4	Unnamed stream	Columbia River	SW¼ sec. 19, T. 7 N., R. 1 W., at old highway crossing at Carrolls.	57.5

Cowlitz River basin, Wash.

Aug. 16	Skate Creek	Cowlitz River	NW¼ sec. 16, T. 13 N., R. 9 E., 1 mile above mouth and 1½ miles northwest of Packwood.	45.6
Sept. 24	do	do	do	33.6
Aug. 17	Snyder Creek	Hall Creek	NW¼ sec. 26, T. 13 N., R. 9 E., at trail crossing below Snyder Lake, 1½ miles southwest of Packwood.	1.76
17	Hager Creek	do	SW¼ sec. 26, T. 13, N., R. 9 E., ¾ mile below Hager Lake and 2 miles southeast of Packwood.	10.5
17	North Fork Hager Creek.	Hager Creek	NW¼ sec. 26, T. 13 N., R. 9 E., at Lily basin trail crossing, 1½ miles southeast of Packwood.	4.47
18	Glacier Creek	Johnson Creek	SE¼ sec. 12, T. 12 N., R. 9 E., at road crossing near mouth, 5 miles southeast of Packwood.	36.3
Jan. 6	Mill Creek	Cowlitz River	SE¼ sec. 8, T. 12 N., R. 7 E., at crossing of State Highway 5, at Randle.	36.6
Aug. 18	Kiona Creek	do	NW¼ sec. 14, T. 12 N., R. 6 E., 3 miles above mouth, 3 miles west of Randle.	3.77
18	Greenhorn Creek	Cispus River	SE¼ sec. 15, T. 11 N., R. 7 E., at road crossing, 7½ miles south of Randle.	8.28
Jan. 6	Unnamed stream	Tilton River	N½ Sec. 32, T. 14 N., R. 5 E., on State Highway 5, 4 miles South of Mineral.	30.5
Aug. 18	East Fork Tilton River.	do	NW¼ sec. 30, T. 13 N., R. 5 E., at crossing of State Highway 5, 2½ miles northeast of Morton.	23.2
Sept. 20	do	do	do	53.3
Aug. 18	Mill Creek	Cowlitz River	SE¼ sec. 12, T. 12 N., R. 1 E., at crossing of State Highway 5, ½ mile east of Salkum.	7.14
Sept. 24	do	do	do	9.39
1	Salmon Creek	do	NW¼ sec. 28, T. 11 N., R. 1 W., just below Little Salmon Creek, at old highway crossing, 2¼ miles southeast of Toledo.	10.8
21	do	do	do	17.4
Jan. 6	North Fork Lacamas Creek.	Lacamas Creek	SE¼ sec. 6, T. 12 N., R. 1 E., at crossing of county road, 1½ miles northeast of Ethel.	5.63
Sept. 1	Lacamas Creek	Cowlitz River	NW¼ sec. 27, T. 11 N., R. 2 W., just above bridge, 1½ miles east of Vader.	5.40
21	do	do	do	5.80
1	Olequa Creek	do	SE¼ sec. 21, T. 12 N., R. 2 W., just above North Fork, 1½ miles north of Winlock.	.29
21	do	do	do	.25
Jan. 6	Unnamed stream	Olegua Creek	NW¼ sec. 8, T. 11 N., R. 2 W., at county road crossing, 2½ miles south of Winlock.	7.11
Aug. 31	North Fork Toutle River.	Toutle River	NE¼ sec. 15, T. 9 N., R. 5 E., at road crossing at outlet of Sprit Lake.	47.9
Sept. 20	do	do	do	49.6
1	Scantigrease Creek.	Arkansas Creek	SE¼ sec. 18, T. 9 N., R. 2 W., at road crossing, 3½ miles west of Castle Rock.	4.81
21	do	do	do	7.14

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River basin during water year October 1953 to September 1954--Continued

Cowlitz River basin, Wash.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
Sept. 1	North Fork Arkansas Creek.	Arkansas Creek...	SE¼ sec. 9, T, 9 N., R. 2 W., at road crossing, 1 miles west of Castle Rock.	5.97
21	....do.....	....do.....	....do.....	8.03
1	Ostrander Creek...	Cowlitz River....	NW¼ sec. 12, T. 8 N., R. 2 W., just above South Fork at road crossing, 3½ miles north of Kelso.	3.18
24	....do.....	....do.....	....do.....	3.21
24	South Fork Ostrander Creek.	Ostrander Creek..	NW¼ sec. 12, T. 8 N., R. 2 W., at mouth, 3½ miles north of Kelso.	2.87
1	Coweman River.....	Cowlitz River....	SW¼ sec. 17, T. 8 N., R. 1 E., at site of former gaging station above Mulholland Creek, 9½ miles east of Kelso.	41.1
24	....do.....	....do.....	....do.....	42.8
			Germany Creek basin, Wash.	
Sept. 2	Germany Creek.....	Columbia River...	NW¼ sec. 12, T. 8 N., R. 4 W., ½ mile above mouth and 10 miles northwest of Longview.	9.41
23	....do.....	....do.....	....do.....	13.5
			Abernathy Creek basin, Wash.	
Sept. 2	Cameron Creek.....	Abernathy Creek..	NW¼ sec. 10, T. 8 N., R. 4 W., at mouth, 11 miles east of Cathlamet.	2.72
24	....do.....	....do.....	....do.....	4.86
			Skamokawa Creek basin, Wash.	
Sept. 3	Skamokawa Creek...	Columbia River...	Line between sec. 32, T. 10 N., R. 6 W., and sec. 5, T. 9 N., R. 6 W., ¾ mile above Wilson Creek and 2 miles north of Skamokawa.	32.6
23	....do.....	....do.....	....do.....	42.9
			Grays River Basin, Wash.	
Sept. 3	Grays River.....	Columbia River...	W½ sec. 17, T. 11 N., R. 6 W., just above East Fork, 11½ miles north of Skamokawa.	21.9
23	....do.....	....do.....	....do.....	33.1
3	East Fork Grays River.	Grays River.....	W½ sec. 17, T. 11 N., R. 6 W., at mouth, 11½ miles north of Skamokawa.	20.4
23	....do.....	....do.....	....do.....	50.3
3	South Fork Grays River.	....do.....	W½ sec. 31, T. 11 N., R. 6 W., 500 ft above mouth and 6½ miles north of Skamokawa.	36.3
23	....do.....	....do.....	....do.....	73.2
3	Hull Creek.....	....do.....	NE¼ sec. 13, T. 10 N., R. 8 W., at site of former gaging station, ¼ mile east of Grays River.	15.4
23	....do.....	....do.....	....do.....	23.5
			Coastal streams between Columbia River and Umpqua River, Oreg.	
Jan. 22	North Fork Necanicum River.	Necanicum River	Above fish hatchery, 2 miles west of Necanicum.	296
55	South Fork Necanicum River.	....do.....	Above Seaside diversion dam, 6 miles east of Cannon Beach.	1,230
22	....do.....	....do.....	....do.....	531
Feb. 16	....do.....	....do.....	....do.....	428
Dec. 1	Asbury Creek.....	Pacific Ocean....	Mouth, 5½ miles south of Cannon Beach.	29.7
Feb. 16	....do.....	....do.....	....do.....	52.7
Oct. 14	Nestucca River....	Nestucca Bay.....	At former gaging station at Blaine.	94.5
Nov. 24	Alder Brook.....	Salmon River.....	At mouth, 1.5 miles northeast of Rose Lodge.	20.5
Dec. 3	....do.....	....do.....	....do.....	47.0
3	....do.....	....do.....	....do.....	45.2
Nov. 24	Rocky Creek.....	Pacific Ocean....	NE¼ sec. 19, T. 9 S., R. 11 W., 2 miles south of Depoe Bay.	68.6
Dec. 22	....do.....	....do.....	....do.....	49.2
Jan. 23	....do.....	....do.....	....do.....	62.5

Miscellaneous discharge measurements in Pacific slope basins in Oregon and lower Columbia River basin during water year October 1953 to September 1954--Continued

Umpqua River basin, Oreg.

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
Feb. 12	Canyon Creek.....	South Umpqua River.	On line between sec. 35, T. 30 S., R. 5 W., and sec. 2, T. 31 S., R. 5 W., ½ mile south of Canyonville.	770
12	....do.....	....do.....	....do.....	578
12	....do.....	....do.....	....do.....	480
12	....do.....	....do.....	....do.....	421
July 29	Roberts Creek.....	....do.....	NE¼SW¼ sec. 17, T. 28 S., R. 5 W., 5 miles south of Roseburg.	.22

Coastal streams between Umpqua River and Rogue River, Oreg.

Jan. 18	Gettys Creek.....	Catching Creek...	SE¼SW¼ sec. 35, T. 29 S., R. 13 W., at road crossing, 5 miles southwest of Myrtle Point.	44.7
Nov. 26	Unnamed stream....	Brush Creek.....	At mouth, in Humbug State Park, 5½ miles southeast of Port Orford.	11.6

Rogue River basin, Oreg.

May 25	Cool Creek*.....	Mill Creek.....	Below county road crossing at Prospect.	14.3
26	Sheep Creek*.....	Rogue River.....	250 ft upstream from power canal crossing and ½ mile north of Prospect.	24.3
26	....do.....	....do.....	At Crater Lake highway crossing at Prospect.	17.1
26	....do.....	....do.....	1,000 ft below Crater Lake highway crossing at Prospect.	0
Oct. 13	Wagner Creek.....	Bear Creek.....	At former gaging station near Talent.	4.41
Jan. 18	Griffin Creek.....	....do.....	On line between sec. 14 and 15, T. 38 S., R. 2 W., 4 miles southwest of Medford	23.1
16	Jackson Creek.....	....do.....	NW¼ sec. 25, T. 37 S., R. 3 W., at road crossing, 2½ miles northwest of Jacksonville.	57.9
27	Jones Creek.....	Rogue River.....	W½SW¼ sec. 15, T. 36 S., R. 5 W., 2 miles east of Grants Pass.	315
Nov. 9	Applegate River...	....do.....	At former gaging station near Ruch.	112
Aug. 10	....do.....	....do.....	....do.....	64.8
Jan. 16	Round Prairie Creek.	Slate Creek.....	Highway crossing at mouth, 2 miles west of Wilderville.	132
Oct. 14	Althouse Creek....	East Fork Illinois River.	At former gaging station near Holland.	10.7
Nov. 26	Unnamed stream....	Rogue River.....	Highway crossing at mouth, 1½ miles northeast of Wedderburn.	12.1
Jan. 17	....do.....	....do.....	....do.....	42.6

* Intermittent stream; short periods of flow in 1917, 1938, 1943, 1949-54. Flow sinks into ground just below measuring section.

Coastal streams south of Rogue River, Oreg.

Nov. 26	Harris Creek.....	Pacific Ocean....	At highway crossing at mouth, 2 miles northwest of Brookings.	23.4
Jan. 16	....do.....	....do.....	....do.....	67.6
16	Eiler Creek.....	....do.....	Highway crossing at mouth, 1¼ miles northwest of Brookings.	35.1

The following table contains determinations of peak discharge made at crest stage by indirect methods at points other than regular gaging stations in the area covered by this report.

Miscellaneous determinations of peak discharge during water year October 1953 to September 1954

Date	Stream	Tributary to--	Locality	Discharge (cfs)
Dec. 9	Rock Creek.....	Little White Salmon River...	NW¼ sec. 14, T. 3 N., R. 9 E., at crossing of county road, 2 miles south of Willard, Wash.	182
9	Unnamed stream.....	Columbia River...	SE¼ sec. 27, T. 3 N., R. 8 E., at crossing of U. S. Highway 830, ½ mile east of Home Valley, Wash.	40.0
Nov. 22	Lady Creek.....	Zig Zag River....	Mouth, 4 miles east of Rhododendron, Oreg.	221
Dec. 9	....do.....	....do.....	....do.....	163
9	Canyon Creek.....	Washougal River..	SE¼ sec. 4, T. 1 N., R. 5 E., at crossing of State Highway 8B, 8 miles east of Washougal, Wash.	100

Miscellaneous determinations of peak discharge during water year October 1953 to September 1954--Continued

Date	Stream	Tributary to--	Locality	Discharge (cfs)
Jan. 22	Shanghai Creek..	Fifth Plain Creek.	SW¼ sec. 33, T. 3 N., R. 3 E., at crossing of county road, 3¼ miles southeast of Hockinson, Wash.	102
22	Burnt Bridge Creek.	Vancouver Lake..	SW¼ sec. 14, T. 2 N., R. 1 E., at county road crossing, ¾ mile east of U. S. Highway 99, at north city limits of Vancouver, Wash.	88.0
Nov. 23	North and South Creeks.	Middle Fork Willamette River.	Road crossing at mouth, 9 miles northwest of Oakridge, Oreg.	225
23	Wren Creek.....	....do.....	NW¼ sec. 3, T. 20 S., R. 1 E., at highway crossing, 5 miles southeast of Lowell, Oreg.	22.5
22	Prather Creek...	Layng Creek.....	NW¼SW¼ sec. 30, T. 21 S., R. 1 E., at diversion dam, Oreg.	279
22	Hackleman Creek.	Fish Lake.....	Near center of sec. 32, T. 13 S., R. 6 E., at highway crossing, 4½ miles west of Fish Lake, Oreg.	56
Jan. 28	Unnamed stream..	South Santiam River.	At mouth, 0.1 mile east of Cascadia ranger station, Oreg.	71.5
Feb. 12	Mitchell Creek..	Little Luckiamute River.	NW¼ sec. 22, T. 8 S., R. 6 W., at road crossing, 1 mile east of Fall City, Oreg.	302
12	Unnamed stream..	South Yamhill River.	NW¼ sec. 19, T. 6 S., R. 6 W., at road crossing 3 miles south of Willamina, Oreg.	186
Dec. 9	Panther Creek...	North Yamhill River.	S½ sec. 18, T. 3 S., R. 5 W., below Carlton water-supply dam, 6.7 miles southwest of Pike, Oreg.	179
9	Beaver Creek....	Gales Creek.....	Sec. 10, T. 2 N., R. 5 W., at road crossing, 7 miles northwest of Gales Creek, Oreg.	229
Feb. 12	....do.....	....do.....	....do.....	134
12	Unnamed stream..	....do.....	SE¼ sec. 26, T. 2 N., R. 5 W., at highway crossing, 4.3 miles west of Gales Creek, Oreg.	116
Jan. 22	....do.....	Willamette River.	SE¼ sec. 13, T. 1 N., R. 1 W. at road crossing, in Portland, Oreg.	223
22	....do.....	East Fork Lewis River...	SE¼ sec. 5, T. 4 N., R. 1 E., at crossing of U. S. Highway 99, 3¾ miles southeast of Woodland, Wash.	44.8
Dec. 9	....do.....	Columbia River..	SW¼ sec. 19, T. 7 N., R. 1 W., at old highway crossing at Carrolls, Wash.	80.4
9	Gnat Creek.....	....do.....	W½ sec. 14, T. 8 N., R. 7 W., 3½ miles east of Knappa, Oreg.	1,000
9	Mill Creek.....	Cowlitz River...	SE¼ sec. 8, T. 12 N., R. 7 E., at crossing of State Highway 5, at Randle, Wash.	105
9	Nineteen Creek..	Tilton River....	SW¼ sec. 19, T. 13 N., R. 5 E., at crossing of State Highway 5, 3½ miles northeast of Morton, Wash.	2,340
9	Unnamed stream..	Olequa Creek....	NW¼ sec. 8, T. 11 N., R. 2 W., at county road crossing, 2½ miles south of Winlock, Wash.	19.8
9	....do.....	Toutle River....	NW¼ sec. 30, T. 10 N., R, 1 W., at Tower Road crossing, 4 miles northeast of Castle Rock, Wash.	62.2
9	Risk Creek.....	Brooks Slough...	NW¼ sec. 23, T. 9 N., R. 6 W., at crossing of U. S. Highway 830, 3 miles southeast of Skamokawa, Wash.	72.0
9	North Fork Necanicum River.	Necanicum River.	Above fish hatchery, 2 miles west of Necanicum, Oreg.	656
Jan. 22	Asbury Creek....	Pacific Ocean...	Mouth, 5½ miles south of Cannon Beach, Oreg.	206
(a)	Unnamed stream..	Tillamook Bay...	Road crossing at north edge of Bay City, Oreg.	112
Nov. 22	Alder Brook.....	Salmon River....	At mouth, 1.5 miles northeast of Rose Lodge, Oreg.	66.2
Dec. 19	....do.....	....do.....	....do.....	82.3
Nov. 22	Unnamed stream..	South Umpqua River.	NE¼SW¼ sec. 3, T. 22 S., R. 6 W., 4 miles northwest of Roseburg, Oreg.	108
Dec. 6	....do.....	....do.....	....do.....	61
(b)	....do.....	....do.....	....do.....	78
Mar. 9	Gettys Creek....	Catching Creek..	SE¼SW¼ sec. 35, T. 29 S., R. 13 W., at road crossing, 5 miles southwest of Myrtle Point, Oreg.	117
Jan. 16	Griffin Creek..	Bear Creek.....	On line between secs. 14 and 15, T. 38 S., R. 2 W., 4 miles southwest of Medford, Oreg.	72.5
27	....do.....	....do.....	....do.....	117
Nov. 23	Murderer Creek..	Riese Creek.....	Mouth, 8 miles south of Trail, Oreg.	182

a Sometime during period Jan. 5-13.
b Sometime during period Dec. 17 to Apr. 30.

Miscellaneous determinations of peak discharge during water year October 1953 to September 1954--Continued

Date	Stream	Tributary to--	Locality	Discharge (cfs)
Jan. 27	Butcher Knife Creek.	Slate Creek....	NE¼ sec. 19, T. 37 S., R. 7 W., 2½ miles northeast of Wonder, Oreg.	365
15	Round Prairie Creek.	....do.....	Highway crossing at mouth, 2 miles west of Wilderville, Oreg.	183
27	....do.....	....do.....	....do.....	306
(c)	....do.....	....do.....	....do.....	65.4
Nov. 22	Unnamed stream..	Rogue River....	Highway crossing at mouth, 1½ miles northeast of Wedderburn, Oreg.	255
22	Eiler Creek.....	Pacific Ocean..	Highway crossing at mouth, 1¼ miles northwest of Brookings, Oreg.	178

c Sometime during period Feb. 10 to Apr. 28.

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